Digest of criticisms on the United States pharmacopoeia, seventh decennial revision, 1890 / published by The Committee of Revision and Publication of the Pharmacopoeia of the United States of America.

Contributors

Committee of Revision and Publication of the Pharmacopoeia of the United States of America.

Publication/Creation

New York : The Committee, 1897-1898.

Persistent URL

https://wellcomecollection.org/works/npsgc85q

DIGEST OF CRITICISMS

ON THE

United States Pharmacopœia:

SEVENTH DECENNIAL REVISION (1890).

PUBLISHED BY

THE COMMITTEE OF REVISION AND PUBLICATION

OF THE

PHARMACOPŒIA OF THE UNITED STATES OF AMERICA

(1890–1900).

PART II.

NEW YORK.
1898.

his Pamphlet is not for sale. See Notice inside of cover.]

NOTICE.

1. A copy of this Digest will be mailed to all incorporated Medical and Pharmaceutical Societies, Associations, Colleges, etc., which were represented by Delegates at the Seventh Decennial Convention for Revising the Pharmacopœia held at Washington in 1890, and to any others who may forward a request for a copy to the Chairman of the Committee.

2. Additional copies may be obtained by any of these bodies, for the use of any Committee on Pharmacopœia or for other purposes, by forwarding the amount of postage, which is 6 cents per copy.

3, Each member of the Committee of Revision will receive five copies, and such additional number as may be necessary.

4. Copies may be sent, prepaid, to such individuals as are known to be engaged or interested in pharmacopœial work.

5. Copies sent to all other persons, at their own request, will *not* be sent carriage free. The amount of postage (6 cents) must accompany the request.

6. Every recipient of this pamphlet is requested to send to the Chairman of the Committee of Revision the titles of any publications which may be known to him to contain valuable and positive contributions toward the next revision of the U. S. Pharmacopœia, and which have not already been abstracted for this part of the Digest.

WICKERSHAM PRESS,
LANCASTER, PA.

PREFACE.

THE first part of this Digest was intended to contain abstracts from all accessible sources up to the end of June, 1896. The present continuation is designed to bring the record down to the end of December, 1897. Like the preceding, this second part has been compiled by Mr. Hans M. Wilder of Philadelphia, and was passed through the press by him and the undersigned conjointly.

As is natural in a work of this kind, quite a number of matters that had appeared in the literature up to July 1st, 1896, and deserved recording, had been overlooked in the preparation of Part I, and the same shortcoming will probably be discovered to attach to the present part. If those who make use of the publication will point out any omissions or defects to the undersigned, the necessary corrections will be made in a subsequent issue.

In a number of places there will be found remarks distinguished at the end by the words "(Carl E. Smith, *see Preface*)." These remarks or notes are here published for the first time. They relate chiefly to methods of testing and assaying, and are the result of facilities and opportunities afforded to Mr. Smith (now Professor of Pharmacy in the Medico-Chirurgical College of Philadelphia) in the laboratories of Messrs. E. R. Squibb & Sons. Some of these notes are merely opinions of the compiler, others record the opinions of others, while the larger portion represent experimental work performed either at the instance of the firm, or independently and participated in by Messrs. C. O. Topping, Ph. C., C. de Jonge, Ph. C., and Carl E. Smith, Ph. G.

CHARLES RICE,
Chairman of the Committee of Revision and Publication of the Pharmacopœia of the United States of America.

October 25, 1898.

EXPLANATION OF ABBREVIATIONS.

Am. Dr.—American Druggist and Pharmaceutical Record. New York.

A. J. Ph.—American Journal of Pharmacy. Philadelphia.

A. Ph. A. Comm.—Committee on the Revision of the U. S. P., of the American Pharmaceutical Association. According to the "Proceedings."

Apoth.—The Apothecary. Chicago.

Apoth.-Zeit.—Apotheker-Zeitung. Berlin.

Arch. Ph.—Archiv der Pharmacie. Berlin.

Ber. Berl. Pharm. Ges.—Berichte der Pharmaceutischen Gesellschaft. Berlin.

Boll. Farm.—Bolletino farmaceutico. Milan.

Bull. Kew.—Bulletin of the Kew Gardens. London.

Bull. Ph.—Bulletin of Pharmacy. Detroit.

Bull. Soc. Chim.—Bulletin de la Société chimique de Paris. Paris.

Ch. & D.—Chemist and Druggist. London.

Ch. News.—Chemical News. London.

Ch. Ztg.—Chemiker Zeitung. Köthen.

Dr. Circ.—Druggists' Circular. New York.

Ephem.—An Ephemeris of Materia Medica, Pharmacy, Therapeutics, and Collateral Information. (By E. R., E. H., and C. F. Squibb.) Brooklyn.

Farm. Tidskr.—Farmaceutisk Tidskrift. Stockholm.

Gazz. Chim.—Gazzetta Chimica Italiana. Palermo.

Helfenberg. Ann.—Helfenberger Annalen. Berlin.

J. Am. Ch. Soc.—Journal of the American Chemical Society. Easton, Pa.

J. Chem. Soc.—Journal of the Chemical Society of London. London.

J. de Ph. d'Anvers.—Journal de Pharmacie publié par la Société de Pharmacie d'Anvers. Antwerp.

J. de Ph. et Ch.—Journal de Pharmacie et de Chimie. Paris.

Merck's Rep.—Merck's Report. New York.

Mon. de Ph.—Moniteur de Pharmacie. Paris.

Nord. Farm. Tidskr.—Nordisk Farmaceutisk Tidskrift. Copenhagen.

Nouv. Rem.—Nouveaux Remèdes. Paris.

Oest. Zts. Ph.—Zeitschrift des allgemeinen Oesterreichischen Apotheker-Vereins. Vienna.

Orosi.—L'Orosi. Florence.

Ph. Centralh.—Pharmaceutische Centralhalle für Deutschland. Berlin.

Ph. Era.—Pharmaceutical Era. New York.

Ph. J. & Tr.—Pharmaceutical Journal and Transactions. London.

Ph. Post.—Pharmaceutische Post. Vienna.

Ph. Rdsch., N. Y.—Pharmaceutische Rundschau. New York.

Ph. Rdsch., Prag.—Pharmaceutische Rundschau. Prague.

Ph. Rec.—Pharmaceutical Record. New York.

Ph. Rev.—Pharmaceutical Review. Milwaukee.

Ph. Weekblad.—Pharmaceutisch Weekblad. Amsterdam.

Ph. Zts. Russl.—Pharmaceutische Zeitschrift für Russland. St. Petersburg.

Ph. Ztg.—Pharmaceutische Zeitung. Berlin.

Proc.—Proceedings of the American Pharmaceutical Association. Philadelphia (up to 1897). Baltimore (from 1897).

Schimmel & Co.—Bericht von Schimmel & Co. in Leipzig (Fritzsche Bros.). Semi-annual.

Suedd. Ap. Ztg —Süddeutsche Apotheker-Zeitung. Stuttgart.

Schweiz. Woch.—Schweizerische Wochenschrift für Chemie und Pharmacie. Zurich.

Un. Ph.—L'Union pharmaceutique. Paris.

W. Dr.—Western Druggist. Chicago.

Zeits. Anal. Ch.—Zeitschrift für analytische Chemie. Wiesbaden.

Zeits. Angew. Ch.—Zeitschrift für angewandte Chemie. Berlin.

Zeits. Anorg. Chem.—Zeitschrift für anorganische Chemie. Hamburg.

NOTICE REGARDING "SELECT TABLES."

Special attention is called to the fact that the Committee of Revision has issued a separate edition of the most useful Tables appended to the U. S. Pharmacopœia of 1890. These tables are printed on *one* side of the paper only, and are intended to be mounted on cardboard, to be hung up for reference in the laboratory or at the dispensing counter. They were issued under the title

"SELECT TABLES
FROM THE
UNITED STATES PHARMACOPŒIA (1890),"

and may be obtained, for 25 cents per copy, from P. Blakiston, Son & Co., 1012 Walnut St., Philadelphia.

DIGEST OF CRITICISMS

ON THE

UNITED STATES PHARMACOPŒIA

SEVENTH DECENNIAL REVISION (1890).

General Remarks.

Acetracts. Name given by Remington to extracts made with acetic acid as a menstrum. See under "Extracta." (A. Jl. Ph. 97, 121. Proc. 97, 687.)

Alcoholometers. Oldberg calls attention to the fact the hydrometers used by our Customs and Internal Revenue officers are made in sets of five each, and are not the alcoholometers formerly employed by said officers. (Bull. Ph. 96, 198, etc.)

Alkaloids. Chloroformic Emulsions. Platt suggests an apparatus for facilitating the separation of the annoying chloroformic emulsions. This consists of a filter tube, containing a firm packing of ether-washed absorbent cotton, through which the emulsion is filtered by means of filter-pump suction. (Ph. Era. 97, xvii, 392. Proc. 97, 700.)

Color Reactions. That color reactions give not always absolutely reliable indications is proved by Schaer, who reports on some constituents of cinchona which give reactions not to be distinguished from some of those considered peculiar to digitalin. (Ch. Ztg. 96, 642. Ph. Ztg. 96, 721.)——See also Beisser. (Arch. d. Ph. 97, No. 2. Ph. Ztg. 97, 241.)——And Dragendorff. (Ph. Centralh. 96, 349 and 379.)

Isolation. Kippenberger makes use of a solution of iodine in an excess of potassium iodide, which precipitates the alkaloids and some of the indifferent substances. This precipitate is treated with acetone, which, besides alkaloids, dissolves only the peptones; after alkalinization, chloroform takes up the alkaloids. (Ap. Ztg. 97, 468.)

Localization. Sauvan. (Rép. de Ph. 95, 529; 96, No. 2. Ph. Ztg. 96, 750. Ph. Jl. 96, Aug., 177. Proc. 97, 474.)

Ammonium Vanadate. Johannson recommends a solution of 1 Gm. of ammonium vanadate in 100 Cc. of concentrated sulphuric acid as a distinguishing test. (Ph. Zts. Russl. 96, No. 21. Ph. Centralh. 96, 819. Merck's Rep. 96, 635.)

Sodium Vanadate. Jawarowski uses a solution of sodium vanadate, containing acetic acid. The addition of a copper salt much increases its sensitiveness. Dissolve 0.3 Gm. of sodium vanadate in 10 Cc. of water, and, after cooling, add a solution of 0.3 Gm. of cupric sulphate in 10 Cc. of water, finally add a few drops of acetic acid to clear. Filter. He divides the alkaloids into three groups: 1. Alkaloids, precipitable from solutions containing $\frac{1}{100}$ p. c. 2. Those precipitable from solutions containing not less than $\frac{1}{10}$ p. c. 3. Those which are precipitated only from concentrated solutions, or not at all. (Ph. Zts. Russl. 96, 326. Ph. Rev. 96, 185, A. Jl. Ph. 96, 452. Proc. 97, 701.)

Potassium-bismuth-iodide. Dissolve 80 Gm. of subnitrate of bismuth in 200 Gm. of nitric acid (1.18), and pour the solution into a concentrated aqueous solution of 252 Gm. of potassium iodide. Allow the potassium nitrate to crystallize out, and dilute the clear filtrate with water to one liter. Jahns. (This is Kraut's modification of Dragendorff's test.) (Arch. d. Ph. ccxxxv. 97, 151. Proc. 97, 699.)

Potassium-cadmium-iodide. (Marmé's reagent.) Five Gm. of cadmium iodide and 10 Gm. of potassium iodide dissolved in water to make 100 Cc. Verven states the sensibility as follows: Atropine, 1:1,600; cocaine hydrochlorate, 1:16,900; veratrine, 1:5,400; strychnine, 1:19,200; brucine, 1:14,600; quinine, 1:32,300; conchinine (quinidine), 1:18,400; aconitine, 1:13,700. Annales de Ph. 97, 145. Ch. Ztg. 97, 116. Dr. Circ. 97, 278.)

Aluminum Utensils. Robertson and Richards state that the greatest care should be taken to prevent any aluminum utensils or weights being brought into contact with mercury in any shape or form. It appears that aluminum first forms an amalgam with the mercury, which reacts with the moisture always present, forming alumina and liberating the mercury to form more amalgam. A weighed strip of aluminum, left in contact with powdered mercuric chloride for two minutes, then washed and roughly dried, after one hour had lost more than 8 p. c. of its original weight. (Ch. News, lxxiv. 96, 30. Ph. Jl. 96, July, 40, 62. Proc. 97, 609. Merck's Rep. 96, 568.)

Ammonium Molybdate T. S. Stable solution. Meillère recommends a mixture of 200 Cc. of ammonium molybdate solution (15:-

100), 20 Cc. of 50-p. c. sulphuric acid, and 30 Cc. of 25-p. c. nitric acid. (Jl. de Ph. & Ch. 96, 61. Ph. Ztg. 96, 89 and 342. Merck's Rep. 96, 168.)

Analysis. Alcohol as source of error. Caspari found that alcohol appeared to influence the color produced by acids and alkalies with different indicators in the titration of alkaloidal residues; alcohol appearing to play the part of an acid toward hæmatoxylin, cochineal, Brazil wood, lacmoid and litmus; and the part of an alkali towards methyl-orange and tropæolin OO. On the other hand, absolute alcohol appears alkaline towards all of the above indicators. (A. Jl. Ph. 96, 473. Dr. Circ. 96, 287.)——Kebler and La Wall show that Caspari's statement is only partially true. Commercial alcohol does exert a disturbing influence in volumetric analysis with all of the indicators employed. They found that really pure alcohol does not vitiate the accuracy except in the case of methyl-orange and tropæolin OO. (A. Jl. Ph. 96, 667. Proc. 97, 659.)——Caspari replies, that, having carried out a series of titrations with strictly pure alcohol, using hæmatoxylin, Brazil wood and cochineal as indicators, he can corroborate the foregoing statement. He asks further, this pertinent question: Has strictly pure alcohol always been used in volumetric work, and have analysts been in the habit of preparing it specially for such work, since the market does not provide the article? (A. Jl. Ph. 97, 42. Proc. 97, 659.)——Respecting the alkalinity of absolute alcohol (see above), Kebler remarks that the absolute alcohol, as purchased, is almost always alkaline; possibly through some alkali carried over mechanically during distillation. (A. Jl. Ph. 96, 521.)

Colorimetric Tests. Folkard states that analytical processes, depending on colorimetric comparisons (with solutions of known strength) are capable of offering results of far greater accuracy than has generally been supposed. It is quite possible to work colorimetrically to within 1 p. c. of the quantity present. (Ch. News 97, Febr. 73. Proc. 97, 583.)——Lupp places the beaker, &c., containing the liquid, in any convenient way over a mirror; the coloration and shade is thus better observed. (W. Dr. 97, 1, Merck's Rep. 97, 252.)

Action of Mucilage. Brown points out, what is often overlooked, that mucilage prevents, or at least retards chemical action (precipitation, &c.). (Ph. Jl. 97, . . . Dr. Circ. 97, 45.)

Platinum, action of Phosphates. Strattan found that when phosphates are fused on platinum, the metal itself is also fused or otherwise attacked. (Ch. & Dr. 97, Aug. 291.)

Purity. Kebler emphasizes what has so often been stated before, that in analytical work nothing must be taken for granted as regards the purity of any of the substances entering into an investigation. (A. Jl. Ph. 96, 675.)

Antiseptics. Comparative value. Gawalowski. (Ph. Post 97, 363. Ph. Rev. 97, 227.)——See also Bokorny. (Ph. Ztg. 97, 547. Zts. Angew. Ch. 97, No. ii.)

Atomic Weights. Table of recalculated weights, brought down to January 1, 1897. (Jl. Ch. Soc. 97, 359. A. Jl. Ph. 97, 321.)

Chemicals. Fankhauser gives a list of chemicals which effloresce; deliquesce; are affected by light; are inflammable; easily decomposed by water; and those which are generally unstable. (Merck's Rep. 97, 74.)

Color Reactions and Spectroscopic Actions of organic substances. Dragendorff. (Ph. Centralh. 1896.) Esters of guaiacol, naphtol, &c., p. 272. Amido-compounds, p. 299. Glucosides and bitter substances, p. 349. Alkaloids, p. 379.

Corks. Oxalic Acid. Wentzky reports that he has found repeatedly an appreciable quantity of oxalic acid on new corks. This acid is used to free the corks from the tannate of iron, formed by treating them with ferrous sulphate for the purpose of removing excess of tannin from their surface. (Ap. Ztg. 97, 532. Ph. Ztg. 97, 604. Dr. Circ. 97, 278.)

"*C. P.*" La Wall found that articles of the American commerce marked "C. P." by the manufacturer, are generally true to the name, provided that "C. P." be not meant to indicate "absolute purity from all foreign compounds," but merely a "very high" degree of purity. He also points out that the U. S. P. is at times somewhat inconsistent. It allows, for instance, a limit of chlorides and sulphates in sodium carbonate and sodium bicarbonate, while it demands absolute freedom from chlorides and sulphates in benzoate, salicylate and other salts of sodium, for no apparent useful reason. (A. Jl. Ph. 97, 352.)

Diastatic Substances. Testing. Takamine. (A. Jl. Ph. 98, 141.)

Digestive Ferments. Action of Alcohol. Trypsin is soluble in 55-p. c. alcoholic liquids; and amylolytic ferment gives a clear solution with 65-p. c. alcohol. Dastre. (Comptes Rend. 95 . . . Ap. Ztg. 96, 107. Ch. Dr. 96, May, 649.)——See also under "Pepsinum."

Diphenylamine T. S. Stable solution. Guthmann places 0.1 Gm. of diphenylamine in a flask, adds 50 Cc. of dilute sulphuric acid (20-p. c.), and heats the flask in a water-bath at 50° to 55° C. The diphenylamine melts, and dissolves at once in the acid. Remove from the heat, shake well, and after cooling add 50 Cc. of glycerin. Keep in a dark place. (Jl. Ch. Ind. 97, . . . Dr. Circ. 97, 222.)

Disinfection. In order to disinfect rooms or substances which will be ruined by a hot, damp temperature of 115° C., Brochet recommends to pass hot air over finely powdered paraformaldehyde, which is thereby broken up into formaldehyde. (Comptes Rend. cxxii. 201. Merck's Rep. 97, 338.)

Dropping. Payne has investigated the unreliability of "drops." He shows how easy it is to obtain, for instance, from 33 to 120 drops of water from one fluidrachm under ordinary circumstances. (Dr. Circ. 97, 121. Ch. Dr. 97, June, 885. Proc. 97, 372.)

Drugs. P. c. of ash, moisture and active principles. La Wall. (A. Jl. Ph. 97, 137.)

Active Principles. Localization. Sauvan. (Rép. de Ph. 95, 529. 96, No. 2. Ph. Ztg. 96, 750. Ph. Jl. 96, Aug. 177. Proc. 97, 474.)

Manuring. Effects. Hooper states that manuring is of great importance in the cultivation of drugs, increasing the p. c. of the active principles. He instances cinchona, jalap, tobacco, sugar cane, tea, coffee. (Ph. Jl. 96, July, 21. A. Jl. Ph. 96, 537.)

Drying. Wiegand calls attention to the use of freshly burnt lime in a suitable container, for drying drugs, preparatory to powdering. (A. Jl. Ph. 96, 666.)——Chemical changes, due to the method of drying. Dieterich. (Ber. d. D. Ph. Ges. 96, 335. Ph. Ztg. 96, 829. Merck's Rep. 97, 463 & 603. Ph. Jl. 97, June, 529.)

Assay. Nagelvoort maintains that not only the preparations, but also the crude drugs should be assayed. (Apothecary 97, 66. Merck's Rep. 97, 48.)

Quality. Dieterich says that the official description of a drug serves merely for identification, but is not of much use for ascertaining the quality. It will be necessary to give the minimum yield of dry extract and p. c. of active principles. For ascertaining the dry extracts he macerates, or digests, 20 Gm. of the crude drug with 200 Cc. of the appropriate menstruum for 24 hours. Run the tincture through a dry filter, evaporate 20 Cc. of the filtrate (2 Gm. of the drug) to dryness in a tared capsule at 100° C. and weigh. Some unexpected differences will often be observed. (Ph. Ztg. 96, 351.)

Insects, attacking drugs. Sayre. (Dr. Circ. 96, 128.)

Drying. Kral recommends a mixture of freshly burnt lime and calcined chloride of calcium as keeping better than chloride of calcium alone. He also substitutes bisulphate of potassium for sulphuric acid. (Ph. Centralh. 96, 105.)

Temperature. Dott calls attention to the fact (often overlooked) that the temperature of a water-bath is not a constant, but varies according to circumstances. The larger the bath, the lower the temperature, as the heating surface does not increase in anything like the ratio of the cubic space. A bath with almost no ventilation will attain a higher temperature than one which is suitably ventilated. With only a little water in the bath, the temperature will not rise so high as when the bath is well filled with boiling water. A substance which does not readily part with its water a few degrees below 100° C. should be directed to be dried in an air-bath, or otherwise at a temperature over 100° C. (Ph. Jl. 97, Jan'y, 21. Proc. 97, 700.)——Farr and Wright concur with Dott, adding that drying in a round-bottomed dish takes much longer time than when a flat-bottomed dish is used. (Ibid. 97, Mrch. 203.)

Fats. Process of rancidification. Spaeth. (Zts. Analyt. Ch. 96, . . . Ch. News 96, Oct. 197. Proc. 97, 672.)

List of various animal fats, formerly used in medicine, with their properties. Amthor and Zink. (Ap. Ztg. 97, 37.)

Reactions with sugar and concentrated sulphuric acid. Vreven. See under "Olea Pinguia."

Filtering Paper. Testing: 1. Distilled water, passed through it, should not leave a residue on evaporation. (Absence of soluble salts.) 2. Ammonium bromide should not color the paper brown. (absence of chlorine?) 3. A 10–p. c. solution of hydrochloric acid should not be colored yellow after passing through the paper. (Absence of iron.) 4. After passing dilute acids through the paper, and then saturating them with alkaline carbonates, no milkiness should appear. (Absence of alkaline earths.) 5. After passing dilute alkalies through the paper, and then neutralizing with an acid, no milkiness should appear. (Absence of fatty matter.) (Pap. Ztg. 96. . . . Dr. Circ. 96, 215.)

Funnels. Sackett has devised a substitute for a ribbed funnel. He bends one end of a number of glass rods, one-sixteenth of an inch in diameter, in the form of a small hook. A sufficient number of these are hung over the funnel, and the filter placed inside. (Merck's Rep. 97, 120.)

Glass. Alkalinity. Kubel tests for alkalinity by filling the containers with distilled water, to which a few drops of phenolphthalein have been added. No red coloration should be shown within a certain short time. (Ap. Ztg. 95, 407. Ph. Ztg. 96, 36.)

Chemicals. Glass, which is easily attacked by chemicals, can be made more resistant by exposing it for 30 minutes to live steam, which apparently converts the surface of the glass into a kind of varnish, which acts as a protection. DeKoninck. (Ch. Ztg. 96, 129. Ph. Ztg. 97, 42.)

Indicators. See "*Neutrality of Salts*" and also "*Analysis.* Alcohol as source of error."

Litmus Paper. Ronde makes litmus paper of a sensitiveness of 1:150,000. He covers the commercial cubes with 12 to 15 times their bulk of water, and after one day, treats the deep-blue mixture with sulphuric acid until light-red. After heating on a steam-bath for 15 minutes, add dilute sulphuric acid until filtering paper, dipped into it, becomes reddish-violet. Now strain, and adjust by addition of dilute sulphuric acid, or powdered litmus, until the paper gets the proper shade. A strip of red (or blue) litmus paper, dropped into one liter of water, containing 10 drops of ammonia (or 3 drops of hydrochloric acid) should show reaction after 2 minutes rotation (alkaline or acid). Ph. Ztg. 96, 736. Ch. News, 97. Jan'y . . . Proc. 97, 408.)

Preservation. The blue paper is best kept in boxes over ammonium carbonate; and the red paper over crystallized sodium acetate, upon which a few drops of acetic acid have been dropped. (Merck's Rep. 97, 47.)

Melting Points. Nagelvoort points out that melting points are rather elastic, differing with the different observers, and also according to whether the melting is done rapidly or gradually. He gives a list of discrepancies. (Apothecary 97, . . . Dr. Circ. 97, 130. Ch. & Dr. 97, Aug. 235. Merck's Rep. 97, 341.)——It would be well if writers in all cases specify the quantity of the substance used in their experiments; the manner of working; the condition of the substance; and the time consumed for complete fusion. (Ch. & Dr. 97, Aug. 235.)——Van Ledden–Hulsebosch recommends to obtain the melting point of small quantities, by placing them in a flat dish (watchglass shape) of aluminum foil, which is allowed to float on water, warmed gently. A sensitive thermometer, with a large mercury bulb, is dipped into the upper layer of the water. (Ph. Centralh. 96, 231.)

Metals. Sensitiveness of reactions. Neumann (Ph. Ztg. 97, 123. Ph. Era 97, xviii. 132).

Microscopy. Drugs. Dohme (Dr. Circ. 1896 and 1897. See list in Proc. 97, 471).

Powders. General principles. Kræmer (Proc. 97, 211. A. Jl. Ph. 97, 523. Merck's Rep. 97, 665. Dr. Circ. 97, 336).——Powdered drugs. Nelson (Merck's Rep. 1897. See list in Proc. 97, 471).——Rusby (Dr. Circ. 97, 185).——Pfister. Relies upon the presence of pollen. (Ch. & Dr. 97, May 848. Ph. Jl. 97, May 467.)

Leaves and herbs. Virchow calls attention to the value of the microsopic structure of the teeth and apices of the leaves, and also the venation. (Arch. d. Ph. ccxxxiv. 92, 154. Merck's Rep. 97, 306.)

Mydriatic Group. The names of daturine and duboisine should be given up; the relationship of atropine and hyoscyamine can hardly be said to be clearly understood; hyoscine is like atropine in its action; scopolamine can hardly lay claim to being a new base; duboisine is merely a mixture of atropine with more or less piturine; daturine is atropine; hyoscyamine can not be distinguished from atropine; commercial hyoscine is largely made up of atropine; scopolamine may be merely impure hyoscyamine or atropine. Sharp (Ph. Jl. 97, Aug. 160. Ch. & Dr. 97, Aug. 292. A. Jl. Ph. 97, 463. Ph. Era 97, xviii. 58).

Neutrality of Salts. Lescœurs observes that the divergence of opinion respecting the neutrality of salts is due to a misinterpretation of the indications furnished by litmus, which is reddened by many neutral salts. (Zinc sulphate, aluminum sulphate, &c.) The same trouble is found with phenolphthalein, which is colorless, but turns red with alkalies; it does not combine with insoluble oxides. It indicates, not the passage from acid to alkali, but the passage from neutrality to alkalinity. Helianthine (Orange Poirier III) on the other hand, shows the passage from acidity to neutrality. Combining these three facts, the condition of neutrality obtains great precision. The red of phenolphthalein and the blue of litmus indicate the presence of free alkali, and the pink of helianthine shows free acid. The term "neutral" is reserved for the condition of a medium in which both helianthin and phenolphthalein remain colorless, while litmus would be red. (Montreal Ph. Jl. 97, . . . W. Dr. 97, 264. Proc. 97, 583.)

Nitrites. Riegler recommends naphtionic acid and ammonia, which in the presence of nitrous acid show a distinct rose color. (Zts. Anal. Ch. 96, 6. Ch. News 97, Febr. 98. Ph. Ztg. 97, 157.) He has since found that a mixture of naphtionic acid and beta-naphtol is more sensitive, and can be kept indefinitely. About 0.02 to 0.03 Gm. of the reagent is added to 15 Cc. of the suspected solution, after which 2 or 3 drops of concentrated hydrochloric acid are added. After vigorous shaking for one minute, allow one Cc. of strong ammonia to run down the sides of the inclined tube. A red ring at the line of contact indicates nitrous acid. (Ph. Centralh. 97, 13. Ph. Rev. 97, 138. Proc. 97, 587.)——Pichard calls attention to the extreme sensitiveness of the color reaction with brucine. To one drop of the nitrite solution, mixed with one drop of hydrochloric acid, add a small particle of brucine; within about five minutes a coloration from vermillion red to light-yellow will be noticed. In the presence of sulphites and hyposulphites, it is a more sensitive test than those of Griess, Tromsdorff and Piccini. (Comptes Rend. cxxiii, 590. Ph. Ztg. 97, 389. Ph. Jl. 96, Oct. 378. Proc. 97, 718.)

——Schuyten uses antipyrine. Mix 5 Cc. of a 1-p. c. solution of antipyrine in 10-p. c. acetic acid with 5 Cc. of the suspected liquid, when a green coloration will appear within one minute (shows 1:20,000). Ferric salts destroy the coloration, sulphuric and hydrochloric acid turn it yellow. (Ph. Ztg. 96, 705. Ch. Ztg. 96, 722.)

Nomenclature. Hydrochlorate *vs.* Hydrochloride. Symposium of opinions by Bartley, Caspari, Jr., Dohme, Greene, Lessing, Martindale, Norton, Oldberg, Prescott, Remington, Remsen, Rice, Rusby, Sayre, Shute, Simon, Stevens, Thorne. (Merck's Rep. 97, 365, 426, 492.)

Botanical. Rusby states that the U. S. P. has to follow convenience, established custom and considerations of safety (see U. S. P. p. xxv, § 7). Although the Pharmacopœia is neither a chemical nor a botanical authority, the "titles" are its own property, and it has decided on what lines to form them. (Merck's Rep. 97, 398.)——Parenthesis. Rusby states why and when a parenthesis should be used in botanical nomenclature. (Am. Dr. 97, xxx. 67).——Rules, given by Engler (followed at the Botanical Museum of Berlin). (See Ph. Ztg. 97, 680.)

Percolation. Low temperature. DeForrest Smith has investigated the effect of low temperatures upon the results of percolation, and finds that the cold percolation process offers no advantage over the usual percolation at the ordinary temperature. The cold process generally greatly lessens the p. c. of extractive, and tends to render the product lighter in color, less dense, and of a clearer and more attractive appearance. The yield of alkaloid is about the same. (Merck's Rep. 97, 540. Proc. 97, 245.)

Influence of different temperatures. Norris (Dr. Circ. 97, 213).

Repercolation. Sayre (Dr. Circ. 97, 213.)

Incomplete percolation. The name given to percolation which is stopped when an amount of percolate has been received equal to 75 p. c. of the weight of the drug. The assumption is, that the first 75 p. c. contain at least 75 p. c. of the soluble and desirable principles of the drug, and that the wastage of alcohol (in order to obtain the remainder of the less soluble principles) is not balanced by the value of this remainder. It might be expedient to ascertain the usefulness of this incomplete percolation for the preparation of 50-p. c. tinctures. Mathias (Dr. Circ. 97, 213.) ——Anent of this proposition, Williams calls attention to the often overlooked fact, that there is no definite relationship between yield of extractive and active principle in successive portions of percolate. (Dr. Circ. 97, 253.)

Quantities. In many cases percolation can be carried on with better results by operating upon large quantities of powder. In percolating 500 Gm. of hydrastis, 8.64 p. c. more extract was obtained than in percolating only 100 Gm. Podophyllum showed a similar increase. Sayre (Dr. Circ. 97, 147.)

Shape of percolator. Sayre prefers a percolator which will give the highest column of powder. (Ibid.)

Recovery of alcohol, In distilling off the residual alcohol from the dregs, a good plan is to mix the dregs with peat (turf) and distil with steam. Peat is a good absorbent of odors. Dietze (Ph. Ztg. 97, 284.)

Potassium-iodide-of-starch Paper. Saturate paper with a paste from 2 Gm. of wheat starch and 100 Cc. of water, to which 0.2 Gm. of potassium iodide is added, then dry. (Ch. Centralbl. 96, 513. Proc. 97, 409.)

Powders. Ruddiman gives a table, showing the result of triturating together organic powders. (Dry; liquid; damp; pasty mass.) (Merck's Rep. 96, 219 and 97, 40.)

Precipitates. Warren communicates an expedient in the estimation of potassium, which may be useful with other minute precipitates. The liquid containing the precipitate is evaporated to a very small bulk, and double the volume of a mixture of equal parts of amylic alcohol and ether added. This addition will immediately render the precipitate dense, which can then be washed with great facility. (Ch. News. 97, May, 255. Proc. 97, 604.)

Preservatives. Martindale discusses the usefulness and application of various preservatives. Alcohol is inhibitory only, but not germicidal; this applies to most of the volatile antiseptics for organic tissues (strong mineral acids; halogens; etc.). Carbolic acid, creosote and weak solutions of corrosive sublimate act probably by coagulating the albuminous substance of the microbes. He mentions also glycerin, acetic acid, sugar, salicylic acid, sulphurous acid, boric acid, camphor water, chloroform, chloral hydrate, cherry-laurel water, formaldehyde, hypophosphorous acid, carbonic acid, benzoic acid, volatile oils, heat and cold. (Ph. Jl. 97, Mrch. 230. Ch. & Dr. 97, Mrch. 418. A. Jl. Ph. 97, 250. Proc. 97, 398.)

Specific Gravity. Dietze has calculated the sp. gr. of the official preparations of the U. S. P. at all temperatures from 10° C. to 30° C. (Ph. Rev. 97, 24. Merck's Rep. 97, 211. Proc. 97, 399.) Also those of P. B. (Ch. & Dr. 97, Aug. 243.), those of Ph. Germ. (D. A.) (Ph. Ztg. 97, 631), and Ronde those of the same pharmacopœia. (Ph. Ztg. 96, 345.)——At 100° C. Evers has taken the sp. gr. of wax, cetaceum, cacao butter, paraffin, suet, lard, purified storax, and petrolatum with an areometer (not by calculation). (Ph. Ztg. 96, 737, and 97, 838).

Starch T. S. Stable. Place 200 Cc. of water in a deep capsule with 5 Cc. of hydrochloric acid (1.124), and bring it to a boil. Remove from the heat, and add 20 Gm. of starch, previously rubbed smooth with a little water. Stir still homogeneous and boil, neutralize with normal soda, and make up to one liter with glycerin. Dahme. (Ch. Ztg. 97, 6. Ph. Ztg. 97, 157. Ph. Jl. 97, Dec. 343.) See also under "Amylum."

Tablets. An improved tablet machine for the prescription counter has been devised by Cornelius. The thickness of the tablets is regulated by a "cam." The tablets are delivered automatically. (Am. Dr. 97, 160. Proc. 97, 447.)——Hints in compressing. (Yearbook of Ph. 96, 311. Proc. 47, 448.)

Turmeric Paper. Wright finds that for detecting small amounts of boric acid, turmeric paper is not as sensitive as it is reputed to be. (Apothecary. 97 . . . Dr. Circ. 97, 50.)

Weight and Volume. Comparative table of the weight and volumes of the pharmacopœial preparations. Caspari. (Merck's Rep. 97, 430.)

Acacia.

Species. Holmes describes four species of acacia trees, and advises the cultivation of Acacia Senegal in Australia, or other suitable colonies. (Ph. Jl. 96, Dec. 509. Proc. 97, 555. Dr. Circ. 97, 71.)

Dextrin. Schroeder's observations appear to disprove the frequent adulterations of the powder with dextrin, inasmuch as he found that nearly all powders produce a marked reduction when subjected to the alkaline cupric tartrate test. That this reduction was not necessarily due to dextrin, he proved by repeating the experiment with pure senegal gum in tears, when, after the heating was prolonged during twenty minutes, a well-defined reduction was produced. The cause of the reduction appears therefore to be due to the preliminary drying. (A. Jl. Ph. 97, 195. Proc. 97, 556.)——The microscope should decide that question rapidly enough, the structure of the individual starch grains not being destroyed by the conversion into dextrin.

Acetanilidum.

Test. Mœrck finds that the isonitril reaction is the most reliable test for the presence of acetanilid in allied synthetic remedies. (A. Jl. Ph. 96, 389. Proc. 97, 725.)

Detection in Phenacetin and Antipyrine. This method is based upon the slight solubility of acetanilid and phenacetin in water, the ready solubility of antipyrine in water, and the insolubility of phenacetin in chloroform, in which acetanilid is soluble. Shake with water, which dissolves the antipyrine, shake the residue with chloroform, which dissolves the acetanilid, and leaves the phenacetin undissolved. Cameron (Am. Dr. 96, xxviii, 274. Proc. 97, 725).—— Acetanilid, when heated with zinc chloride, evolves an aromatic odor; antipyrine an odor resembling that of carbon bisulphide; and phenacetin, acetic acid. (Rep. de Ph. 95, 407. Dr. Circ. 96, 16.)

Isonitril Test. Patch found that the presence of volatile oils hinders the isonitril reaction. He therefore recommends to heat the mixture (or powdered solid) in order to expel the oils. (Merck's Rep. 96, 403. Proc. 97, 726.)

Melting Point. With slow fusion, the melting point is 113° C.; and with rapid fusion, it is 100° C. Nagelvoort (Merck's Rep. 97, 342. Dr. Circ. 97, 130).

Microchemical Detection of acetanilid, exalgin, phenacetin, and methacetin. Schœpp (Ph. Ztg. 97, 106. Ap. Ztg. 97, 246).

(Acetone.)

Identification and Purity. Squibb (Ephemeris 97, 1759. Am. Dr. 97, xxx, 172). Kebler (A. Jl. Ph. 97, 65. Am. Dr. 97, xxx, 173).

Acetum Opii.

Granulated opium should be used. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Acidum Aceticum.

The test for formic and sulphurous acid will not always detect sulphurous acid even when present in considerable quantity. When modified as follows it detects 0.05 per cent. or more: Neutralize 5 Cc. (36 per cent. acid) with 10 Cc. of ammonia water, add 5 Cc. of decinormal silver nitrate and boil 1 or 2 minutes. A dark deposit indicates 0.05 per cent. or more of sulphurous acid, if no other reducing agent is present. If a solution of iodine be added to the acid until it ceases to be decolorized, 0.001 per cent. of sulphurous acid may be detected by the addition of barium chloride. (C. E. Smith, see *Preface.*)

Acidum Arsenosum.

Reactions. Limit of sensibility. Neumann (Ph. Ztg. 97, 123). For the titration with iodine it is preferable to *boil* the mixture of arsenous acid, sodium bicarbonate and water, to insure perfect solution of the acid. To dissolve it with a "gentle heat" is an unnecessary waste of time. (C. E. Smith, see *Preface.*)

Acidum Benzoicum.

Melting Point. With slow heating, it is 120° C.; with rapid heating, it is 117° C. Nagelvoort (Merck's Rep. 97, 342. Dr. Circ. 97, 130).

Acidum Boricum.

Large Scales. Oliveiro states that the brilliant scales, generally regarded as extra pure, are prepared by agglutination of small, tablet-form crystals with the aid of a solution of albumin or gelatin. (Bull. Comm. 96. . . . Ph. Ztg. 96, 89. Dr. Circ. 96, 53.) This can readily be proven by merely heating the acid, when an empyreumatic odor will be noticed.

Chemical Character. In aqueous solution there exists only one boric acid, H_3BO_3, which is formed immediately when its anhydride or partial anhydride is dissolved in water. (Zts. Phys. Ch. xx. 547. Ph. Rev. 96, 276. Proc. 97, 599.)

Volatility. Schneider found that boric acid exhibits an astounding volatility in the cold, when in alcoholic solution. Cover a crystallizing dish, containing an alcoholic solution of boric acid, with a glass plate, and allow it to stand for 24 hours at ordinary temperature, when the lower side of the glass plate will show a white deposit of boric acid. Schneider makes use of this property to prove the presence of the acid in a substance, by treating the latter with alcohol and sulphuric acid in a test tube, closed with a cork, bearing a glass tube bent at right angles. Upon heating, the alcohol vapor carries with it the boric acid, which can be ignited at the extremity of the tube, burning with a green flame. (Sueddeut. Ap. Ztg. 96, 648. Ph. Ztg. 96, 659. Proc. 97, 600. Am. Dr. 97, xxix. 291.)

Volumetric Estimation. Koenig and Spitz have devised a method, which is based on the fact, that free boric acid, in presence of an excess of glycerin, can be exactly titrated by alkali, phenolphthalein being used as indicator. $B_2O_3 + 2NaOH = 2NaBO_2H_2O$. It is, however, necessary that not only the glycerin be in excess, but also that the soda solution be absolutely free from carbonic acid. (Ph. Ztg. 96, 679.)

Titration with caustic alkali in presence of glycerin, as recommended some years ago by Thomson in 1893, is quite satisfactory and very accurate. Pure boric acid may be used to advantage for standardizing volumetric alkali solutions. (C. E. Smith ; see *Preface.*)

Caution. Gorges calls attention to the almost universal presence of boric acid, especially in the vegetable kingdom; and to the fact that alkalies, even if purified by alcohol and baryta, frequently contain boric acid. Venable and Callison found in " C. P." alkalies 0.06 p. c. of boric acid. (Jl. de Ph. & Ch. 96, . . Ph. Ztg. 96, 419.)

Acidum Carbolicum.

Determination of Absolute Phenol. Palmer and Sayre convert the carbolic acid into sulphocarbolic acid, and treat it with barium carbonate in excess. The filtrate is treated with sodium carbonate, when sodium sulphocarbolate is formed, and barium carbonate is precipitated. 1.049 Gm. of barium carbonate corresponds to 1 Gm. of pure carbolic acid. (Dr. Circ. 96, 158. Proc. 97, 665.)

Estimation in Soaps and Disinfectants. Coblentz. (Am. Dr. 96, Sept. 195. Proc. 97, 666.) See also Fresenius and Maker. (Zts. Analyt. Ch. 96, . . . Ch. News, 96, Oct. 197. Proc. 97, 666.)

Acidum Carbolicum Crudum.

The crude carbolic acid of American commerce is imported exclusively from England. This crude acid is described as 60, 70, or 80 degrees, meaning that a certain portion will crystallize at these temperatures. It must, however, be remarked, that the acid furnished now is quite different from that of former times. Formerly, the crude acid was the liquor remaining after the extraction of the phenol, leaving valuable water-insoluble cresols. At present, the latter are carefully removed, leaving scarcely anything but the stinking tars, which are worthless for disinfecting purposes. The modern equivalent for the old "crude carbolic acid" is "crude cresol." (W. Dr. 97, 74. Proc. 97, 865.)

Since the market does not furnish crude acid up to the standard of the Pharmacopœia, it is proposed to lower the standard. Illinois Ph. Rev. Comm. (Ph. Era, 97, xviii. 41.)

Acidum Chromicum.

Test for Sulphuric Acid. Dietze states, that by following the order of the Ph. G. (adding the barium nitrate to the chromic acid and hydrochloric acid), at times a precipitate will be caused (of chromate of barium), which does not disappear on further addition of hydrochloric acid. If, however, the order be reversed, (adding chromic acid at last) the mixture will remain clear in the absence of sulphuric acid. (Ph. Ztg. 97, 346.)

Acidum Citricum.

California. It takes from 4 to 6 weeks to condense the juice from 60 to 70 pounds of lemons into one pound of acid. (A. Jl. Ph. 97, 646.)

Tartaric Acid. Detection. See under "Acidum Tartaricum."

Acidum Gallicum.

Distinction from Tannic Acid. Oliver finds that no precipitate is formed on adding 10 minims of nitric acid to 90 minims of ammonia, containing 1 grain of gallic acid, but the salmon-colored solution was changed to a deep-red.

Tannic acid, treated similarly, showed a precipitate within a short time after the addition of nitric acid. (Ph. Jl. 97, Oct. 315. Dr. Circ. 97, 329. Merck's Rep. 97, 734.)

Acidum Hydrobromicum Dilutum.

Barium. Cowley found a sample containing the equivalent of 4.698 grains of barium to the pint (20 fl. oz.) Ockenden thinks that the barium salt had been added to remove the sulphuric acid present. (Ch. & Dr. 96, May, 665, 757.)

Concentrated Acid. Tyrer found that highly concentrated hydrobromic acid (1.275 and upwards) has an odor similar to sulphurous acid, and, moreover, is liable to become colored. It also attacks the glass of the container rapidly. He thinks that a sp. gr. of 1.250 is the highest practical limit of concentration. (Ph. Jl. 96, Aug. 94. Ch. & Dr. 96, Aug. 194. Proc. 97, 591.)

A test for sulphurous acid should be included; also one for limit of hydrochloric acid. The latter might be estimated by a difference in result of titration with alkali and with silver nitrate. A simpler test would be one based on the relative solubility of bromide and chloride of silver in ammonia water or ammonium carbonate solution. (C. E. Smith, see *Preface.*)

Acidum Hydrochloricum.

Mercury. Italie has repeatedly found mercury in the German crude acid, and explains this occurrence by the presence of mercury in the iron pyrites used in the manufacture of the sulphuric acid employed. (Ph. Weekbl. xxxix. 33. . . . Ph. Ztg. 97, 157. Ph. Rev. 97, 96. Proc. 97, 622.)

Acidum Hydrocyanicum Dilutum.

Test. Deniges employs a mixture of 2 Cc. of ammonia, 1 drop of a 5 to 10–p. c. solution of potassium iodide, 20 Cc. of distilled water, and one drop of a 1.5 to 2–p. c. solution of argentic nitrate. This forms an opalescent liquid, due to the presence of argentic iodide. A few Cc. of the liquid to be examined are placed in a test tube with a little zinc and 15 to 20 drops of sulphuric acid, and a glass rod, moistened with potassa solution, is held in the space over the liquid. Any hydrocyanic acid present will be carried along by the hydrogen liberated, and absorbed by the potassa. If the rod be now dipped into the above mentioned reagent, the suspended argentic iodide is dissolved and the liquid becomes clear. In the presence of sulphides, it is best to first decompose them by mercuric chloride, and filter. (Ph. Ztg. 97, 157. Proc. 97, 603.)

Acidum Hypophosphorosum Dilutum.

Preparation. Tyrer prepares it by careful decomposition of barium hypophosphite with dilute sulphuric acid. It can be made to contain 30 p. c. of real acid (sp. gr. 1.137), and does not deposit on long standing. (Ph. Jl. 96, Aug. 94. Ch. & Dr. 96, Aug. 194. Proc. 97, 599.)

The Pharmacopœia directs "sulphuric acid" for the volumetric estimation with potassium permanganate. The same quantity of *diluted* sulphuric acid is sufficient, and was probably intended. The strong acid is liable to cause partial decomposition of the hypophosphorous acid.——The directions to add decinormal oxalic acid until the "red color" of the solution is discharged, are apt to confuse, as the boiling causes the excess of permanganate to be precipitated as hydrated manganese dioxide, forming a colorless solution containing a flocculent brownish-black precipitate in suspension. The oxalic acid should be added in small quantities at a time, and the mixture boiled after each addition, until the precipitate is completely dissolved. (C. E. Smith, see *Preface.*)

Estimation. Compare "Hypophosphites."

Acidum Lacticum.

Manufacture and Applications. Claflin. (Jl. Ch. Ind. 97 . . . A. Jl. Ph. 97, 599.)

Acidum Oxalicum.

Preservation of Solutions. Fricke preserves the volumetric solution by an addition of 1 Gm. boric acid to the liter. (Ch. Ztg. 97, . . . Dr. Circ. 97, 358.)

Acidum Phosphoricum.

It is not always possible to obtain the acid in the market entirely free from iron, as demanded by the Pharmacopœia. A less rigorous test should therefore be given.——The determination of strength by titration with caustic alkali and phenolphthalein is roughly approximate only, since the red color, which is intended to indicate complete conversion of the acid into di-sodium phosphate (Na_2HPO_4), appears very gradually and begins to be visible some time before formation of di-sodium phosphate is complete. This is in contradiction to the generally accepted statements, that pure di-sodium phosphate is neutral to phenolphthalein; but it has been found that it is not only decidedly alkaline to litmus, but also, though in a less degree, toward phenolphthalein. Purified sodium phosphate was dissolved in distilled water, and enough phosphoric acid added to render the solution slightly acid to phenolphthalein, which left it distinctly alkaline to litmus. The first deposit of granular crystals from this solution was drained as nearly as possible free from mother-liquor by suction with a water pump. A 5-per cent. solution of the salt became distinctly pink on the addition of phenolphthalein, and the same salt washed with distilled water showed still more decided alkalinity. The mother-liquor did not change the color of neutral litmus paper, and was decidedly acid to phenolphthalein. A second crop of crystals from it was colored by the latter indicator only after removing all mother-liquor by washing, but not after merely draining. A third crop showed the same properties as the second. The different fractions of crystals, after washing, required practically the same amount of volumetric acid for neutralization, which was a great deal more than could possibly be explained on the assumption that the alkalinity was due to sodium carbonate.——When concentrated phosphoric acid, free from phosphates, was titrated to the point where the reddish color became distinctly visible, from 1 to 1.5 per cent. less was indicated than by gravimetric estimation as magnesium pyrophosphate, or by titration with uranium solution. By comparing the depth of color given by an equivalent quantity of pure sodium phosphate dissolved in water, on the addition of phenolphthalein, and performing the titration under the same conditions of dilution, etc., placing the end point at the same depth of color, closely approximate results may be obtained after some practice. The uranium method also requires practice and is more tedious, but is capable of greater accuracy. (C. E. Smith, see *Preface.*)

Acidum Salicylicum.

Salol. Dissolve the suspected liquid in a dilute solution of sodium or ammonium carbonate, without applying heat. Pure acid yields a clear solution, while salol, being insoluble, causes turbidity. Extract salol from the turbid solution with ether; shake the separated ethereal solution with half its volume of distilled water, to remove traces of salicylic acid, and after separation evaporate the ethereal solution on a watch-glass at a gentle heat. Dissolve the residue in a few drops of alcohol, and allow to stand to crystallize. Identify by the melting point of 42° to 43° C., while the acid melts at 157° C. Hoffmann (Ph. Rev. 96, 201. Merck's Rep. 96, 449).

Detection in Food and Drink. Free the liquid from alcohol, if present, and extract with ether. Solids to be first extracted with water. Pour the ethereal solution on top of a weak aqueous solution of ferric chloride, and allow it to evaporate spontaneously. A violet color will be produced by as little as $\frac{1}{100}$ Mgm. in 25 Cc. of the original liquid. Van Ledden-Hulsebosch. (Ph. Weekbl. 95 . . . Dr. Circ. 96, 82.)

Acidum Sulphurosum.

Test Paper. Boil 3 Gm. of starch with 100 Cc. of water, and add to the thin paste a solution of potassium iodate in 5 Cc. of water. The slightest trace of sulphurous acid liberates iodine, which turns the paper blue. (Ph. Ztg. 96, 533. Merck's Rep. 96, 486.)

Acidum Tannicum.

Distinction from Gallic Acid. See under "Acidum Gallicum."

Adulteration. Guenther reports adulteration with dextrin, sugar, starch, flour, and in one brand he found 13 to 20 p. c. of sodium chloride. Sulphate of magnesium has also been found. (Ber. d. D. Ph. Ges. 95, 299. Ph. Rev. 96, 18.)

Acidum Tartaricum.

Manufacture. From argols and lees of wine. Helbing. (Jl. Ch. Ind., 96 . . . Ph. Era. 96, 692. Proc. 97, 695.)

Distinction from Citric Acid. Pinerna uses a solution of 0.02 Gm. of beta-naphtol in 1 Cc. of sulphuric acid (1.83). On warming 0.05 Gm. of the acid with 10 to 15 drops of the reagent, tartaric acid produces a blue color, which, under the gradual action of the heat, becomes a pure green. If to the cooled mixture be added 15 to 20 volumes of water, the green color becomes reddish-yellow. Citric acid also produces a blue color, but this color does not become green on further application of heat, and either colorless or slightly yellow on addition of water. All these reactions disappear quickly. (Ann. de Ch. Anal. ii, 66. Ch. Ztg. 97, 34. A. Jl. Ph. 97, 215. Dr. Circ. 97, 134.)

Aconitum.

Ash, Moisture and Active Principle. Percentage. La Wall. (A. Jl. Ph. 97, 139. Proc. 97, 418.)

Extraction Experiments. Farr and Wright, Sayre, Gregory. (Dr. Circ. 97, 120, 121. Proc. 97. 419.)

Histology. Dohme. (Dr. Circ. 97, 149. Merck's Rep. 97, 429. Ph. Jl. 97. Febr. 170, 230.)——Jelliffe. (Dr. Circ. 97, 350.)

Aconitine, Estimation. Valuation of the acetic acid furnished by hydrolysis. Dunstan and Tickle. (Ch. & Dr. 96, Febr. 248, 249. Ph. Jl. 96, Febr. 121.)

Test. Dunstan and Carr state that there is at present no sufficiently specific test for aconitine in small quanities. They found, however, a reaction which may prove of value. Addition of permanganate of potassium solution in very slight excess to a solution of aconitine, or its salts, produces a purple crystalline precipitate. The only alkaloids which give a purple precipitate, are cocaine, hydrastine and papaverine, but these show distinguishing characteristics. (Ph. Jl. 96, Febr. 122.)

Adeps.

Products of Lard. In the American market are found the following products: 1. "Neutral" (or "Kettle") lard. 2. "Leaf" lard; by melting the whole flare with steam, followed by pressure. 3. "Choice kettle-rendered" lard; chiefly from fat from the back of the hog. 4. "Prime steam" lard; from all the fatty parts of the hog. 5. "Butcher's" lard; melted on an open fire. 6. "Off grade" lard; from salt fat. 7. "Dead hog grease;" from diseased hogs. 8. "Brown grease;" from the intestines. 9. "White grease;" from the other parts. 10. "Yellow grease;" from the waste of packing warehouses. 11. "Pig's foot grease;" from glue factories. (Ph. Ztg. 96, 402. Ph. Jl. 97, Oct. 366.)

Hardening. In summer and for warm climates an addition of stearic acid is proposed. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Absorption. 100 parts of lard will take up 15 parts of water; 9.05 of alcohol, 100 parts of glycerin. St. Onge (Merck's Rep. 97, 602).

Specific Gravity. At 100° C., 0.891 to 0.893. Evers (Ph. Ztg. 96, 737; 97, 838).

Adeps Benzoinatus.

Liquid Benzoin. Shoemaker proposes a solution of benzoin in ether, to which castor oil has been added; the ether to be distilled off. He melts 20 parts of white wax with 965 parts of dehydrated lard, adds 15 parts of "liquid benzoin," and stirs until cold. (A. Jl. Ph. 98, 9.)——Dissolve the benzoin in wood alcohol, and proceed as above. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)——White wax (which is to be added under certain circumstances) should be changed to "Stearic Acid." Comm. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Absorption. 100 parts will take up 17 parts of water; 8.36 of alcohol; 100 of glycerin. St. Onge (Merck's Rep. 97, 602.)

Adeps Lanæ Hydrosus.

Chemistry. Darmstaedter and Lipschuetz (Ber. d. D. Ch. Ges. xix, 618, 1474, 2980. Ph. Ztg. 96, 98; 97, 122. Dr. Circ. 97, 69).

Purification. Kleemann treats a solution in benzin with warm phosphoric acid; the impurities will separate as a pitch-like, brownish-black mass. (Ph. Ztg. 97, 111.)

Absorption. 100 parts will take up 200 parts of water; 5.34 of alcohol; 200 of glycerin. St. Onge (Merck's Rep. 97, 602).

History. Husemann (Ph. Rev. 97, Suppl. 36).

Anhydrous Wool-Fat. Edel points out that anhydrous wool-fat is preferable to the hydrated article, and that it can be used in many more combinations than is at present the case. (W. Dr. 97, 13. Proc. 97, 679.)

Æther.

The limits of specific gravity permitted, 0.725 to 0.728 at 15° C., correspond to 94 to 96 per cent. (approx.), while ether is defined as containing "about 96 per cent." of absolute ether. (C. E. Smith, see *Preface.*)

Æther Aceticus.

The manufacture of acetic ether of the strength required by the Pharmacopœia is commercially impracticable, the additional cost of purification being out of proportion to the gain in strength.

Determination of strength by saponification is effected most conveniently in the following manner: Into a strong bottle of about 100 Cc. capacity, provided with a closely fitting stopper of rubber or cork, measure 50 Cc. of normal alkali solution from a burette, insert the stopper and weigh. Then introduce about 4 Cc. of the sample and weigh again. Shake briskly for a few moments, until the acetic ether is dissolved in the alkali solution, when the greater part of it will be saponified. By shaking the mixture occasionally during 2 or 3 hours, the reaction will be completed without heating, or it may be hastened by warming at about 50° C., when 30 minutes will be sufficient. (If the reaction is incomplete, the undecomposed ester may be detected by the odor, on opening the bottle after cooling.) Add phenolphthalein and determine the unconsumed alkali with normal acid solution. Each Cc. of normal alkali solution consumed is equivalent to 0.0878 Gm. of ethyl acetate. (C. E. Smith, see *Preface.*)

Alcohol.

Test for Traces. Merck recommends a sulphuric acid solution of molybdic acid, which is warmed to 60° C., and superstrated in a test tube with the liquid, supposed to contain alcohol, when a faint blue ring will be formed at the zone of contact. This test is stated to detect 0.02 p. c. of ethylic alcohol, and 0.2 p. c. of methylic alcohol. (Ch. Ztg. 96 . . . Ph. Ztg. 96, 212. Ch. & Dr. 96, July 39.)—— Klar states that this is not at all a specific test, since a whole series of alcohol homologues, aldehyde and ether produce the blue color (amyl alcohol, a mixture of 1 glycerin with 2 water, oil of caraway, oil of peppermint, formalin, chloroform, ether, acetic ether, glacial acetic acid and formic acid). Ph. Centralh. 96, 266. Ph. Ztg. 96, 630.) Klar states further, that the best test is still Lieben's iodoform test, especially with the addition of resorcin. Heat the liquid to 60° C., add iodine and a little excess of normal soda (after decoloration add a few drops more). Place the test tube over a piece of white paper, and add a few drops of a 1-p. c. solution of resorcin. In presence of alcohol a greenish coloration will appear, turning to pink, which after a time turns greenish again. (Ibid.)

Alcohol Absolutum.

Alkalinity. Kebler states that absolute alcohol, as purchased, is almost always alkaline; possibly through some alkali carried over mechanically during distillation. (A. Jl. Ph. 96, 521.)

Preparation. From calcium carbide. Based on the evolution of acetylene gas, when alcohol and calcium carbide are brought in contact, which continues as long as any water remains in the alcohol. Place strong alcohol with 25 p. c. of its weight of carbide in a flask, and, after finished reaction, distil. Shake the distillate with a little dried copper sulphate, which will take up any acetylene present, then redistil. Yvon. (Comptes Rend. cxxv. . . . A. Jl. Ph. 98, 165.)

(Alcohol Methylicum Purificatum.)

Pharmaceutical Uses. How far it can replace ethyl alcohol for the preparation of extracts and fluid extracts. Com. Ph. Rev. A. Ph. A. (Proc. 97, 176. Dr. Circ. 97, 176.)——Introduction proposed. Illinois Ph. Rev. Com. (Ph. Era. 97, xviii, 41.)

Non-toxic Property. Puckner finds from personal experience that the purified methyl alcohol ("Columbian Spirit") is non-poisonous. (Dr.Circ. 97, 298. Proc. 97, 178.)

Aloes.

Estimation of Aloin. Schaefer has obtained from 15 to 30 p. c. of aloin by the following process: Dissolve 50 Gm. of aloes in 300 Cc. of hot water, slightly acidulated with a few drops of hydrochloric acid. After the separation of the resin, pour off the clear fluid, and add 50 Cc. of 20–p. c. ammonia. This is followed by a solution of 15 Gm. of calcium chloride in 30 Cc. of water. On stirring rapidly the aloin compound separates out, and after 15 minutes is collected and drained. Mix with a slight excess of hydrochloric acid, and dissolve in as little water as possible. Filter, and crystallize at a low temperature by means of ice. (Ph. Zts. Russl. 97, 65. Ph. Jl. 97, April, 287. Dr. Circ. 97, 164. Proc. 97, 484. Ph. Ztg. 97, 95.)

Test. Extract the preparation with alcohol, evaporate to dryness, take up with water, filter, precipitate with lead acetate, filter again, concentrate the filtrate, and remove excess of lead acetate with sodium carbonate. Filter, and neutralize the filtrate with acetic or nitric acid. Upon now adding a few drops of dilute ferric chloride solution, a distinct reddish-brown color is produced, even in dilution of 1:2000 to 1:3000. Other tannins produce the same reaction, but none of these is used for criminal purposes. Apery. (Ph. Ztg. 96, 754. Zts. Oest. Ap. Ver. 96, 766. Dr. Circ. 97, 44. Proc. 97, 484.)

Ash. Percentage. La Wall. (A. Jl. Ph. 97, 139.)

"*Barbadoes*" *Aloes.* French states that for years no true Barbadoes aloes has reached United States or England, and that the exportation from Barbadoes has nearly completely ceased. What is sold for Barbadoes aloes is Curaçao. (Am. Dr. 97, xxxi, 104.)

"*Curaçao*" *Aloes* is often deprived of its aloin, and the residue sold for "Cape" aloes; the odor of the Curaçao variety still remains. (Ap. Ztg. 96, 216.)

Althæa.

Histology, Dohme. (Dr. Circ. 97, 274.)

Ammoniacum.

Purity. Dieterich proposes the following tests: 1. Loss at 100° C. 2. p. c. of ash. 3. Determination and weighing of alcohol-soluble constituents. 4. Determination and weighing of alcohol-insoluble constituents. 5. Saponification number. 6. Acid number. 7. Ester number. (Ph. Ztg. 96, 401.)

Galbanum. Detection. Five Gm. of the powdered ammoniacum are boiled for 15 minutes with 15 Cc. of strong hydrochloric acid and 15 Cc. of water. The supersaturated filtrate will show the characteristic blue fluorescence of umbelliferon, even in the presence of only 2 p. c. of galbanum. Dieterich. (Am. Dr. 97, xxx, 71.)

Ammonii Bromidum.

When pure, the salt is not acid to litmus, but is perfectly neutral. It can be readily so prepared.——It is not understood why absence of more than 1 per cent. of chloride is demanded, when about 3 times that quantity is permitted in potassium and sodium bromide. (C. E. Smith, see *Preface.*)

Ammonii Carbonas.

Indicator. In examining ammonium carbonate, Puckner experienced considerable difficulty owing to the use of the official indicator, rosolic acid, the delicacy of which is sensibly affected by the presence of carbon dioxide. He finally used litmus, adding excess of volumetric acid, expelling the liberated dioxide by boiling, and retitrating with standard alkali. (W. Dr. 97, 253. Proc. 97, 605.)

Ammonii Chloridum.

"Neutral to litmus paper." . . . (Fourth paragraph.) There exists no ammonium chloride which does not redden litmus paper after half a minute. The wording of the paragraph should therefore be: Make a solution of 1:20 in ice-cold water, and dip into it, at once, a strip of litmus paper, allowing it to remain in the solution. It should not redden at once. (Ph. Ztg. 96, 536.)

Estimation in Tablets. These contain generally licorice and other organic matter. Johnson estimates the ammonia by distillation of a weighed quantity of the tablets with excess of sodium or potassium hydrate in dilute solution, and collecting the distillate in a measured quantity of decinormal oxalic acid. The chlorine is estimated by completely incinerating the tablets in a combustion tube with excess of calcium carbonate. (A. Jl. Ph. 96, 608. Proc. 97, 606.)

(Amygdalæ.)

Histology. (Ph. Jl. 97, Febr. 170.)

Amylum.

Stable Solution. Kebler found that a solution of 0.125 Gm. starch in 25 Cc. of water, to which 2 Gm. of sodium bicarbonate was added, kept exceedingly well for four months, with the likelihood to keep several months longer. (A. Jl. Ph. 97, 69.)

See also General Remarks, "Starch T. S."

Ash. Percentage. La Wall. (A. Jl. Ph. 97, 139.)

Estimation. Kebler and La Wall, judging from the fact that pentosans and other carbohydrate bodies undergo hydrolysis when boiled with hydrochloric acid, think that starch estimations in plant analysis by means of hydrochloric acid are frequently wide of the truth. (A. Jl. Ph. 97, 246.)

Microscopic characteristics. (Ph. Jl. 97, Febr. 170.)

Anisum.

Histology. (Ph. Jl. 97, Mrch. 231.)

Conium seed. Volkert reports having found from 0.5 to 18.5 p. c. of conium seed. The German anise contains none, because the climatic conditions do not favor the ripening of conium at the same time as anise. Since anise generally is larger than conium, the latter may be roughly estimated by passing the mixture through a sieve too fine for anise. (Ph. Ztg. 97, 531.)

Anthemis.

Histology. (Ph. Jl. 97, Mrch 269.)

Antimonium.

Reactions. Limit of sensitiveness. Neumann. (Ph. Ztg. 97, 123.)

Antimonii Oxidum.

Commercial. Examination. La Wall (A. Jl. Ph. 96, 597. Proc. 97, 618.)

(Antipyrine.)

Introduction proposed, but under the proper scientific name. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Apocynum.

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Apomorphinæ Hydrochloras.

Coloration. Solutions of apomorphine are very sensitive to a slight increase of heat, turning pinkish; while the same solution keeps colorless and clear for weeks, if kept cold. (Ph. Ztg. 96, 133.)

Color Reactions. Pruys (Ph. Ztg. 96, 647).

Aqua.

Purification. For hypodermic solutions. One gallon of boiled hydrant water is treated with small portions of potassium permanganate solution (⅛ grain to the fl. oz.) at a time, until after standing for one hour it retains its pink color. Add 5 grains of alum, shake till the pink color disappears, filter three times through double filters, which have been previously scalded to render them sterile. The process must be conducted in well-closed glass containers. Such water is superior to distilled water. (Am. Dr. 96, 383. Proc. 97, 587.)

Lead. Estimation. Berntrop's method does away with the tedious evaporation of large quantities of water. He adds a suitable quantity of sodium phosphate to a given quantity of water, shakes thoroughly, and sets it aside for 24 hours, when every trace of lead will have been precipitated together with the calcium and magnesium salts. Decant the supernatant water, throw the precipitate on a filter, dissolve it in a little dilute nitric acid, evaporate the solution on a water-bath until the excess of acid has evaporated, and treat the remaining liquid with hydrogen sulphide. Dissolve the sulphides in nitric acid, and test for lead as usual. Should the quantity of lead be so small that only a coloration is caused by hydrogen sulphide, the lead must be estimated colorimetrically. (Ch. Ztg. 97, 103. Ph. Ztg. 97, 89. Merck's Rep. 97, 213.)

Ammonia. Removal. Barnes adds a small quantity of bromine to the distilled water, and boils the latter for a few minutes. Much more rapid is the action of an alkaline hypobromite, which will destroy all traces in a few minutes in the cold. Excess of hypobromite is removed by potassium iodide. (Jl. Ch. Ind. 96, 254. Ch. & Dr. 96, July, 167.)

Nitrates. Mix the warm, evaporated residue of the water with a few drops of a solution of carbolic acid in concentrated hydrochloric acid, and heat, when an intense violet-red coloration is produced in the presence of even traces of nitrates. Ammonia turns the color into green. Alessandri and Guassini. (Boll. Ch. Farm. 95, 490. Ph. Jl. 96, Jan'y, 83.)

Lead and Copper. Detection of traces. Guldensteeden dispenses with the tedious and time-consuming evaporation of large quantities. 250 Cc. of water is acidulated with acetic acid, and hydrogen sulphide passed through it, then he adds about 0.5 Cm. of well-washed talcum, shakes vigorously, and allows it to settle. The smallest trace of lead or copper will be entangled in the talcum. The clear supernatant water is poured off, the talcum collected in a small funnel, closed with absorbent cotton, and a few Cc. of warm nitric acid poured over it. Evaporate the filtrate to dryness, dissolve the residue in a large drop of water, and transfer part of it with a trace of hydrochloric acid to a bright iron. To another part add a drop or potassium chromate and a little acetic acid, which will indicate the lead by a yellow precipitate. To another part add a couple of drops of ammonia and a trace of phenol. After a couple of hours, copper is indicated by a blue color. (Ap. Ztg. 96, 282. Ph. Ztg. 96, 296.) ——Antony and Benelli add mercuric chloride to the water, and pass hydrogen sulphide through it. The precipitate is collected on a filter of known ash weight, washed, dried and ignited in a current of hydrogen sulphide until constant weight. The sulphide of lead, which remains, is treated with sulphuric acid, ignited and weighed as sulphate. (Gazzetta Ch. Ital. 96, 216. Ap. Ztg. 96, 282.)

Aqua Destillata.

Odorless. Haensel states that by substituting asbestos packing for the rubber packing ordinarily used in still-joints, the water will come over odorless. (Ph. Ztg. 96, 370. Ch. & Dr. 96, July 168.)

(Aquæ Medicatæ.)

Stability. Edel confirms the old observation that the stability of the aromatic waters is insured by leaving an excess of oil in the water. It will then, of course, be necessary to draw off the clear water by means of a siphon. (W. Dr. 96, 487. Merck's Rep. 97, 46. Proc. 97, 399.)

Preparation. With hot water and oils. Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)——Hiss recommends that, in the case of anise, cinnamon, fennel, peppermint, and spearmint waters, the quantity of calcium phosphate be increased from 4 to 16 Gm., and that the mixture of oil, calcium phosphate, and water be allowed to stand six hours before filtering. (Ph. Era 95, xiv, 172.)

Aqua Chlori.

Preservation. Klimenko states that the presence of a small quantity of neutral chlorides in chlorine water retards very materially the decomposition. Hydrochloric acid is still more efficient, but, of course, inadmissible. (Dr. Circ. 96, 164.)

History of chlorine, processes, &c. Mond (Ph. Jl. 96, Sept. 282).

Preparation. An alternate formula (with potassium chlorate and hydrochloric acid) is suggested to be introduced. Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)

Aqua Chloroformi.

Keeping Quality. Boa finds that water made with spirit of chloroform keeps longer neutral than that made with pure chloroform; but, on the other hand, the former (spirit) water soon loses its distinctive odor. (Ch. & Dr. 97, Jan'y 117.)

Aqua Hydrogenii Dioxidi.

Rapid Preparation. Triturate a mixture of 1 part of barium peroxide and 2 parts of hydrochloric acid with ice. Treat the filtrate with a solution of argentic sulphate until no more precipitate occurs; filter. Echegorry (Tribun. Farm. i, 16. A. Jl. Ph. 97, 641).

Preservation. Sunder states that an addition of 2 p. c. of alcohol or ether serves to keep the peroxide solution perfectly for several weeks. (Ph. Ztg. 97, 155. Merck's Rep. 97, 244. Dr. Circ. 97, 162. Proc. 97, 585.)

Filtration. If filtration becomes necessary, pyroxylin is probably the best medium. Asbestos decomposes the peroxide water, and other filtering media react in one way or the other with it. Scoville (Merck's Rep. 96, 601).

Explosiveness. Bruehl calls attention to the fact, that when freed from water, hydrogen peroxide is highly explosive. (Ber. d. D. Ch. Ges. 95, 2847. Dr. Circ. 96, 40. Ph. Centralh. 96, 212.)

Commercial. Examination. Eccles (Dr. Circ. 96, 299. Proc. 97, 586).

Assay. Brown finds the method of Moerk (see "Digest" for 1890, p. 30) accurate, simple and easily worked. (Ph. Jl. 96, Sept. 271. Proc. 97, 587.)

Titrimetric and Gravimetric Methods. Comparative accuracy in presence of various preservative agents. Rice finds that the presence of glycerin affects the accuracy of the permanganate method; and Smith suspects that other substances (boroglycerin, boric acid, salicylic acid, &c.) might also influence the results. Smith examined for this purpose four methods (titrimetric permanganate; gasometric permanganate; gasometric hypochlorite; titrimetric thiosulphate). Of these he found the gasometric permanganate the least satisfactory, and the most reliable he found the titrimetric thiosulphate, which was first recommended by Kingzett, and later by Thoms. The titrimetric permanganate is accurate and reliable for the valuation of solutions containing only mineral acids and their alkali salts as impurities. With solutions containing glycerin or boroglycerin in quantities below 5 p. c., the results are but slightly raised; in presence of larger amounts this method is inapplicable. Ethereal solutions give results a little too high. Salicylic acid interferes seriously, even in small quantities. On the whole, the permanganate method should not be used whenever organic matters are suspected to be present.

The hypochlorite method gives serviceable results in the absence of preservatives. When the latter are present, the results are liable to fall too low, and with ethereal solutions too high.

The thiosulphate method is simple, rapid and accurate, which accuracy is not lessened by the usual preservatives, nor by large quantities of glycerin. (A. Jl. Ph. 98, 225.)

Aqua Rosæ.

Preparation. Alpers prefers to make it from 10 drops of the oil to the liter of distilled water at 27° C. (Am. Dr. 96, 384. Proc. 97, 400.)——Rauschenberger improves the odor by an addition of oil of cloves (2.5 Gm. of oil of rose, 0.25 Gm. of oil of cloves, and sufficient alcohol to make 100 Cc. Ten Cc. of this to the liter of boiling water). (Am. Dr. 97, 38. Proc. 97, 400.)

Argenti Nitras.

Separation of Copper. As silver always contains a certain amount of copper, Warden separates it by making use of the fact that strong nitric acid precipitates silver nitrate from concentrated solutions. The silver nitrate having crystallized out as far as possible, the blue mother-liquor is evaporated to dryness, the salt powdered, placed in a funnel which has been stoppered with asbestos, and percolated with nitric acid (1.42). This dissolves the whole of the copper nitrate and only a very small amount of silver nitrate, leaving the residual silver nitrate perfectly white. (Ph. Jl. 97, Jan'y, 61. A. Jl. Ph. 97, 156. Dr. Circ. 97, 101. Proc. 97, 624.

Chloride Reaction. Endemann made the observation that some of the aniline dyes interfere with the chloride reaction. It appears, however, that only the azo-compounds possess this property. (Jl. Ch. Ind. 97 . . . Am. Dr. 97, xxix, 319.)

Argentum.

Reactions. Limit of sensitiveness. Neumann (Ph. Ztg. 97, 123).

(Aristol.)

Introduction recommended, but under a scientific name. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41).

Arnicæ Radix.

Histology. (Ph. Jl. 97, Mrch, 269.)——Dohme (Dr. Circ. 97, 212. Merck's Rep. 97, 695).

Asafœtida.

Spelling. Holmes decides that both in Latin and English the spelling should be "Asafetida." (Ph. Jl. 97, Aug. 135. Ch. & Dr. 97, Aug. 273. A. Jl. Ph. 97, 460.)

Chemistry. Polasek. (Arch. Ph. ccxxxv, 125. Ph. Jl. 97, July, 69. Ch. & Dr. 97, May, 686. Proc. 97, 522).

Purity. Lloyd finds that the p. c. of ash ranges from 16 to 50. Select tears were found to leave only 1.78 to 2.55 p. c. of ash, and yielded to alcohol as much as 76 p. c. Since it is practically impossible to obtain asafœtida which is not overloaded with impurities, Lloyd proposes to purify it by dissolving it in alcohol, and evaporating off the alcohol. He states that only a very small loss of the volatile oil occurs on evaporation. (Ph. Rev. 96, 54. Ch. & Dr. 96, June, 873.)

Asclepias.

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Aspidium.

Histology. Comparison of the rhizomes of different ferns. Laurén (Schweiz. Wochenschr, 96, 48. Ph. Ztg. 96, 826. Ph. Rev. 97, 96. Proc. 97, 480).

Assay. The powdered rhizome is exhausted with ether, a concentrated solution of cupric acetate is added, the green precipitate (filicic acid) washed with water, alcohol and ether, and dried at 50° C. The yield is generally from 1.7 to 2.4 p. c. Daccomo and Scoccianti. (Boll. Ch. Farm. 96, 129. Ap. Ztg. 96, 174. Ph. Jl.

96, May, 417. Merck's Rep. 97, 307.)——Bocchi and Fromme take advantage of the fact that calcium filicate is soluble in cold water, and can easily be separated by mineral acids. (Ph. Ztg. 97, 30.) ——Fromme obtained from 9 to 10.24 p. c. filicic acid. (Ibid.)

Aspidosperma.

Color reaction of quebrachin. Dragendorff (Ph. Centralh. 96, 379).

Atropina.

Marmé's Reagent. (Cadmium-potassium-iodide.) Is sensitive to 1:1,600. Verven (Ch. Ztg. 97, 116. Dr. Circ. 97, 278).

See also *Mydriatic Group* in "General Remarks."

Atropinae Sulphas.

Melting Point. With slow fusion, 190° C.; with rapid fusion, 195° C. Nagelvoort (Dr. Circ. 97, 130. Merck's Rep. 97, 342).

Aurum.

Reactions. Limit of sensitiveness. Neumann. (Ph. Ztg. 97, 123).

Balsamum Peruvianum.

Examination. Dieterich proposes to ascertain: 1. Specific Gravity. 2. Acid number. 3. Saponification number. 4. Quantitative estimation of resin and cinnamein. (Ph. Ztg. 96, 401.)

Characters of genuine balsam. It must be borne in mind, that three qualities of balsam are obtained from the same tree, representing the first, second and third flow; these show, naturally, different ester numbers. Dieterich finds that a balsam, having less than 65 p. c. of aromatic substances, and more than 28 p. c. of resinous matter, should be considered as of doubtful quality. (Ber. d. D. Ph. Ges. 97, 437. A. Jl. Ph. 98, 208.)

Fixed Oils. Mix the balsam first with a little castor oil, when it will combine easily with fixed oils to a homogeneous mixture. (Schweiz, Woch. 96 . . . Dr. Circ. 96, 259.)

Balsamum Tolutanum.

Purity. Dissolve in carbon disulphide, evaporate, and cover the residue with sulphuric acid. Pure balsam turns blood-red; mixed colors denote admixtures. Gehe & Co. (Ber. April 97. Ph. Jl. 97, Nov. 446.)

(Belladonna.)

Alkaloids. Proportions in different parts. Kremel found in the root 1.75 p. c.; stems, 0.616 p. c.; leaves, 0.7 p. c.; unripe fruit, 0.6 p. c. He also found that preparations of belladonna decrease in alkaloidal value to the extent of 0.1 per year. (Ph. Ztg. 96, 686. Ch. & Dr. 97, May, 848. Dr. Circ. 97, 188. Am. Dr. 97, xxx, 71.)

Belladonnæ Folia.

Microscopy. Structure. Compared to that of hyoscyamus and stramonium leaves. Schlotterbeck and Van Zwaluwenburg (Proc. 97, 202).

Quantitative. Kraemer (A. Jl. Ph. 97, 529).

Histology. Dohme (Dr. Circ. 97, 4. See also Ph. Jl. 97, July, 42).

Alkaloids. Location. Molle (Bull. Soc. Belge Micro. 96 . . . Dr. Circ. 96, 108).

Extraction Influence of different temperatures. Norris (Dr. Circ. 97, 213).——Experiments. Farr and Wright, Sayre, Gregory (Dr. Circ. 97, 129, 121. Proc. 97, 419).

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 139).

Belladonnæ Radix.

Alkaloids. Contents in separate siftings of the powder. Parker separated the powdered root into "coarse," "medium" and "fine." As the result of his investigations, he states that it is absolutely necessary that a powdered drug should represent the whole drug, whatever its degree of fineness. He found that fine powder (representing about 38 p. c.) gives a darker tincture, but which contains about 30 p. c. less alkaloids than coarse powder (representing about 40 p. c. of the root). (Ch. & Dr. 96, Aug. 197. Ph. Jl. 96, Aug. 96.)

Location. Molle (Bull. Soc. Belge. Micro. 96 . . . Dr. Circ. 96, 108).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Histology. (Ph. Jl. 97, July, 43.)

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 139).

Seasons. Influence. Kremel found that dried spring root yielded 0.880 p. c. of alkaloid, and 26.6 p. c. of extract (containing 3.32 p. c. alkaloid); fall root yielded 0.225 p. c. of alkaloid and 16.6 p. c. of extract (containing 1.30 p. c. of alkaloid). (Ph. Ztg. 96, 686.)

Benzinum.

Contraction. Petroleum ether shows a remarkably strong contraction on cooling. At —188° C. its volume is $\frac{4}{5}$ of that at 0° C., and $\frac{3}{4}$ that at +30° C. (Merck's Rep. 97, 581.)

Purity. The pharmacopœial requirements are not met with in the market. Illinois Ph. Rev. Com. (Ph. Era, 97, xviii, 41).

Benzoinum.

Impurities. Dunlop found that Sumatra benzoin contains from 8 to 30 p. c. of barky and woody matter, and suggests that the allowable p. c. of impurities should be stated. (For instance, 10 p. c.) (Ph. Jl. 97, Aug. 140. Ch. & Dr. 97, Aug. 278. A. Jl. Ph. 97, 461. Dr. Circ. 97, 263.) This would, of course, leave the question of the composition of the soluble matter untouched.——Siam benzoin generally contains very little impurities, chiefly bark, often as low as 4 p. c. Shoemaker (A. Jl. Ph. 98, 10).

Examination. Dieterich proposes the following: 1. Determination and weighing of ether-soluble part. 2. Determination and weighing of ether-insoluble part. 3. Ash of the latter. 4. Acid number. 5. Saponification number. 6. Cinnamic acid. 7. Ester number. (Ph. Ztg. 96, 401.)

Valuation. Seyler queries whether the p. c. of benzoic acid would not make a good valuation of benzoin. (Ch. & Dr. 97, 352.)

Benzol.

Distinction from Benzin. Lainer states that iodine dissolves in benzol with a carmine-red color, while it imparts to benzin a violet color. It is also stated that a trace of alcohol, when shaken with benzol, causes a decided cloudiness, while benzin remains clear. (Ph. Ztg. Russl. 96, 536. Merck's Rep. 96, 514.)——To 2 Cc. of the liquid add 3 or 4 drops of a clear, ethereal solution of sandarac (1:10). A permanent turbidity is imparted to benzin, while benzol, turbid at first, soon clears. (Ibid.)

(Berberis Aquifolium.)

Introduction proposed. Illinois Ph. Rev. Com. (Ph. Era 97, xviii. 41.)

Bismuthum.

Assay of its Salts. Mix a solution of the salt (not too strongly acid) with an excess of hypophosphorous acid and heat upon a water-bath, until the supernatant liquid has become clear, and a further addition of the reagent, heated to boiling, produces no further coloration. The metal will have separated out in form of a reddish-gray spongy mass, which can be easily washed with boiling water and then with absolute alcohol; dry at 105° C. Assays indicate within 0.02 p. c. of the calculated amount. Muthmann and Mawrow (Ch. News, 97, Jan. . . . Dr. Circ. 97, 101).——Commenting on the foregoing, Proctor gives his deductions from his own experiments: Bismuth in ordinary acid solutions is not precipitated by either stannous chloride or hypophosphorous acid without the application of heat. When bismuth solutions are so nearly neutral that a slight addition of water causes precipitation, the addition of sodium hypophosphite causes reduction rapidly on boiling. Stannous chloride does not precipitate bismuth, either in strongly acid solutions, or in solutions nearly neutral, hot or cold. Tellurium in simple solution (1:1,000) is immediately indicated by either stannous chloride or hypophosphorous acid without heat. In very dilute solutions (1:50,000) it is not so readily indicated without heat, but blackens on warming. The reaction is influenced by the quantity of the reducing agent. (Ch. & Dr. 97, April 631.)

Reactions. Limit of sensitiveness. Neumann (Ph. Ztg. 97, 124).

Bismuthi Citras.

In the preparation by the official process boiling is unnecessary, and "bumping" is avoided by heating on a water-bath; which, however, requires a little more time. The product has a better appearance. (C. E. Smith, see *Preface.*)

(Bismuthi Salicylas and Bismuthi Subgallas.)

Should both be introduced. Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)

Bismuthi Subcarbonas.

In the test for chloride a large proportion of it, if present, would probably be precipitated when the nitric acid solution of the salt is poured into water, and thus escape detection; and that remaining in solution may be partially or wholly expelled during concentration of the acid solution. It seems preferable to dissolve the salt in diluted nitric acid without heat and test this solution.

A small amount of chloride should be permitted, since it would be necessary to use chemically pure sodium carbonate to obtain the salt entirely free from it. Any chloride present in the sodium carbonate is precipitated as bismuth oxychloride, which is easily formed, but not readily decomposed or removed. (C. E. Smith, see *Preface.*)

Bismuthi Subnitras.

Chemical Composition. "When heated to 120° C., the salt loses water (between 3 and 5 p. c. of its weight)." (Third paragraph.) Kebler points out that the length of time in which the salt is exposed to the above temperature, makes a perceptible difference, and shows that when the exposure is extended to 34 hours, all the mechanically contained water is expelled, and none of the chemically combined; the crystals showing under the microscope no disintegration. (A. Jl. Ph. 96, 422. Am. Dr. 97, xxix, 70. Proc. 97, 619.)

Nitric Acid. Determination. Kebler adds to a weighed quantity of the subnitrate, suspended in about 10 equivalents of distilled water, an excess of normal potassium hydroxide and a few drops of phenolphthalein solution, brings the mixture to a brisk boil, and retitrates the excess of potassa. (Ibid.)

Chloride. The remarks under bismuth subcarbonate referring to the method of testing for chloride apply also to this salt. (C. E. Smith, see *Preface.*)

Bromum.

Detection of Traces. Baubigny proposes fluorescein test-paper, which is sensitive to 0.001 Gm. in 5 to 10 Gm. of the dry salts. Dissolve fluorescein in 50–p. c. acetic acid, and soak strips of writing paper. When dipped into the liquid in question, the liberated bromine will produce the red color of eosin; or expose the moistened paper to the vapors of bromine. (Comptes Rend. cxxv, 654. Ap. Ztg. 97, 859.)

Bryonia.

Histology. (Ph. Jl. 97, Sept. 279.)

Buchu.

Histology. (Ph. Jl. 97, Sept. 274.)——Dohme (Dr. Circ. 97, 100. Merck's Rep. 97, 370).

Extraction. Experiments. Squibb, Sayre (Dr. Circ. 97, 120, 121. Proc. 97, 419). Newhall (Dr. Circ. 97, 214).

(Cadmium.)

Reactions. Limit of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Caffeina.

Estimation. In tea. Petit and Terrat found, as did Paul and Cownley, that magnesia and lime, either combined or separately, retard the extraction of the alkaloid by chloroform. Chloroform, alone, will thoroughly extract the alkaloid, provided a small amount of moisture be present. The addition of ammonia does not increase the yield. They record the following instructive results: Dry tea, extracted by anhydrous chloroform, 0.18 p. c.; the same kind of tea extracted with hydrated chloroform, 0.32 p. c.; tea, treated with boiling water, dried, and then extracted with chloroform, 0.20; tea, treated with boiling water, dried, then moistened, and extracted with chloroform, 2.50 p. c. (Jl. de Ph. & Ch. 96, June, 529. A. Jl. Ph. 96, 570. Ph. Jl. 96, June, 461.)——Keller extracts the whole leaves with ammoniated chloroform, distils off the chloroform, adds absolute alcohol, and evaporates. (Ph. Ztg. 97, 184. Ph. Era. 97,

xviii. 391. Proc. 97, 713.)——Gane boils with water, treats the filtrate with lead acetate, removes excess of acetate with sodium phosphate, concentrates the filtrate, and shakes out with chloroform. (Jl. Soc. Ch. Ind. 96, Feb. . . . A Jl. Ph. 96, 692.)

Tea and Coffee. Hilger and Juckenack give the following directions: exhaust with boiling water, after cooling add solution of aluminum acetate and sodium carbonate, boil and filter, add alumina and filtering paper magma, and evaporate to dryness. Exhaust with purified carbon tetrachloride in a Soxhlet apparatus. (Ph. Ztg. 97, 466. Ap. Ztg. 77, 145. Ph. Rev. 97, 77. Proc. 97, 712.)——Delacour follows Gane's method with lead acetate (see above), but acidulates with acetic acid, before shaking out with chloroform. (Jl. de Ph. & Ch. 96, iv. 491. Am. Dr. 97, xxx. 135.)——George exhausts with a one-p. c. solution of sodium salicylate, concentrates the percolate, and shakes out with chloroform. (Ph. Ztg. 96, 526.)

Coffee, Tea, Guarana, Cola. La Wall employs a modification of Keller's ammoniated chloroform method. (A. Jl. Ph. 97, 350.) Lloyd's ferric carbonate process has been employed satisfactorily for these substances by Mountaine, Weiss, Weston, Schaeffer. (A. Jl. Ph. 96, 535.)

Coffee. Alkalinize an aqueous decoction with sodium hydroxide, extract with chloroform, distil off the chloroform, and calculate caffeine from the nitrogen (Kjeldahl's method.) Forster and Richelmann. (Ph. Ztg. 97, 309.)——Trillich and Goeckel moisten the coffee with ammonia, and extract with acetic ether, distil off the ether, and boil the residue with milk of magnesia. Extract with chloroform, or acetic ether, and calculate from the nitrogen. (Ph. Ztg. 97, 530.)——Tassilly evaporates the decoction to dryness, treats residue with a 10-p. c. sulphuric acid. Extract with boiling water, alkalinize with ammonia, and extract with chloroform. (Ph. Ztg. 97, 691.)

Caffeinæ Citras.

Puckner states that the second paragraph should read as follows: "One part of citrated caffeine, mixed with three parts of water, *and this mixture gently warmed*, will yield a clear, syrupy solution." (W. Dr. 97, 253. Proc. 97, 714.)

Calcii Carbonas Præcipitatus.

To prepare a solution of the salt with diluted acetic acid, for applying tests (fourth paragraph), an excess of calcium carbonate is directed, which has the effect of keeping out of solution any ferric oxide or alumina present, and prevents their detection. (C. E. Smith, see *Preface.*)

Calcii Hypophosphis.

Estimation. Tyrer does not consider the permanganate method reliable, since hypophosphites invariably contain notable quantities of phosphate, phosphite, sulphite and hyposulphite, all of which directly or indirectly reduce the permanganate. (Ch. & Dr. 97, Aug. 286. A. Jl. Ph. 97, 462.) See also "Hypophosphites."

See under "Acidum Hypophosphorosum." The remarks there made apply also to this salt. (C. E. Smith, see *Preface.*)

Calcii Phosphas.

Carbonate. La Wall found a sample to contain as high as 40 p. c. of carbonate. (A. Jl. Ph. 97, 621.)

Calumba.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 139).

Extract. Yield. Linde (Ph. Centralh. 95, 382).

Chemistry. Hilger (Ph. Centralh. 96, 222. Merck's Rep. 97, 307).

Extraction. Experiments. Gregory (Dr. Circ. 97, 121. Proc. 97, 419).——Newhall (Dr. Circ. 97, 214).

Histology. (Ph. Jl. 97, Sept. 278.)——Dohme (Dr. Circ. 97, 251).

Calx Chlorata.

Commercial. Puckner has examined the commercial chlorinated lime, both that in bulk and that put up in small paper boxes, and found that, contrary to the opinion generally held, the bulk chlorinated lime contains from 34 to 35 p. c. available chlorine, while that in small boxes contains as low as 0.11 to at most 31 p. c. (W. Dr. 97, 253. Proc. 97, 591.)

Estimation. Nagelvoort prefers to direct 1 Gm. of the chlorinated lime instead of 0.354 Gm., and, of course, to alter the subsequent calculations accordingly. The number of Cc. of thiosulphate to be multiplied by 0.00355. (Apothecary, 96, 49. Merck's Rep. 96, 141.)

Odor. Stevens states that the more or less strong odor is no indication of good or poor quality of the chlorinated lime. A very little decomposed hypochlorite suffices to fill a large jar with a suffocating odor of chlorine. (Dr. Circ. 97, 330.)

Preservation. A German patent has been taken out for preserving the chlorinated lime by judicious compression. If too little compressed, the protection is not sufficient; if too much, the mass gets lumpy. The compressed lime is quite odorless, and resists the influence of the air, even when freely exposed to it. (Dr. Circ. 97, 349).

Cambogia.

Chemistry. Sassarini. (Ann. Ch. Farm. 97 . . . Ph. Jl. 97, April, 288. Dr. Circ. 97, 162. Proc. 97, 534.)

Starch. Eberhart shows its presence by throwing the thin magma, produced on addition of hydrochloric acid (see second paragraph of U. S. P.), on a pledget of absorbent cotton, loosely inserted in a funnel, and testing the almost colorless liquid, which drains off, with iodine solution. (Dr. Circ. 96, 194. Proc. 97, 534.)——A limited p. c. should be allowed in the powder. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Camphora.

Florida. Hubbard reports that camphor may be obtained from Florida, and that it can be obtained from the twigs and leaves, 77 pounds of which yield 1 pound of camphor. Hence the tree itself need not be injured in any way, as its foliage is very dense, and may be thinned down one-half, without its being noticed. It is an evergreen, and makes three growths a year. (April, June, October.) The leaves, when deprived of their camphor, may be returned to the soil, so that the latter needs no fertilization whatever. (Merck's Rep. 97, 376. Proc. 97, 490.)

China. Production. Henry (Ph. Jl. 97, Mrch. 201. A. Jl. Ph. 97, 259. Proc. 97, 491).

Japan. Distillation. Dewey (A. Jl. Ph. 97, 507. Am. Dr. 97, xxxi, 241).

Formosa. Distillation. Ede (Ch. & Dr. 96, Jan'y 6).——Ferguson (Ch. & Dr. 97, Sept. 433. Ph. Jl. 97, Oct. 299).

India. Cultivation. (Ap. Ztg. 95, 768. Ph. Rev. 96, 19.)

From the Leaves. Hooper calls attention to the possibility of obtaining camphor from the leaves, and also in some measure from the oil. (Ph. Jl. 96, Jan'y 21. Ph. Rev. 96, 65.)

Liquefaction. With acetic acid; benzoic acid; citric acid; valerianic acid; salol; naphthol. Schaefer (Ph. Ztg. 96, 237).

Canella.

Histology. (Ph. Jl. 97, Sept. 279.)

Cannabis Indica.

Histology of the leaf. Dohme (Dr. Circ. 96, 275. Proc. 97, 569).

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Ash, Moisture and Active Principles. La Wall (A. Jl. Ph. 97, 139).

Cantharis.

Indian Cantharides. Hartwich (Gehe & Co. Ber. Sept. 96. Ph. Rev. 96, 232. Proc. 97, 579.)

Capsicum.

Histology. (Ph. Jl. 97, Nov. 467.)

Carbo Animalis.

Oxidizing power. Add a few grains of the charcoal to a few Cc. of fresh tincture of guaiacum: an intense blue color is developed immediately in the cold. Wood charcoal does not give this reaction. (Bull. Soc. Ph. Bord. 97 . . . Dr. Circ. 97, 282. Ph. Jl. 97, Aug. 190.)

Cardamomum.

Cultivation in India. (Ch. & Dr. 96, Dec. 836. Dr. Circ. 97, 50.)

Varieties. Niederstadt. (Ph. Ztg. 97, 654. . Am. Dr. 97, xxxi. 245.

"*Bastard*" *Cardamom.* Schaer states, that there are no microscopic characteristics, which may serve to distinguish between the true and the false, or "Bastard" cardamom (from Amomum xanthioides.) There is, however, a chemical one: the ash of true cardamom contains manganese, which the false does not. (Ph. Ztg. 97, 654.)——Tschirch and Schad, on the contrary, assert that there are sufficient differences in the sclereids and several of the cells. (Schweiz. Woch. 97, No. 43. Ph. Ztg. 97, 760.)

Carum.

Adulteration. Dyer and Gilbrand call attention to the adulteration with "drawn" (exhausted) fruits. The latter are much darker in color than the ordinary caraway, and contain only 0.1 p. c. of oil, while Dutch caraway of fair quality yields 5 p. c. (Ph. Jl. 96, Aug. 208. Proc. 97, 519.)

Caryophyllus.

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Cascarilla.

Alkaloidal Constituents. Naylor (Ph. Jl. 98, Mrch. . . . A. Jl. Ph. 98, 237).

Castanea.

Ash and Moisture. La Wall (A Jl. Ph. 97, 139).

Catechu.

Extraction of "Cutch." (Indian Pharmacol. 97, 7. A. Jl. Ph. 97, 371.)

Gambier. Richtmann examined several batches of Johore gambier, which assayed from 22.21 to 46.95 p. c. of tannin and from 5.25 to 11.10 p. c. of catechin. (Ph. Rev. 97, 27. A. Jl. Ph. 97, 156. Proc. 97, 514.)

Detection of Gambier. Shake a few grains of the powdered drug with 1 drachm of water and 5 to 10 drops of ammonia, then add half as much benzol or chloroform, and shake again, when a green color of the ethereal solvents indicates gambier; catechu does not impart a green color. Dieterich (Ph. Centralh. 96, 855 . . . Ch. & Dr. 97, Jan'y, 212.)

(Cera.)

Japan Wax. Adulteration. La Wall reports an adulteration with from 20 to 25 p. c. of starch, which in all probability was added in this country, since direct importations have shown themselves singularly free from admixture. Such adulterated wax is generally void of that peculiar network of minute cracks which usually covers the pure wax. The quickest test is to scrape the fresh fracture and apply a few drops of iodine T. S., when the bluish-black color soon will be observed. He finds the sp. gr. to range from 0.965 to 0.984; the melting point from 50° to 54° C.; the acid number from 17.98 to 20.45, and the saponification number from 217.93 to 224.86. (A. Jl. Ph. 97, 620.)

Cera Alba.

Specific Gravity. At 100° C., 0.832 to 0.835. Evers (Ph. Ztg. 96, 737; 97, 838).

Cera Flava.

Adulteration. Niederstadt cautions against too hasty conclusions about adulterations, because pure wax often varies more or less both in its chemical and physical properties. According to him, the acid number varies from 19.5 to 23.5, and the ether number from 73 to 84. (Ph. Ztg. 97, 654. Am. Dr. 97, xxxi, 246.)——Thompson proposes to note the exact temperature of congelation or solidification after fusion, stating that this point varies with the different adulterants. (A. Jl. Ph. 96, 533.)——La Wall states that proportionately slight contaminations with stearin may not be intentional, but due to the use of artificial comb foundations by the agriculturists. (A. Jl. Ph. 97, 622.)

Analysis. Guyer states that the most valuable information is obtained by the determination, according to Huebl's process, of the three chemical constants: Acid value, 20; ester value, 75; saponification value, 95. Deviation from these figures necessitates further special examinations. As to the iodine value, he expresses doubt of its being as high as 9.6 to 10, as stated by several authorities, he himself had never found it higher than from 7.9 to 8.9. (Ph. Jl. 96, Oct. 384, and Nov. 445, 97, 308. Ch. & Dr. 96, Oct. 642. Proc. 97, 680)

Melting Point. Guyer recommends, if the melting point be taken in a capillary tube, that the wax should be allowed to congeal in the tube for 5 to 6 hours before determining the melting point. Better still, to follow the practice of the Hungarian Society of Analysts, and wait 24 hours before attaching the tube to the thermometer bulb and remelting the wax, else the melting point will be too low. (Ibid.)

Bleaching. At Lueneburg. (Ch. & Dr, 97, July 171. Ph. Era. 97, xviii. 291.)——The best wax for bleaching is the Egyptian. (Ibid.)

Specific Gravity. Nagelvoort states that the sp. gr. should be taken in dilute ammonia, or dilute alcohol, of such strength (to be modified accordingly) to make the test a "floating" one. (Apothecary, 96, 49. Merck's Rep. 96, 141.)——Evers finds that the sp. gr. of yellow wax is higher than that of white wax (which is contrary to the U. S. P.). He finds it at 100° C., 0.845 to 0.847; with 20 p. c. of Japan wax, 0.856; with 20 p. c. of ceresin, 0.836; with 20 p. c. of Carnauba wax, 0.838; with 20 p. c. of paraffin, 0.833. The addition of stearic acid, Japan wax and tallow raise the sp. gr.; ceresin, Carnauba wax and paraffin decrease it. (Ph. Ztg. 96, 737.)

(Cerata.)

Absorption. Amount of water, alcohol and glycerin, which they will take up without separating. (Water, from 2 p. c. to 400 p. c.; alcohol, from 3 to 200 p. c.; glycerin, from 25 to 100 p. c.) St. Onge (Merck's Rep. 97, 602. Am. Dr. 97, xxix. 37).

Lard should be replaced by benzoated lard. Illinois Ph. Rev. Comm. (Ph. Era, 97, xviii. 41.)

Ceratum.

Absorption. Will take up 40 p. c. of water; 13.25 p. c. of alcohol, and 100 p. c. of glycerin. St. Onge (Merck's Rep. 97, 602. Am. Dr. 97, xxix. 37).

Ceratum Cetacei.

Absorption. Will take up 30 p. c. of water; 9.69 p. c. of alcohol and 80 p. c. of glycerin. St. Onge (Merck's Rep. 97, 602. Am. Dr. 97, xxix, 37).

Ceratum Plumbi Subacetatis

Petrolatum. The substitution, either wholly or in part, of petrolatum for the lard, in order to prevent rancidity, is inadmissible, because its cooling property is thereby impaired. Haussmann (A. Jl. Ph. 97, 575).

Age. Whether this cerate is fresh or old, can roughly be ascertained by shaking 2 Gm. of the cerate with 10 Cc. of chloroform in a stoppered homœopathic vial. On standing, the milky mixture of a freshly prepared cerate separates into two layers, the lower one of which is but slightly milky, and no precipitation will be found. An old cerate will show a white precipitate. Haussmann (Ibid.)

Cerii Oxalas.

(Third paragraph.) The residue of reddish-yellow ceric oxide should be stirred with a platinum wire, during heating; otherwise undecomposed lumps of cerium oxalate remain, mixed with the ash. This residue should weigh about 48 p. c. Nagelvoort (Apothecary 96, 49. Merck's Rep. 96, 141).

(Fifth paragraph.) Nagelvoort thinks that the strychnine test is rather vague as given. He added 10 Cc. of sulphuric acid to the residue from one Gm. of the oxalate, it was not dissolved in 2 hours at 25° C., nor on heating to 60.75° C. Increasing the acid to 25 Cc. gave equally unsatisfactory results. (Ibid.)

(Fourth, fifth and last paragraphs.) Nagelvoort suggests to consolidate these three paragraphs as follows:

Boil 1 Gm. of the salt with 25 Cc. of a 10–p. c. solution of potassa, and filter through asbestos ("A"). Divide the filtrate into two equal portions. Verify the presence of oxalic acid in one portion, by acidulating it with acetic acid and adding calcium chloride T. S.; the precipitate should be soluble in hydrochloric acid. In the other portion of the filtrate, neither boiling with ammonium chloride T. S. nor the addition of ammonium sulphide T. S., should produce a precipitate. (Absence of aluminum and zinc.)

Take of the moist residue (cerous hydrate), obtained in ("A") a quantity about the size of a grain of wheat, add to it a solution of strychnine (or its salts), 1:1,000, and observe the color reactions as described in the U. S. P. (fifth paragraph). (Ibid.)

Cetaceum.

Specific Gravity. Kebler states that the sp. gr. is liable to vary when the determination is made upon the solid substance, according to the method pursued in preparing the specimen, or the medium in which the weighing is done. He recommends that the sp. gr. be taken at the boiling point of water. Pour the fused spermaceti into the warmed pycnometer, insert the stopple, and plunge the bottle immediately into boiling water, so that only the neck of the bottle projects. Keep the water boiling for one hour, remove the bottle, wipe well, cool and weigh. This gives the weight of a given volume of spermaceti at the temperature of boiling water. (A. Jl. Ph. 97, 104. Proc. 97, 681.)——Evers found the sp. gr. at 100° C. to be 0.839 to 0.842. Adulterations would hardly be probable. (Ph. Ztg. 96, 737, and 97, 838.)

Stearic Acid. Dissolve 1 Gm. in 10 Cc. of benzin. Turbidity points to impurity. Shake this solution with an equal volume on solution of cupric acetate (1:1,000), when as little as 2 p. c. of stearic acid can easily be distinguished by the green color of the benzin. Hirschsohn (Ph. Centralh. 79, 283. Ph. Jl. 97, July, 6. Dr. Circ. 97, 258.)

Texture. The crystalline character is modified by the pressure used in its manufacture, and a finer product is obtained in cold weather than in warm weather. Remington (A. Jl. Ph. 96, 51. Ch. & Dr. 96, Febr. 191.)

Chimaphila.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 139).

Chloroformum.

Purity. Gay has given a series of tests, which agree with those of Squibb. See "Digest, I" (on U. S. P., 1890) p. 49. (Am. Dr. 97, 292. Merck's Rep. 97, 434.)——Pure chloroform may be obtained by subjecting 75 parts of tetrachlormethane to the action of 60 parts of hydrochloric acid of 22 B., and 50 parts of metallic zinc. (Merck's Rep. 96, 634. Proc. 97, 660.)

Chrysarobinum.

Melting Point. With slow fusion, 151° C.; with rapid fusion, 146° C. Nagelvoort (Dr. Circ. 97, 130. Merck's Rep. 97, 342.)

Cinchona.

Cultivation. In Bengal. King (Ph. Jl. 96, Oct. 345. A. Jl. Ph. 97, 47. Proc. 97, 513).——In India. O'Connor (Ch. & Dr. 98 . . . A. Jl. Ph. 98, 170).

Manure, effects. Hooper (Ph. Jl. 96, July 21. A. Jl. Ph. 96, 537).

Histology. Of various barks. Dohme (Dr. Circ. 96, 296. Proc. 97, 513).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 529).

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 139).

Extraction. Experiments. Squibb, Farr and Wright. (Dr. Circ. 97, 120. Proc. 97, 419).——Stroem found that by cold extraction invariably a higher p. c. of alkaloid was obtained than by the application of heat. With acidulated water (sulphuric or hydrochloric acid) in the cold, he obtained almost the whole amount of alkaloids, while by boiling with acidulated water not more than 70 p. c. could be obtained. He found, too, that the total alkaloids obtained by boiling contained a less p. c. of quinine than was in the original bark, the residue after boiling showing a p. c. of 55.13 quinine against one of 52.15 in the original bark. He also found that in the preparation of the dry extract about 4 p. c. of the alkaloids were lost (decomposed). (Nord. Tidskr. 96 . . . Ph. Ztg. 96, 469.)

Localization of alkaloids. Lotsy (Bot. Centralbl. 97, 395. Ph. Jl. 97, Nov. 460. Ph. Ztg. 97, 760).

Amorphous Alkaloids. It has heretofore been believed that quinoidine is merely an amorphous decomposition product of the crystallizable cinchona alkaloids; partly due to the influence of drying and packing the bark, and partly due to the process of manufacture of the alkaloids. De Vrij, however, holds a diametrically opposite opinion, believing that quinine, &c., are formed from quinoidine. The change, he asserts, takes place in the leaves, from which he isolated the mixture of amorphous alkaloids, known as "quinoidine," but no crystallizable alkaloid. He is apparently supported in his theory by the fact that the young bark contains only amorphous alkaloids. (Nederlands Tijdschr. Ph. Ch. 96 . . . Ph. Rev. 96, 186. Ph. Ztg. 96, 287. Proc. 97, 704.)

Digitalin-like Reaction. Chinotannic acid produces the same color reactions with sulphuric acid, containing ferrous sulphate, and with glacial acetic acid, containing also ferrous sulphate, as digitalin, proving that color reactions are not always absolutely conclusive. Schaer and Beisser (Ph. Ztg. 96, 721, & 97, 241).

(Cinchonidinae Salicylas.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era, 97, xviii. 41.)

Cinchonina.

Conversion into Cinchonidine. Paul and Cownly throw doubt upon the alleged conversion by the action of dilute potassa (as stated by Koenig and Hussmann). Either the cinchonine, operated upon, was not sufficiently purified, or the substance operated upon was a double compound of the two cinchona alkaloids. (Ph. Jl. 97, Febr., 141. A. Jl. Ph. 97, 215.)

(Cinnamomum.)

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Ceylon. Account. Abrew (Imp. Inst. Jl. . . . Dr. Circ. 96, May, p. xv).

Powder. The powder often contains white particles of wood, due to its being frequently made from "chips." Microscopically, the detection is not difficult. Hanausek (Zts. Oest. A. Ver. 96, 34. Dr. Circ. 96, 65).——Hefelmann reports having frequently found sugar in the powder, and supposes that it has been added to disguise the addition of sand. (P. Centralh. 96, 699. Ph. Ztg. 96, 763. Proc. 97, 491.) The "chloroform shake" test should never be omitted in the examination of any powder.

Cobaltum.

Reactions. Limit of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Coca.

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 139).

Extraction. Experiments. Sayre, Newhall (Dr. Circ. 97, 121, 214. Proc. 97, 419).

Extract. Percentage. Linde (Ph. Centralh. 96, 423).

Cultivation in Peru, &c. Ledger (Ch. & Dr. 97, Jan'y, 182. Proc. 97, 538).

Assay. Comparison of assays by Lloyd and Kebler, following the same method, but differing in the time of shaking. It was found that the time of agitation influences the yield of alkaloid. The relative value of cochineal, Brazil-wood and hæmatoxylin as indicators is also shown. (A. Jl. Ph. 97, 477. Proc. 97, 121.)——Gunn revises the different methods proposed (tabulating the results) and concludes that Lyons' ammoniated ether method is based on sound principles, only objecting to the 24 hours which it takes to complete it. He modifies this process, so that it may be completed in two hours. Five Gm. of the powdered leaves is dampened with a weak solution of ammonia (2-p. c.) and allowed to stand for half an hour. The leaves are then placed in a narrow-tubed percolator (½ inch bore), and percolated with ammoniated ether until 100 Cc. have been collected. Wash three times with a 2-p. c. solution of hydrochloric acid. 50 Cc. of the washings is now washed with ether, alkalinized with ammonia, and shaken out with three washings of ether. "Blow off" the ether from a flat dish, and dry the residue at 75° C. Gunn found that heat is inadmissible at any stage during the extraction of the alkaloids. The presence of alcohol does not materially affect the results, and therefore the disagreement between the assay of leaves and of alcoholic preparations should be but slight. The ether used in this method will naturally dissolve in the alcohol, and must, therefore, be separated by the addition of water. (Ph. Jl. 96, Sept. 249. Proc. 97, 539.)

(Cocaina.)

Melting Point. With slow heating, 98° C.; with rapid heating, 90° C. Nagelvoort (Dr. Circ. 97, 130. Merck's Rep. 97, 342).

Solubility. Sage found that cocaine is insoluble in lard and vaseline, while it was found soluble in olive oil and castor oil. (Ph. Jl. 96, July, 28. Proc. 97, 711.)

Cocainæ Hydrochloras.

Melting Point. With slow heating, 186° C.; with rapid heating, 192° C. Nagelvoort (Dr. Circ. 97, 130).

Marmé's Reagent. Cadmium-potassium-iodide. Sensible to 1:16,900. Verven (Ch. Ztg. 97, 116. Dr. Circ. 97, 278).

Coccus.

Cultivation in the Canary Islands and in Guatemala. (Am. Dr. 96, xxviii, 49.)

Codeina.

Detection of codeine in morphine. An infusion of hollyhock flowers (Althæa rosea) serves well to distinguish between codeine and morphine, but it is not a special test for codeine. Codeine gives the infusion a green color, morphine does not. Woolsey (Bull. Ph. 97, 342. Dr. Circ. 97, 283). See also "Morphina."

Sulphuric Acid Test. (Fifth paragraph.) Tambach and Henke state that this test will give concordant results only when the codeine is added in very small portions at a time to the cold acid, the acid being rotated after each addition. They propose the following wording: Add 0.07 Gm. of codeine in small portions at a time to 10 Cc. of cold sulphuric acid, each portion being rapidly distributed. The rose coloration first observed disappears in from 1 to 2 minutes, the solution thereafter being colorless. When codeine is heated with sulphuric acid to 120° C., the solution becomes yellowish-red, changing to brown; at 170° C. it becomes green, and, poured into water, colors it emerald-green. (Merck's Rep. 97, 305.)

Morphine. Detection. Tambach and Henke dissolve a fragment of potassium ferricyanide in 10 Cc. of water, and add one drop of ferric chloride solution. This test should not immediately be colored blue by 1 Cc. of a solution of 0.01 Gm. of codeine in 1 Cc. of warm hydrochloric acid. (Ibid.)

Color Reactions. Pruys (Ph. Ztg. 96, 647).

Adulteration. Étiérant reports upon an adulteration with crushed rock-candy. (Rep. de Ph. 95, 11. Ph. Rev. 96, 66.)

(Codeinæ Phosphas and Codeinæ Sulphas.)

Introduction proposed. Comm. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

(Cola.)

Introduction and assay proposed. Comm. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

False Cola. From Dimorphandra (Mora) excelsa, St. Domingo. Is handsomer than the African Cola, but contains less caffeine. (Ph. Jl. 96, Oct. 380. Ph. Rev. 97. Suppl. 3.)

Identity of the Powder. Dieterich mixes the powder with calcined magnesia, and digests it with dilute alcohol at a moderate heat. Then he expresses and filters, and transfers to a beaker, at least 10 Cm. wide. In a layer of this thickness the liquid shows a bluish-green color and a fluorescence, resembling that of tincture of curcuma. The roasted Cola does not show this play of color. (Ph. Ztg. 97, 649. Am. Dr. 97, xxxi, 215.)

Roasting. Although roasting improves the taste, Dieterich advises against its use, because there is a not inconsiderable loss of combined alkaloids. The natural double salt of caffeine and theobromine with cola-tannic acid is much more active than the free caffeine. (Ibid. Am. Dr. 97, xxxi. 215.)

Menstruum. Schroeder obtained the largest yield of alkaloids (0.88 p. c.) with a menstruum of diluted alcohol containing 2 p. c. of acetic acid; while strong alcohol with 2 p. c. of acetic acid yielded 0.69 p. c., and 80 alcohol with 20 glycerin yielded only 0.76. (A. Jl. Ph. 96, 254.)

Extract. Percentage. Linde (Ph. Centralh. 96, 423).

Assay. Dieterich criticises the different methods proposed, and gives his own. (Ph. Ztg. 97, 647. Am. Dr. 97. xxxi. 215.)——Knox and Prescott (A. Jl. Ph. 96, 517; 97, 481. Ph. Rev. 96, 235; 97, 172, 191, 214, 218. Proc. 96, 136; 97, 131.)——Carles (A. Jl. Ph. 97, 484.)——Jean (A. Jl. Ph. 97, 483).——Fromme (Ph. Ztg. 44, 89, 598).——La Wall (A. Jl. Ph. 96, 350).——Dohme and Englehardt (A. Jl. Ph. 96, 5).——Dieterich states that the assay should show: 1. Total alkaloids. 2. Free caffeine. 3. Combined caffeine. 4. Fat. 5. Water. 6. Ash. (Ch. Ztg. 97, 649. Am. Dr. 97, xxxi. 215.)

Colchici Radix.

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 139).

Extraction. Experiments. Farr and Wright, Sayre, Gregory (Dr. Circ. 97, 120, 121. Proc. 97, 419).

Microscopy of powder. Jelliffe (Dr. Circ. 97, 350).

Colchici Semen.

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 139).

Extraction. Experiments. Squibb, Farr and Wright, Sayre, Gregory (Dr. Circ. 97, 120, 121. Proc. 97, 419).

Collodium.

Menstruum. Acetone should be used instead of ether and alcohol. Illinois Ph. Rev. Comm. (Ph. Era, 97, xviii. 41.)

Conium.

Alkaloidal Value. Farr and Wright have determined the alkaloidal value of different parts of the plant from different localities and at different stages of its growth. The alkaloidal p. c. of the root varied from 0.018 to 0.050; stems and stalks, from 0.012 to 0.061; leaves, from 0.031 to 0.187; flowers with peduncles, from 0.086 to 0.236; and the green fruit, from 0.725 to 0.975. The p. c. of alkaloidal hydrochlorate from the green fruit for three years were from 0.725 to 1.088. The authors suggest that in the future only the green fruit be retained. (Ph. Jl. 96, Aug. 89, and 97, Aug. 136. Ch. & Dr. 96, Aug. 189, and 97, Aug. 274. A. Jl. Ph. 96, 499. Proc. 97, 519.)

Comparison of the action of the alkaloid and the usual preparations. Findlay (Ph. Jl. 97, Aug. 137. Ch. & Dr. 97, 274. A. Jl. Ph. 97, 460).

Extraction. Experiments. Farr and Wright, Gregory (Dr. Circ. 120, 121. Proc. 97, 419).

(Conii Folia.)

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Convallaria.

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Copaiba.

Acid Test. Gehe & Co. point out that the reliability of the acid test depends on whether the acids have been mixed shortly before being used or not. They state that only the fresh, cooled mixture gives trustworthy results. This test is reliable only with Maracaibo balsam; both Angostura and Carthagena balsam generally give a reddish-violet color. (Ph. Ztg. 96, 271.)

Detection of Rosin. Bosetti states that the ammonia test of Ph. G. (D. A–B.) is not sufficiently sensitive, since it admits of the presence of from 30 to 35 p. c. of rosin in both the Maracaibo and Para varieties. The Maracaibo balsam is often adulterated with from 5 to 25 p. c. of rosin. He proposes to prove this want of sensitiveness by melting a mixture of 7 parts of copaiba with 3 parts of rosin, which then should stand to the ammonia test. The rosin used for this test should be such that a perfectly pure balsam mixed with 35 p. c. of this rosin, will stand the ammonia test. (Zts. Oest. Ap. Ver. 96, 767. Proc. 97, 557.)

Specific Gravity. Kebler never found a sample with a sp. gr. below 0.9800 at 15° C., and solidifying well. He was informed by a large importing house that for every 1,000 pounds of copaiba, containing from 40 to 60 p. c. of oil, were sold only 5 pounds of the solidifiable balsam, and 3½ pounds of resin of copaiba. The U. S. P. should therefore recognize also a balsam containing from 40 to 60 p. c. of oil. The sp. gr. should be stated at from 0.9800 to 1.0173. (A. Jl. Ph. 97, 577.)

Brittleness of the Resin. On removing the oil, the residue may or may not be brittle; Kebler removed once 92 p. c. of oil from Para copaiba, and the residue was far from brittle, although no fixed oil was present. (Ibid.)

Gurjun Balsam. The heat test for gurjun balsam assuredly is an error. Kebler found that none of the samples of gurjun balsam, submitted to this test, ever congealed, but only became slightly more viscid. (Ibid.)

Creosotum.

Guaiacol. Distinction. Shake well together one drop of the liquid to be examined, 2 or 3 drops of ether and 1 or 2 drops each of concentrated nitric and hydrochloric acids. In the presence of guaiacol, needle-shaped crystals will separate soon, while pure creosote separates only oily drops. Vreven (Zts. Oest. Ap. Ver. 96, 711. Am. Dr. 96, xxix, 32. Proc. 97, 668).

Guaiacol and Cresol. Freyss states that the amount of guaiacol varies from 3 to 30 p. c., and that of cresol from 10 to 40 p. c.; accompanied by a very variable amount of monophenols. (Monit. Scientif. 96, . . . Ph. Jl. 96, May 422.)

Preservation. Expose it in glass-stoppered bottles to direct sunlight. (Ph. Post 97, 304. Merck's Rep. 97, 496.)

Crocus.

Cultivation. In Malaga. (Ph. Jl. 96, July 96, 64. Merck's Rep. 96, 602. Proc. 97, 486.)——In Kashmir. Lawrence (Ph. Jl. 96, April 272. Dr. Circ. 96, 134).

Adulteration. Marpurgo reports an ingenious method of adulteration with bariumsulphate. The cells of the saffron under the microscope showed crystals, which were recognized as barium sulphate. It was, therefore, evident that the saffron had first been soaked in a solution of a barium salt, and then in a solution of a sulphate. (Ap. Ztg. 97, 119, 264. Dr. Circ. 97, 129.)

Substitute. Heim proposes the stigmata of Tritonia aurea, Poppe, as a good substitute for crocus. He found that it contains crocin, crocetin and crocose, which are identical with those of crocus; he also obtained an analogue to picrocroceine. (Nouv. Remed. 96, 217. Ch. & Dr. 96, Febr. 259.)

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 139).

Cubeba.

True and False Berries. History, pharmacognosy, adulterations, chemistry. Peinemann (Arch. d. Ph. ccxxxiv, 204–270. Merck's Rep. 97, 306).

(Cuprum.)

Volumetric Determination. Rupeau proposes to precipitate the copper from its ammoniacal solution by picric acid. One Cc. of a solution, containing 7.2 Gm. of picric acid in ammonia to the liter, precipitates 1 Mgm. of copper from its ammoniacal solution. (Bull. Soc. Ph. Bord. 96, . . . Ap. Ztg. 96, 576. Ph. Rev. 96, 207.)

Detection in Vegetable Substances. Paul and Cownley carbonize the material in platinum, extract the ash with strong hydrochloric acid, filter through an acid-washed filter, wash the filter with hot water, treat the insoluble residue with a few drops of strong nitric acid, dry and ignite. The ignited mass is treated with hydrochloric acid, evaporated to a small bulk, and the copper precipitated with pure zinc. (Ph. Jl. 96, June 441. Ph. Rev. 96, 207. A. Jl. Ph. 96, 568.)

Reactions. Limit of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Digitalis.

Histology. Dohme (Dr. Circ. 97, 4).

Quality. Strahler states that the difference in the activity of preparations of digitalis is largely due to the want of care exercised in the selection of the leaves, which frequently are not obtained from the wild plant; not to mention the careless way in which the leaves are often kept. (Ph. Post 97, 50. Am. Dr. 97, xxxi, 5. Merck's Rep. 97, 375. Proc. 97, 495.)

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 139).

Extraction. Experiments. Sayre, Gregory (Dr. Circ. 97, 121. Proc. 97, 419).

English vs. German Leaves. England finds that the English select leaves are more active and reliable than the German. (Dr. Circ. 97, 53.)——This opinion is controverted by Kebler. (Am. Dr. 97, xxx, 68.)

Estimation. Keller estimates the quality of digitalis by the p. c. of digitoxin, which, according to Schmiedeberg, is the chief part of Nativelle's digitalin, and the most potent constituent of the leaves. Extract the leaves with 70–p. c. alcohol, remove the alcohol by distillation, mix the residue with water, and add basic lead acetate (which does not precipitate the digitoxin). The excess of lead is removed by sodium sulphate. Add ammonia to the filtrate, and shake out with chloroform. Purify by dissolving in ether-chloroform, and precipitating by benzin. (Ber. d. D. Ph. Ges. 96, 125. Ph. Ztg. 97, 250. A. Jl. Ph. 97, 450.)

Digitalin, Digitoxin, Digitonin. Distinction. Kiliani asserts that sulphuric acid, mixed with one p. c. of a solution of ferric sulphate (1:20), forms an excellent test for identifying the various constituents. Introduce a few fragments of the substance into a test tube, cover with 5 Cc. of the test acid, and stir with a glass rod until dissolved. Digitalin becomes immediately intense golden yellow, and dissolves with a red color, which rapidly turns violet. Digitoxin becomes quite dark-colored, as if carbonized, then becomes clear with a dirty brownish-red color. Digitonin does not give any coloration. Keller suggests to dissolve the glucosides in glacial acetic acid, containing 1 p. c. of the above-named ferric solution, then to carefully run below it the sulphuric acid test, when there will immediately be formed a dark zone at the line of contact; after a couple of minutes a blue streak appears above it, which expands, until the whole acetic layer is dark blue; the sulphuric acid layer is little colored. In case digitoxin and digitalin are mixed together, the sulphuric acid will be colored reddish-violet, while the acetic acid layer is blue. (Arch. d. Ph. ccxxxiv, 273. Ph. Jl. 96, May, 401. Merck's Rep. 97, 307.)

Keller-Kiliani Controversy. (Ph. Ztg. 96, 22, & 97, 239, 250, 309, 617, 690, 773.)

Color Reactions and Spectroscopic Reactions of digitalin and digitonin. Dragendorff (Ph. Centralh. 96, 351).

Adulteration. Maisch reports in European digitalis, the leaves of Solanum tuberosum and Solanum nigrum, which, when dry, resemble digitalis somewhat. The suspected leaves are heated with as little water as possible, and a few drops of the infusion are spread on two porcelain tiles. If ferric chloride solution produces a green coloration, then the absence of Solanum is proved (a blue color would be produced by Solanum). If potassa solution changes the color of the infusion to a golden-yellow, the leaves are those of digitalis. (Bull. Ph. 96, 68. Ph. Centralh. 96, 768.)

Dulcamara.

Histology. Dohme (Dr. Circ. 97, 274).

Elixir Aromaticum.

Preparation. Hiss suggests to shake the calcium phosphate with the mixture of alcohol and compound spirit of orange, instead of adding it to the mixture of alcohol, spirit, syrup and water; it filters much quicker. (Ph. Era 95, xiv, 173.)

(Elixir Ammonii Valerianatis; Cinchonae; Cinchonae et Ferri; Pepsini; Potassii Bromidi.)

Introduction proposed. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Emplastrum Belladonnae.

Assay. Improved method by Smith (A. Jl. Ph. 98, 182). The author also reports on the strength of Belladonna Plasters found in the American market.

(Emulsum Oleosum.)

Pancreatin. Russel prefers emulsions made with pancreatic juice (pancreatin), as being more easily digested. (W. Dr. 97, 116. Proc. 97, 311.)

Saponin. Schazki recommends saponin as being preferable to any other substance proposed, and states that it is harmless in proportions in which he uses it (from 0.54 to 1.20 in 1,000). (Bull. Comm. xxiv, 272. Ph. Jl. 96, Nov. 406. Proc. 97, 412.)

Casein. Lester finds that the claims of casein, to be a desirable emulsifier, are unfounded. It emulsifies readily enough, but the emulsions are not permanent, and since it is necessary to use an alkali to dissolve it, this would be objectionable in many instances. (W. Dr. 96, 297. Proc. 97, 744.)

Ergota.

Definition. Nagelvoort calls attention to the definition " . . . replacing the grain of rye," which is not correct, inasmuch as the sclerotium grows extensively on wheat, barley, and many other Gramineæ. Wheat ergot is stated to be a better haemostatic than rye ergot, and it does not deteriorate as easily as that from rye. (Apothecary 96, vi, 2. Merck's Rep. 96, 602.)

Extraction. Experiments. Newhall (Dr. Circ. 97, 214).

Extract. Yield. Linde (Ph. Centralh. 96, 423).

Preservation. It is suggested to coat the ergot with ethereal tincture of tolu. (Ch. & Dr. 97, Oct. 701.)

From *Canary Islands.* Umney (Ph. Jl. 96, Febr. 546. Ph. Ztg. 96, 127).

Eriodictyon.

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Eucalyptol.

Solidification. (Fifth paragraph.) Nagelvoort proposes to make the somewhat vague statement " . . . when exposed to a temperature some degrees below 0° C. . . . " read: "It solidifies to a crystalline mass at —18° C. to —20° C." He states that he has met with samples, which did not solidify at —20 C. for hours, but crystallized immediately upon introducing a crystal of eucalyptol. (Apothecary vi, 66. Merck's Rep. 97, 48.)

Oil of Turpentine. Detection; based on its low bromine absorption as compared with terpenes and other bodies. Five minims of the sample are treated with a solution of bromine (10 drops of bromine, from a dropping tube, to 10 Cc. of chloroform), until a reddish-yellow tint is obtained. Eucalyptol requires about 8 drops, oil of eucalyptus, 95 drops; the oil with 2½ p. c. of oil of turpentine, 135 drops; eucalyptol with 2½ p. c. of oil of turpentine, 23 drops; with 5 p. c. oil of eucalyptus, 12 drops. Schamelhout (Annal. Ph. 97, . . . Dr. Circ. 97, 262).

Eucalyptus.

Eucalyptus rostrata. Account. Maiden (A. Jl. Ph. 97, 1. Proc. 97, 546).

Histology. Dohme (Dr. Circ. 97, 178).——Schneider (Jl. Pharmacol. 97, 169. Merck's Rep. 97, 497).

Powder. In a fine powder no fragments of epidermis should be found, in which the guard-cells ("Nebenzellen") of the stomata can be distinctly seen upon a vertical view (absence of the younger leaves and of the leaves of other plants), nor any fragments, which, without possessing stomata, exhibit wavy epidermal cell-walls on a vertical view. Rusby (Dr. Circ. 97, 187).

Euonymus.

Microscopy of bark and powder. Sayre (A. Jl. Ph. 97, 437, 438).

(Extracta.)

Assay. Kippenberger dissolves the extract in warm acidulated water, neutralizes it as near as practicable, and precipitates with a solution of iodine in potassium iodide (Wagner's reagent ?). The precipitate is washed, and dissolved in the smallest quantity of acetone; heated with alkali, followed by acid in excess, and shaken out with benzin to remove impurities. Drive off any acetone and benzin remaining, and after cooling, add a few drops of hyposulphite solution, followed by an excess of sodium carbonate, when the alkaloid may be shaken out, as usual. (Zts. Oest. Ap. Ver. 96, 865. Proc. 97, 416.)

Methyl alcohol. Is recommended for the extraction of alkaloidal drugs (for solid extracts). It has been found that the solvent power of methyl alcohol for non-alkaloidal plant constituents is not identical with that of ethyl alcohol; the dose would therefore have to be changed, in case methyl alcohol be adopted. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 77, 298. Proc. 97, 176.)——Alcohol should be replaced by purified methyl alcohol ("Columbian Spirit"). Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

"*Acetracts.*" Some years ago Squibb and others strongly recommended the use of acetic acid instead of alcohol (See "Digest" 1890, p. 62). Remington now records the results of extensive experiments (41). He finds that acetic acid can be used with advantage for the exhaustion of most of the drugs. (A. Jl. Ph. 97, 121. Proc. 97, 687.)——Benysek states that acetic acid gives a larger p. c. of extracts with a greater alkaloidal strength. It is immaterial, whether recent or dried plants are operated upon. (Merck's Rep. 96, 413. Ph. Post 96, 271. Proc. 97, 416.)

Carbon Dioxide. Preparatory treatment, by passing carbon dioxide into a mixture of the drug and menstruum under pressure, the idea being, when the pressure is rapidly removed, that the tissues, into which the gas has been diffused, are ruptured by its escape. Deininger (Ph. Ztg. 96, 427. Ph. Rev. 96, 188. Dr. Circ. 96, 203).

Green Extracts. Farr and Wright (and others) have shown that in pressing fresh herbs, &c., the juice scarcely contains any alkaloid, while practically the whole alkaloid is found in the marc, from which it can be extracted by alcohol. (Ch. & Dr. 97, Dec., 908.)——See also under "Succi."

Dry Extracts. Stroem found that by the heat necessary to reduce the extract to dryness (100° C.), a not inconsiderable part of the active principles is decomposed, and therefore lost. He instances cinchona, opium, nux vomica. (Nord. Farm. Tidskr. 96 . . . Ph. Ztg. 96, 469.)——Mutnianski recommends to evaporate in vacuo. (Ph. Zts. Russl. 97 . . . Ph. Ztg. 97, 284.)

Yield. Linde (Ph. Centralh. 95, 381; 96, 423).

Narcotic Extracts. Œfele proposes to remove chlorophyll, some of the extractive matter and double phosphates from these extracts by magnesium carbonate, which will cause them to keep better. (Ap. Ztg. 97, 335.)——Nagelvoort thinks it advisable to add physiological identity tests to the text of, what he calls, "heroic" extracts. (Apothecary vi, 66. Merck's Rep. 97, 48.)

(Extracta Fluida.)

Methyl Alcohol. It is recommended to replace ethyl alcohol with purified methyl alcohol. See under "Extracta." Com. Rev. Ph. A. Ph. A. (Proc. 97, 176.)

Assay. Nagelvoort is of the opinion that assays of fluid extracts have only a commercial value, but no scientific value; they do not settle the question whether the fluid extracts properly represent the respective drugs. The same holds good for solid extracts. For instance, a morphine estimation does not settle the medicinal value of extract of opium. (Apothecary vi, 66. Merck's Rep. 97, 48.)

Standardization. Dieterich proposes to standardize fluid extracts by the amount of dry extract. Linde gives a list of average yield. (Ph. Centralh. 96, 463.)

Glucose. It is recommended to replace glycerin by glucose. Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)

Repercolation. Mutnianski states that since evaporation always deteriorates more or less, it is better to make fluid extracts by repercolation. (Ph. Zts. Russl. 97, . . . Ph. Ztg. 97, 284.)

From Recent Plants. Colaz gives the following directions: Gather the plants during dry weather, bruise until completely crushed, and place in a dialyser, suspended in 90–p. c. alcohol. When the dialysis is finished, the alcohol is removed by evaporation. The aqueous remainder retains the active constituents in the natural proportions. (Ph. Post 96, 271. Merck's Rep. 96, 413. Dr. Circ. 96, 10. Proc. 97, 422.)

Fifty-per cent. Fluid Extracts. Sayre, Gregory, Patch, Farr and Wright, and Squibb have undertaken a series of experiments in order to determine whether two parts of menstruum can exhaust one part of drug in one operation, and also to determine how much additional menstruum would be necessary to attain this end. The tabulated results will be found in (Dr. Circ. 97, 119. Proc. 97, 419). ——For opinions of Kebler, Squibb, Lloyd, Farr and Wright, see (Dr. Circ. 97, 120, 147, 212. Proc. 97, 421).——Sayre concludes that it is difficult, and in the majority of cases absolutely impossible, for the average pharmacist to accomplish the complete extraction of 50 parts of drugs with 100 parts of menstruum. (Dr. Circ. 97, 214.) ——The Com. Ph. Rev. A. Ph. A. proposes to dismiss all fluid extracts, of which tinctures are official, and replace them by 50-p. c. fluid extracts under a distinct title. (Merck's Rep. 96, 442.)——All fluid extracts, except those of buchu, gossypium, ergota, frangula, glycyrrhiza, ipecacuanha, prunus virginiana, rheum, sarsaparilla, (simple and compound), senega, senna, taraxacum, uva ursi, valeriana, should be fifty-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)——Williams shows at length the undesirability of fifty-p. c. fluid extracts. (Dr. Circ. 97, 214.)

Extractum Aconiti.

Menstruum. Comparison between solvent effects of ethyl alcohol and methyl alcohol. Com. Rev. Ph. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Fifty-p. c. Recommended by the Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)

Identity. It should produce a sharp, burning taste on the tip of the tongue, followed by long-continued anaesthesia. Hell (Ph. Ztg. 96, 115. Ph. Jl. 96, Mrch., 253).

Extractum Apocyni Fluidum.

Should be fifty-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. To be used instead of glycerin. (Ibid.)

Extractum Arnicæ Radicis Fluidum.

Extractum Aromaticum Fluidum.

Extractum Asclepiadis Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Aspidospermatis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. To be used instead of glycerin. (Ibid.)

Extractum Aurantii Amari Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Belladonnæ Foliorum Alcoholicum.

Temperature. Effect upon percolation. DeForrest Smith (Proc. 97, 248).

Stirring. Roeser calls attention to the fact, that this extract (of Ph. G., which is rather thinner than that of U. S. P.) generally separates into two layers, differing not inconsiderably in alkaloidal p. c. It will, therefore, be necessary to stir the extract well before dispensing it. (Ph. Ztg. 97, 387.)

Menstruum. Comparison between solvent effects of ethyl alcohol and methyl alcohol. Com. Rev. Ph. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)——Yield of extract and p. c. of alkaloid, as obtained by using alcohol of different strength in successive portions of percolate. Williams (Dr. Circ. 97, 253).

Extractum Belladonnæ Radicis Fluidum.

Extractum Calami Fluidum.

Extractum Calumbæ Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

(Extractum Berberidis Aquifolii Fluidum.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Cannabis Indicæ.

Solubility in Water. It has been found, that a saturated aqueous solution of chloral hydrate dissolves this extract readily. (Ch. & Dr. 97 . . . Am. Dr. 97, xxx, 45. Proc. 97. 417.)

Identity. It should yield to ether a soft resinous substance, soluble in alcohol, chloroform, benzol and carbon disulphide, and not capable of saponification by potassa. Hell (Ph. Ztg. 96, 115. Ph. Jl. 96, Mrch., 253).

Extractum Cannabis Indicæ Fluidum.

Extractum Capsici Fluidum.

Should both be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Castaneæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Extractum Chimaphilæ Fluidum.

Extractum Chiratæ Fluidum.

Should both be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Cimicifugæ Fluidum.

Commercial. Examination. (Proc. Ohio Ph. Ass. 96, 21. Proc. 97, 425.)

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Cinchonæ.

Menstruum. Comparison between solvent effects of ethyl alcohol and methyl alcohol. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Dry Extract. Stroem found that by the evaporation about 4 p. c. of the alkaloids were decomposed. (Nord. Tidskr. 96 . . . Ph. Ztg. 96, 469.)

Extractum Cinchonæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace the glycerin. (Ibid.)

Temperature. Effects upon percolation. DeForrest Smith (Proc. 97, 248).

Assay. Drieesen Mareeuw estimates the alkaloids colorimetrically. He makes use of the fact, that Mayer's solution produces opalescence only within certain dilutions, and that it is possible to make an approximate estimation by means of control experiments. One Gm. of the fluid extract is dissolved in 1 liter of water. Of this solution 1 Cc. is mixed with 2 Gm. of dilute hydrochloric acid, and sufficient water added to make 8 Cc.; now add 5 Gm. of Mayer's solution—a faint, but distinct opalescence should be shown, which would indicate 4 p. c. of alkaloids. Drieesen's "control" mixture consists of quinine 0.82 Gm.; cinchonine 1.8; cinchonidine, 3.2; quinoidine, 0.27; and tannin, equal to the weight of the alkaloids (about 6 Gm.). This mixture is about what Cinchona succirubra would yield. (Nederlands Tijdskr. Ph. 96, 105. Ph. Ztg. 96, 287).

Extractum Cocæ Fluidum.

Commercial. Examination. Schneider followed Lloyd's process, which gave the best results. The green coloring matter was separated by treating the crude alkaloid with acidulated water, the filtrate was alkalinized and shaken out with chloroform. (A. Jl. Ph. 96, 609. Proc. 97, 425.)

Assay. Comparison of methods of Lloyd and Kebler, showing the relative value of Brazil wood, cochineal and hæmatoxylin as indicators. (Proc. 97, 121. A. Jl. Ph. 97, 477.)

Menstruum. Brown prefers a 25-p. c. alcohol, by which he avoids the extraction of the chlorophyll, and thus gets a preparation which mixes clear with water and wine. Ph. Jl. 96, . . . Ph. Ztg. 96, 309.)

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

(Extractum Colæ Fluidum.)

Strength. Dieterich states that the fluid extract should contain from 0.95 to 1 p. c. of total alkaloids. (Ph. Ztg. 97, 657. Am. Dr. 97, xxxi, 245.)

Assay. (See under "Cola.")——According to Dieterich the assay should show: 1. Total alkaloids. 2. Free caffeine. 3. Combined caffeine. 4. Specific gravity. 5. Dry residue. (Ibid.)

Identity. See under "Cola."

Extractum Colchici Radicis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Colchici Seminis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Benzin. Should be used to remove the fat. (Ibid.)

Extractum Conii Fluidum.

Temperature. Effects upon percolation. De Forrest Smith (Proc. 97, 248).

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Convallariæ Fluidum.

Extractum Cubebæ Fluidum.

Extractum Cusso Fluidum.

Extractum Cypripedii Fluidum.

Extractum Digitalis Fluidum.

Extractum Dulcamaræ Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Ergotæ Fluidum.

Should yield 15 p. c. of dry extract. Linde (Ph. Centralh. 96, 463).

Benzin. Should be used to remove fat. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Eriodictyi Fluidum.

Extractum Eucalypti Fluidum.

Extractum Eupatorii Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Frangulæ Fluidum.

Should yield 20 p. c. of dry extract. Linde (Ph. Centralh. 96, 463).

Extractum Gelsemii Fluidum.

Extractum Gentianæ Fluidum.

Should both be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Geranii Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Extractum Glycyrrhizæ.

Ash. Percentage. La Wall (A. Jl. Ph. 97, 149).

Estimation of Glycyrrhizin. The best menstruum with which to treat the commercial powdered extract is a mixture of 40 Cc. ammonia water, 240 Cc. of alcohol, and sufficient water to make a liter. After extraction, filter, and precipitate with dilute sulphuric acid. Of twelve samples examined, the highest was a Greek licorice with 27.78 p. c., and the lowest a Spanish with 5.28 p. c. of glycyrrhizin. Of insoluble matter, the highest was a Spanish with 36.52 p. c., and the lowest a Greek with 5.95 p. c. The average yield, however, was strongly in favor of American licorice. Tobacco manufacturers dissolve 10 Gm. in 100 Cc. of water, add 200 Cc. of alcohol, and allow it to stand over night. The insoluble matter will then have mostly settled; the filtrate is acidulated with sulphuric acid. Mellor (A. Jl. Ph. 98, 23, 54, 136).

Extractum Glycyrrhizæ Fluidum.

Preparation. Ph. Brit. first extracts the sweet principle with cold water, which at the same time takes out albuminous and mucilaginous matter; then it coagulates the albumen by heat, removing it by straining, and finally preserves the fluid extract by one-sixth its volume of alcohol, which also throws down part of the mucilaginous matter. Boa says that this fluid extract has a sweet, mellow taste, free from acidity, and only a faint bitter taste, thus contrasting favorably with that of the U. S. P., which has a disagreeable, acrid, bitter taste. As to the use of ammonia, Boa states that it is not only unnecessary in the extraction, but that it is distinctly objectionable. He prefers to add the ammonia to the percolate in order to preserve its alkalinity, and thus preserve its sweetness. (Ph. Jl. 98, Febr. . . . A. Jl. Ph. 98, 245).

Extractum Gossypii Radicis Fluidum.

Glucose. Should replace glycerin. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41).

Extractum Grindeliæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Guaranæ Fluidum.

Commercial. Examination. Weston used Lloyd's ferric method with apparently reliable results. (A. Jl. Ph. 96, 536. Proc. 97, 423.)

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Hamamelidis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Extractum Hydrastis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Should yield 20 p. c. of dry extract. Linde (Ph. Centralh. 96, 463).

Extractum Hyoscyami Fluidum.

Extractum Iridis Fluidum.

Should both be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Krameriæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Extractum Lappæ Fluidum.

Extractum Leptandræ Fluidum.

Extractum Lobeliæ Fluidum.

Extractum Lupulini Fluidum.

Extractum Matico Fluidum.

Extractum Menispermi Fluidum.

Extractum Mezerei Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Nucis Vomicæ.

Menstruum. Comparison between ethyl alcohol and methyl alcohol. Ph. Rev. Comm. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)——Value of acetic acid as a menstruum. Remington (A. Jl. Ph. 97, 122).

Temperature. Effect upon percolation. DeForrest Smith (Proc. 97, 248).

Benzin. Should be used to remove fat. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Identity. Dissolve in 70–p. c. alcohol, evaporate on a water-bath after addition of a couple of drops of dilute sulphuric acid; the residue will be colored reddish-violet on the edge. An aqueous solution, mixed with talcum, and filtered, should give a curdy white precipitate with ammonia, and orange-red with potassium chromate. Hell. (Ph. Ztg. 96, 115. Ph. Jl. 96, Mrch. 253.)

Dry Extract. Stroem found that by the heat necessary to dry the extract (80° to 100° C.) nearly 7 p. c. of the alkaloids were decomposed; this was not the case when a heat of only 50° C. was employed. (Nord. Tidskr. 96. . . . Ph. Ztg. 96, 469.)

Extractum Nucis Vomicæ Fluidum.

Should be 50–p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Benzin. Should be used to remove fat. (Ibid.)

Extractum Opii.

Assay. Grandval and Lajoux recommend the following as easy and rapid. Dissolve 5 Gm. in 5 Gm. of water, adding 5 Gm. of 95–p. c. alcohol, allow to stand, and then transfer to a plain filter, moistened with 60–p. c. alcohol. Wash with 40–p. c. alcohol (about 10 Cc.), and then proceed as under "Opium." (Jl. de Ph. & Ch. 97, 153. A. Jl. Ph. 97, 217.)——Nagelvoort holds that a morphine estimation does not settle the medicinal value of this extract. (Apothecary, vi, 66. Merck's Rep. 97, 48.)

Benzin. Should be used to enable the retention of the pulverulent condition. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Dry Extract. Stroem finds that the heat necessary for drying decomposes some of the alkaloids, so that the finished extract contains about 0.9 p. c. less than an equivalent quantity of the fluid extract. (Nord Tidskr. 96. . . . Ph. Ztg. 96, 469.)

Extractum Pareiræ Fluidum.

Should be 50–p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Extractum Phytolaccæ Radicis Fluidum.

Extractum Pilocarpi Radicis Fluidum.

Extractum Podophylli Radicis Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Pruni Virginianæ Fluidum.

Glucose. Should replace glycerin. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Miscible with Water. Good proposes to use a menstruum of 200 Cc. of alcohol and 600 of water. He divides the bark into four portions, and moistens each portion with a mixture of 25 Cc. of glycerin and 50 Cc. of water, macerating for 24 hours, and then re-percolates. (Proc. 97, 220. Merck's Rep. 97, 570.)

Extractum Quassiæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Rhamni Purshianæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Should yield 26 p. c. of dry extract. Linde (Ph. Centralh. 96, 463.)

Extractum Rhois Glabræ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Glucose. Should replace glycerin. (Ibid.)

Extractum Rosæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41).

Repercolation. Alpers states that this fluid extract should be made by repercolation, because the evaporation of the second portion imparts to it an unpleasant odor. (Am. Dr. 96, 384. Proc. 97, 425.)

Extractum Rubi Fluidum.

Extractum Rumicis Fluidum.

Should both be made 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

(Extractum Sabal Serrulatæ Fluidum.)

Introduction proposed. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Sabinæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Sanguinariæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Menstruum. Remington speaks highly of acetic acid as a menstruum. (A. Jl. Ph. 97, 126.)

Extractum Sarsaparillæ Fluidum Compositum.

Glucose. Should replace glycerin. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Scillæ Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Menstruum. Acetic acid would be preferable. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Extractum Scoparii Fluidum.

Extractum Scutellariæ Fluidum.

Should both be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Senegæ Fluidum.

Menstruum. Acetic acid would be preferable. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Extractum Serpentariæ Fluidum.

Extractum Spigeliæ Fluidum.

Extractum Stillingiæ Fluidum.

Should all be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Stramonii Seminis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Temperature. Effects upon percolation. DeForrest Smith (Proc. 97, 248).

(Extractum Strophanthi.)

Introduction proposed by H. C. Wood. It should then be made by a process which will give a fixed product for the amount of drug used. In consideration of the fact that in the mind of the physician the unit of work is 5 or 10 minims of the tincture, the extract should bear a relation to the tincture. He thinks that ¼ or ⅛ of a grain should correspond to 5 minims of the tincture. (A. Jl. Ph. 96, 355.)

Extractum Tritici Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Uvæ Ursi Fluidum.

Glucose. Should replace glycerin. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Veratri Viridis Fluidum.

Extractum Viburni Opuli Fluidum.

Extractum Viburni Prunifolii Fluidum.

Extractum Xanthoxyli Fluidum.

Should all be 50 p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Zeæ Fluidum.

Introduction proposed. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Extractum Zingiberis Fluidum.

Should be 50-p. c. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Ferri Chloridum.

Weighing. (Last paragraph.) Nagelvoort states that the weighing an exact quantity of such deliquescent salts, as ferric chloride, is very difficult, and he therefore proposes to weigh any convenient quantity, and then to calculate the results from it. (Apothecary. vi, 66. Merck's Rep. 97, 114.)

Detection in Presence of other Ferric Salts. Aspery proposes to make use of the observation that when a very dilute solution of ferric chloride (1:1100 to 1:4,000) is boiled, it acquires on cooling a reddish-brown color, probably due to the formation of colloidal ferric hydroxide. Other ferric salts do not give this reaction. (Zts. Oest. Ap. Ver. 96, 767. Proc. 97, 611.)

Ferri Citras.

Cold Water. (Second paragraph.) . . . "Slowly but completely soluble in cold water." . . . Nagelvoort objects to the wording as not explicit enough. What is "cold water?" 25° C., 15° C., or 4° C.? He found a freshly made ferric citrate to dissolve in water of 15° C. to the extent of 13.5 p. c. A dark-colored salt of unknown age dissolved in 24 hours in water of 15° C. up to 0.1 p. c.

"*Acid*" *Reaction.* (Fourth paragraph.) Nagelvoort contends that for acid reactions of salts of iron we must make use of certain indicators, else the "acid" reaction does not prove what it is intended to prove. (Apothecary. vi, 66. Merck's Rep. 97, 114.)

Ferri et Ammonii Sulphas.

As this salt is used as an indicator in volumetric estimations of halogen compounds, a test should be provided to insure absence of chloride. (C. E. Smith, see *Preface.*)

Ferri et Quininæ Citras.

Estimation of Quinine. Nagelvoort proposes to use caustic soda instead of ammonia. (Apothecary. vi, 66. Merck's Rep. 97, 114.)

Ferri et Strychninæ Citras.

Estimation of Strychnine. Nagelvoort proposes to start from 5 Gm. instead of 2.24 Gms., as 20 Mgm. is too small a quantity to calculate from, and leaves too much room for individual errors. (Apothecary. vi, 66. Merck's Rep. 97, 114.)

Ferri Hypophosphis.

"Only slightly soluble." . . . (Second paragraph.) Is too indefinite; a definite quantity of water should be stated. Nagelvoort (Apothecary vi, 66. Merck's Rep. 97, 114).

(Last paragraph.) . . . "boiled for fifteen minutes." . . . (previous to titrating with decinormal oxalic acid). It should be stated whether the oxalic acid is to be added to the hot mixture, or whether the mixture has first to be cooled. Nagelvoort (Ibid.).

Permanganate Method. (Last paragraph.) According to Tyrer, this method is not reliable; he prefers the cupric sulphate method (see under "Hypophosphites"). It will be necessary, however, to dissolve the ferric salt in a 20-p. c. solution of potassium citrate, and to dilute this solution well, before reduction. (Ch. & Dr. 97, Aug. 286. A. Jl. Ph. 97, 462.)

See remarks under "Acidum Hypophosphorosum." (C. E. Smith, see *Preface.*)

"Permanent in the air." (First paragraph.) Tyrer states that it is slightly deliquescent. (Ibid.)

(Ferri Phosphas.)

Evans proposes the following proportions for this salt, as more satisfactory than those of the process official in the Ph. Br.: 12 parts of iron ammonium sulphate (or 8 parts of ferrous sulphate); 150 parts of water; 10 parts of sodium phosphate, and 2 parts of sodium acetate in 150 parts of water. (Ph. Jl. 97, Febr. 141. Proc. 97, 611.)——Coull objects to the increase of sodium phosphate as wasteful, because unnecessary. As to the sodium acetate (instead of sodium bicarbonate) he reminds of Howie's investigations, which have shown that, owing to the solubility of the ferrous phosphate in acetic acid, loss of ferrous phosphate would ensue. (Ibid. 97, Febr. 199.)

Ferri Phosphas Solubilis.

Preparation. Puckner shows that the official process is so loosely worded, that it leaves too much to the personal judgment of the operator. The composition of the finished ferric phosphate will depend upon the strength of the solution of ferric citrate, which is liable to added variations incurred in the formation of the dry citrate (the p. c. of iron depending on the strength of the syrupy solution before it is spread), and, finally, still further complicated during the scaling of the phosphate. He therefore proposes the following process, starting from ferrous sulphate. He substitutes potassium chlorate for nitric acid in the oxidation of the ferrous sulphate, and washes the ferric hydrate by decantation, as easier, and avoiding loss of iron. The superfluous scaling of the ferric citrate is omitted, and instead of evaporating to a syrupy consistence, he evaporates to a definite weight. Since the salt is usually prescribed in solution, and, although very soluble, is somewhat tardy to dissolve, Puckner proposes a formula for a solution, of which 2 Cc. are equivalent to 1 Gm. of the official salt. (A. Jl. Ph. 97, 494. Dr. Circ. 97, 334. Proc. 97, 231.)

Estimation of the Phosphoric Acid. Puckner and Julian dissolve the iron phosphate in water, add nitro-hydrochloric acid and boil. Molybdate solution is now added, and the mixture is digested for four hours at 40° C. The precipitate is washed until free from iron, and the phosphomolybdate of ammonium is dissolved in ammonia water. After filtering, magnesia mixture is added, and the whole allowed to stand for 8 hours (or over night). The precipitate is collected on a filter, and washed with ammonia water, until free from chlorides; it is then thoroughly dried at 100° to 125° C., gradually heated to bright redness, retained at this temperature for 15 minutes, cooled and weighed. (A. Jl. Ph. 96, 523. Proc. 97, 231.)

Ammonia. Should be absent. Notice odor, when 1 Gm. of the salt is boiled with 10 Cc. potassium or sodium hydrate T. S. Nagelvoort (Apothecary vi, 66. Merck's Rep. 97, 114).

Ferri Pyrophosphas Solubilis.

(Fifth and Sixth paragraphs.) As it stands, the two "filtrates" mentioned are somewhat misleading. Nagelvoort proposes a better method: To 5 Cc. of the alkaline filtrate, add 5 Cc. of a 10-p. c. ammonium chloride solution and 2 Cc. of a 10-p. c. magnesium sulphate solution. A pearly, crystalline precipitate indicates phosphoric acid. Collect on a filter, wash, dissolve in dilute nitric acid, neutralize excess of acid with ammonia water; acidulate with acetic acid, add a 5-p. c. solution of nitrate of silver. A canary-yellow precipitate indicates phosphate. (Apothecary vi, 66. Merck's Rep. 97, 114.)

(Ferrum.)

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Ferrum Reductum.

Estimation of metallic Iron. Schmidt prefers the iodine process. Place 0.4 Gm. of the iron, in fine powder, in a 100 Cc. flask, add 5 to 10 Cc. of water, then gradually 2 to 2½ Gm. of iodine, which has previously been thoroughly dried, if necessary, over unslaked lime. The iodine combines with the free iron, but not with any ferric oxide which may be present. Add 1 Gm. of potassium iodide and when all iodine has dissolved, add water, up to 100 Cc., and allow to stand. Titrate the free iodine in 50 Cc. of the clear liquid with decinormal sodium hyposulphite. The remainder of the calculation is as usual. (Ph. Ztg. 97 . . . Am. Dr. 97, xxxi, 245.)

Foeniculum.

From Japan. According to Umney, European fennel has for some years been almost entirely displaced by the East Indian seed, and it now appears that the latter will be supplanted by the Japanese variety. (Ch. & Dr. 96, Aug. 191. Proc. 97, 516.)

From Roumania. Kirkby calls attention to a so-called "anise" seed from Roumania, which in form and structure agrees with fennel, but is only about half as large, and possesses a decided odor of anise. He queries whether this is a small variety with small fruit. (Ph. Jl. 96, Aug. 175. Proc. 97, 517.)

Varieties of Fennel. Umney has given the external distinctions and transverse sections of German, French, Galician, Russian, Italian, Japanese, Persian fennel, and also the principal characters of the essential oils and their chief chemical constituents. He thinks that the Roumanian, Russian, Galician, Japanese and Saxon varieties are best adapted for pharmaceutical use, the Saxon being the most preferable. All of these give the highest yield of oil, the flavor of which is most agreeable. (Ph. Jl. 97, Mrch. 225. Proc. 97, 517.)

(Formaldehyde. Formalin.)

Antiseptic Power. Bird states that formalin protects better in the state of vapor than when added in substance. Suspend a tuft of cotton, with a few drops of formalin, by means of a wire from the cork over the surface of the liquid. (Ph. Jl. 96, Aug. 107. Ch. & Dr. 96, Aug. 204. A. Jl. Ph. 96, 617.)

Identity. If to 2 Cc. of the solution an equal volume of 50-p. c. potassa solution and about 0.5 Gm. of resorcinol be added, and the mixture heated to boiling, the yellow color which first appears gradually becomes red. This reaction is said not to be given by any other substance. This test is a very sensitive one (about 1:100,000). Water, shaken with the air of a room in which a bottle of formalin has been opened for a short time, shows it plainly. Lebbin (Ph. Ztg. 96, 680, and 97, 18).——Hehner adds to the distillate one drop of a dilute solution of phenol, and pours the mixture upon strong sulphuric acid, when a bright crimson color appears in the zone of contact. This color is readily seen with 1 part of formalin to 100,000 parts of water. In case the proportion is stronger, there is seen, in addition, above the ring a milky white zone, and still stronger solutions show a curdy precipitate. (Ph. Centralh. 96, 391. Analyst. 96, 94. Ch. & Dr. 96, July 22.

Tests. Criticisms. Smith (A. Jl. Ph. 98, 86).

Phenols. Endemann finds that while formaldehyde and phenols unite to form colorless bodies, when these are treated with a dehydrating agent like zinc chloride, or sulphuric acid, colored bodies are formed, which are characteristic. Phenols may, conversely, be used as reagents for formaldehyde. (W. Dr. 97, 264. Proc. 97, 663.)

Frangula.

Localization of Active Principle. Borskow treats sections with alcoholic potassa; the cells, containing frangulin, will be colored deep-red. (Am. Dr. 96, xxxi, 4.)

Extract. Yield of dry. Linde found that bark, deprived of its bitter principle, yielded less extract than the original bark. (Ph. Centralh. 96, 423. Ph. Ztg. 96, 518.)

Rhamnus Purshiana. Distinction. Sayre says, that while it is not so difficult to distinguish the two barks in the unpowdered and powdered state (frangula contains no stone cells), it is somewhat difficult to do so in a mixture of the powders, frangula having no positive characteristic. To the official description should be added: Medullary rays not converging at the outer ends. Stone cells absent. (Distinction from Rhamnus Purshiana.) (A. Jl. Ph. 97, 126. Proc. 97, 564.)

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140.)

(Gauzes.)

Estimation of phenol; salicylic acid; and iodoform in gauzes. Frerichs (Ap. Ztg. 96 . . . Ph. Era 96, xvii . . . Proc. 97, 450).

Gelsemium.

Histology. Dohme (Dr. Circ. 97, 179).

Rhizome, Root and Stem. Sayre found the root often mixed with considerable proportions of the stem, and has endeavored to determine the presence microscopically. While the distinction of the rhizome from the root is comparatively easy (the latter containing no bast), the distinction between rhizome and stem is not so marked (both containing bast) as to be of any value. Sayre suggests the following improved description: Rhizome cylindrical . . . externally light yellowish-brown . . . and a small pith, which, under the lens, is seen to be usually divided into four segments." "The root is from 2 to 10 Mm. thick; externally lighter than the rhizome; fracture brittle; thick bark, closely adhering to the light-yellowish wood; odor of both rhizome and root aromatic; taste bitter." (A. Jl. Ph. 97, 8. Proc. 97 . . .)——Ingham finds that there is not much difference between root and rhizome in alkaloidal value, while the stem does not appear to contain either gelsemine or gelseminic acid. (A. Jl. Ph. 97, 234. Proc. 97, 502.)

Assay. Is suggested. Nagelvoort (Apothecary 97 . . . Merck's Rep. 97, 313).

Gelsemine. Localization. Sauvan (Jl. de Bot. 96 . . . Ph. Jl. 96, Aug., 177. Proc. 97, 474).

Gelsemic Acid. It is not identical with æsculinic acid, as Robbins stated. Coblentz (A. Jl. Ph. 97, 228 and 439. Proc. 97, 225).

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Farr and Wright, Sayre, Gregory (Dr. Circ. 97, 120, 121. Proc. 97, 419).——Influence of different temperatures on percolation. Norris (Dr. Circ. 97, 213).

Gentiana.

Histology. Dohme (Dr. Circ. 97, 178).

Extraction. Experiments. Squibb, Newhall (Dr. Circ. 97, 120, 121, 214. Proc. 97, 214).

Repercolation. Experiments. Kelly (Dr. Circ. 97, 213).

Geranium.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 140).

Glycerinum.

Detection. Exhaust the substance or mixture as usual, mix the extract with at least three or four times its volume of powdered potassium bisulphate, transfer to a test tube, and heat. A glass rod, moistened with Nessler's reagent, or a hot mixture of equal volumes of a 2–p. c. solution of silver nitrate, ammonia and soda solution, is held over the tube, when the least trace of acrolein will color the tip brown to black. Deniges (Jl. de Ph. & Ch. 97, 2. Am. Dr. 97, xxxi, 67. Merck's Rep. 97, 213).

Fatty Acids. Nagelvoort considers the tenth paragraph (testing for fatty acids) superfluous, since the sixth paragraph requires neutrality to litmus paper. He states that even the purest glycerin, when heated with dilute sulphuric acid, gives off some odor. (Apothecary 97, . . . Merck's Rep. 97, 313.)

Arsenic. Patch finds that nearly all makes of American and English glycerin respond to the test for arsenic. A prominent manufacturer states explicitly, that it is impossible to find a glycerin absolutely free from arsenic; the most, however, which he has found, is 0.0002 p. c. (about $\frac{1}{1000}$ of a grain in one ounce). This arsenic comes from the pyrites, used in making sulphuric acid; neither the English, American, French nor German acid is free from arsenic. Patch found that $\frac{1}{10}$ of a grain per gallon responded to Gutzeit's test within five minutes, $\frac{1}{100}$ of a grain to the gallon required over one hour. (Merck's Rep. 96, 403. Proc. 97, 671.)

Iron. Nagelvoort tests for ferrous compounds by adding to 25 Cc. of glycerin freshly-made tannin solution; and for ferric compounds by adding 1 Cc. of potassium sulphocyanate T. S., to 25 Cc. of glycerin, previously acidulated with sulphuric acid. Minute traces of iron will escape detection, if smaller quantities be taken. (Apothecary 97 . . . Merck's Rep. 97, 313.)

Artificial Glycerin is a concentrated solution of calcium chloride in glucose. (Ap. Ztg. 97, 163.)

Glyceritum Amyli.

Separation prevented. Pearson found that after some time the glycerite, made according to Ph. Br., would separate glycerin and water, and remedies this by adding one grain, or a little more, of powdered tragacanth per ounce of the finished product. (Ph. Jl. 97, Febr. 201.)

(Glyceritum Glycyrrhizæ.)

England proposes a glycerite, as more fully representing the odor and taste of licorice than any of the present preparations. Powdered extract of licorice is mixed with ammoniated water, transferred to a sand filter, and all soluble matter washed out with water. Ascertain the number of grains of dry extract in the percolate and divide it with 240, in order to find the number of fluid ounces of a 50–p. c. solution. Then evaporate the percolate to three-fourths of the estimated volume, and add glycerin to make up the volume. (A. Jl. Ph. 98, 664.)

Glycyrrhiza.

Commercial Sources. While the Russian root excels the Spanish in the yield of extractive and glycyrrhizin, the taste is more acrid. The Spanish root is the sweetest. The latter root is not what it used to be; much of the bundles consisting of fine, immature, fibrous roots. The "select" bundles of commerce are generally mixtures of all varieties, provided that the single sticks are straight, sound, of proper thickness and length. Rittenhouse (A. Jl. Ph. 97, 13. Proc. 97, 556).

California Root. Contains in the green root, 22.80 p. c. of extract; in the air dried root, 42.22 p. c.; and 14.70 p. c. glycyrrhizin in the extract. (A. Jl. Ph. 96, 636.)

From New South Wales. (Ph. Jl. Austral. 97 . . . A. Jl. Ph. 97, 643.)

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 140).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Histology. Dohme. (Dr. Circ. 97, 211. Merck's Rep. 97, 694).

Gossypii Radicis Cortex.

Yield of dry extract. Linde (Ph. Centralh. 96, 423).

Gossypium Purificatum.

Sterilization. Directions for sterilizing cotton should be given. Nagelvoort (Apothecary 97 . . . Merck's Rep. 97, 313.)

Granatum.

Botany, history, bibliography. Lloyd (W. Dr. 97, 202. Proc. 97, 548).

Tannin. Trimble found only from 25 to 29 p. c. (A. Jl. Ph. 97, 634.)

Assay. The Dutch Ph. assays by mixing powdered granatum with slaked lime, water and soda, macerating for 24 hours, exhausting with water, and taking up the active principle with chloroform. The chloroformic solution is shaken with water which has been acidulated with hydrochloric acid, and the aqueous solution evaporated to dryness. (Merck's Rep. 97, 313.)

Histology. Dohme (Dr. Circ. 97, 351).

Grindelia.

Dry Extract. Percentage. Linde (Ph. Centralh. 96, 423).

Guaiaci Resina.

Would it not be advisable to state the allowable p. c. of matters and constituents *not* resin? Smith found one parcel with more than 15.47 p. c. residue, yielding 3.36 p. c. of ash. (Ph. Jl. 97, Febr., 101.)

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140).

Chemistry. Doebner and Luecker (Arch. d. Ph. 97 . . . Ph. Jl. 97, May, 369).

Guarana.

Caffeine. Weston tried Lloyd's ferric method with apparently reliable results. (A. Jl. Ph. 96, 536.)

Assay. La Wall uses a process, which is an improvement upon Keller's process for caffeine in tea, and which obviates the use of Soxhlet's apparatus. He macerates guarana with ammonia water, and shakes out with chloroform. Should emulsification occur, add small quantities of magnesium carbonate. The chloroform is recovered, and the residue treated with warm ether, to remove the fat. (A. Jl. Ph. 97, 350.)

Adulterations. Schaer believes that the microscope should be more used. As to the oft-reported adulterations, he doubts them. It is a question whether the foreign starches found were not added to keep the paste in its solid form. Guarana should contain besides caffeine, catechin and catechu-tannic acid. Schaer claims to have found saponin. (Ph. Ztg. 97, 661. Am. Dr. 97, xxxi, 246.)

Hamamelis.

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140).

Dry Extract. Yield. Linde (Ph. Centralh. 96, 423).

Hedeoma.

Distinctive character of the nutlets. Jelliffe (Dr. Circ. 97, 34. Proc. 97, 500).

Humulus.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 140).

Hydrargyri Chloridum Mite.

Milk sugar vs. Cane sugar. Drescher finds that calomel is readily decomposed by milk sugar, so that the old method, triturating calomel with cane sugar, is by far the safest. (Proc. N. J. Ph. Ass. 96, 55. Proc. 97, 623.)

Mercuric Chloride. According to Kebler, it is no wonder that calomel is so often reported as containing bichloride of mercury. Kebler finds calomel quite as soluble in alcohol as in water; alcohol, shaken with calomel, will frequently give a reaction with hydrogen sulphide, when ether, shaken with the same calomel, will not leave a residue, when evaporated in a pure atmosphere. Kebler quotes

Kohlrausch and Rose in support. They calculated from the electrical conductivity of calomel in water at 18° C., that 1 liter dissolves 3.1 Mgm. of mercurous chloride. They also found, by the same method, that silver chloride is soluble at the rate of 1.25 Mgm. in one liter of water. There must, therefore, necessarily be formed a certain amount of silver chloride, when water, or alcohol, shaken with calomel, is treated with silver nitrate. It must be borne in mind, that silver can be detected when in solution of the strength of 1:800,000.

As to the lime water test, Kebler found that the purest calomel develops a transitory yellow coloration at the point of contact. The requirements of the U. S. P., are therefore too rigid. (A. Jl. Ph. 97, 338. Am. Dr. 97, xxxi, 6.)

Hydrargyri Chloridum Corrosivum.

Solubility. The solubility in ether is given as 1:4. Madsen found that bichloride of his own manufacture required 7.5 to 8 parts of ether. (Arch. f. Ph. 97 . . . Ph. Ztg. 97, 528.)

Estimation by the potassium iodide method. Bramley points out that the order of procedure is important. When 1 Cc. of the mercuric chloride solution was placed in a flask, and the potassium iodide solution added to it, only 1.3 Cc. were required to produce a permanent iodide precipitate; whilst, when 1 Cc. of the same mercuric chloride solution was diluted with water to 100 Cc., and sufficient of it was added to 5 Cc. of the original potassium iodide solution to produce a permanent precipitate, it took not less than 10.4 Cc., showing that mercuric iodide is insoluble in an excess of mercuric chloride, and soluble in an excess of potassium iodide. (Ph. Jl. 96, Nov., 405. Dr. Circ. 97, 20.)

Hydrargyri Iodidum Flavum.

Alcohol. Boiling alcohol decomposes mercurous iodide, so that the separation of mercurous and mercuric iodide by alcohol is not reliable. François (Comptes Rend. cxxi, 888. Ch. & Dr. 96, June, 805. Ph. Rev. 96, 161).

Hydrargyri Oxidum Rubrum.

Nitric Acid. A manufacturer remarks that, on a *commercial* scale, it is not possible to produce an oxide which is entirely free from traces of nitric acid. (A. Jl. Ph. 97, 312.)

Hydrargyrum.

California. (A. Jl. Ph. 97, 49.)——*Russia.* (Ch. & Dr. 96, Dec. 813. A. Jl. Ph. 97 114.)

Mercurous Salts. Hada finds, that mercurous salts are not so easily oxidized as is generally supposed, and that the presence of water is necessary. Mercurous oxide is the only mercury compound that oxidizes at the common temperature; the oxidation amounts to 0.004 p. c. per diem. (Ch. & Dr. 97, Jan'y, 52.)

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Hydrargyrum Ammoniatum.

Estimation of Mercury. The method of estimating mercury as metal, is open to error on account of loss in drying the metallic mercury. Thompson reduces the white precipitate to mercurous chloride by dissolving it in hydrochloric acid, and adds to the solution an acidified solution of potassium hypophosphite. The precipitate is set aside for 12 hours, washed with hot water, pressed, dried at 100° C. and weighed. (Ch. & Dr. 97, Febr. 234. Ph. Jl. 97, Febr. 117.)

Hydrastis.

Botany, history, bibliography. Lloyd (W. Dr. 97, 59. Proc. 97, 522).

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Dry Extract. Percentage. Linde (Ph. Centralh. 96, 423).

Berberine and Hydrastine. Manufacture. Exhaust with 80-p. c. boiling alcohol, recover the alcohol, and pour the remaining dark syrup immediately into five times its volume of warm water, allowing it to stand for 24 hours, when all the resinoids will have separated. The bright, chocolate-colored liquid is now acidulated with sulphuric or hydrochloric acid, and allowed to stand for 24 hours. The precipitate is berberine. Strain off, wash, and add an excess ot alkali to the liquors, when impure hydrastine will be thrown down. Purify. Serre (Dr. Circ. 97, 121. Proc. 97, 419).

(Hyoscine.)

The claims of scopolamine and hyoscine should be investigated. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Formula. $C_{17}H_{21}NO_4$ (U. S. P.) has lately been given to scopolamine by E. Schmidt. Ladenburg gives $C_{17}H_{23}NO_3$. Nagelvoort (Apothecary 97, . . . Merck's Rep. 97, 314).——Hesse finds that the scopolamine of Schmidt is a mixture of hyoscine and a new alkaloid, which he names "atroscine" ($C_{17}H_{21}NO_4$). (Ber. d. D. Ch. Ges. xxix, 1777. Merck's Rep. 97, 277.)——Schmidt controverts

Hesse's statement, and states that he found in the same root optically active and neutral forms of scopolamine, and it is to this fact that the different physical properties of the commercial salts are due. It seems, therefore, that the existence of hyoscine as a distinct body needs further proof. (Ber. d. D. Ch. Ges. xxvii, 352. Ch. & Dr. 96, April 600.)

Hyoscine–Scopolamine Controversy. Present status. Merck states that the hyoscine put up by Merck has been, and assuredly is, identical with scopolamine. It is only in order to avoid confusion in commercial and medical circles, that his house has retained the designation of "hyoscine" for the base from hyoscymus, while applying that of "scopolamine" to the base from Scopolia atropoides. Merck has steadily endeavored to obtain from solanaceous drugs a base of the formula $C_{17}H_{23}NO_3$, possessing the properties of Ladenburg's hyoscine, but has hitherto not succeeded in isolating such a base. He, therefore, concludes, that with due consideration of the various solanaceous drugs, and with the use of considerable quantities of them, the results so far have failed to show the possibility of obtaining a base answering to Ladenburg's hyoscine. The whole question is now narrowed down to whether the alkaloid with the formula $C_{17}H_{21}NO_4$ shall be designated as "scopolamine" or as "hyoscine." (Ph. Ztg. 97, 515. Ph. Jl. 97, July 41. A. Jl. Ph. 97, 593. Ch. Dr. 97, July 87.)——See also an article by Dohme. (Dr. Circ. 96, 269.)——Also see "*Mydriatic Group*," in "*General Remarks.*"

(Hyoscyamina.)

Melting Point. With slow fusion, 107° C.; with rapid fusion, 105° C. Nagelvoort. (Dr. Circ. 97, 130. Merck's Rep. 97, 342.)

Chemistry. See "*Mydriatic Group*" in "*General Remarks.*"

(Hyoscyaminæ et Auri Chloridum.)

Melting Point. With slow fusion, 160° C.; with rapid fusion, 154° C. Nagelvoort. (Ibid.)

Hyoscyamus.

Structure. Comparison with belladonna and stramonium. Schlotterbeck and Van Zwalubenburg (Proc. 97, 202).

Histology. Dohme (Dr. Circ. 97, 64).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 529).

Alkaloids. Location. Molle (Bull. Soc. Belge Microscop. 96 . . . Dr. Circ. 96, 108).

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Farr and Wright, Sayre, Gregory (Dr. Circ. 97, 120, 121. Proc. 97, 419).

(Hypophosphites.)

Estimation. Tyrer does not consider the permanganate method reliable, since hypophosphites invariably contain notable quantities of phosphate, phosphite, sulphite and hyposulphite salts, all of which reduce, either directly or indirectly, the permanganate. He finds that estimation based on the reduction of cupric sulphate solution is very accurate. One Gm. of the salt is dissolved in water, and a 5-p. c. solution of barium chloride added in slight excess (about 5 Cc.) to precipitate any soluble sulphite, sulphate, phosphite, or phosphate present. Filter after 25 minutes, and wash the precipitate, if any. Now add a 10-p. c. cupric sulphate solution in excess, with 5 Cc. of concentrated sulphuric acid. Boil for ten minutes, when the whole of the copper is reduced to metal, with a proportion of protoxide and some barium sulphate. Wash the precipitate by decantation, dissolve in 30-p. c. nitric acid, add sodium carbonate until a slight precipitate is formed, then add acetic acid in excess, followed by potassium iodide-starch solution, and titrate with sodium hyposulphite (Ph. Jl. 97, Aug. 150. Ch. & Dr. 97, Aug. 286. A. Jl. Ph. 97, 462.)

(Ichthyolum.)

Introduction proposed. But under a scientific name. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Illicium.

American Species. Knowlton calls attention to the fact that we have two species of Illicium in the U. S., in Georgia and in Florida. (Merck's Rep. 96, 352. Proc. 97, 519.)

Cultivation in *China.* (Ph. Ztg. 97, 719.)

Histology. (Ph. Jl. 97, Mrch. 231.)

Illicium and Shikimi. Distinction. Laurén makes use of the fact that shikimi contains no anethol, while star-anise contains very much. Remove the seeds, and boil the contused carpels in a test tube with 1 to 2 Cc. of alcohol for a few minutes, until the liquid has a faint, but distinct, yellow color. Pour off the clear liquid, and dilute with water. Star-anise shows a milky turbidity, while shikimi remains clear. (Nord. Farm. Tidskr. 96, 293. Ph. Ztg. 96, 612, 750.)——The Austrian Government states that the genuine Illicium gives a blood-red coloration with dilute potassa solution, while shikimi shows only an orange-brown color. (Ph. Ztg. 97, 760.)

Infusum Digitalis.

Improvement. Humphreys adds to the official quantities 8 Gm. of powdered cinnamon. Upon the digitalis and cinnamon pour the boiling water; after cooling, strain, add alcohol and cinnamon water, and sufficient cold water to make 1,000 parts. Filter through a *dry* filter, regardless of the ultimate quantity secured. Otherwise the filtrate will appear cloudy. (W. Dr. 97, 162. Proc. 97, 428.)

Glucosides. This infusion contains digitonin and digitalein, but no digitoxin, and only traces of Schmiedeberg's digitalin. England (Am. Dr. 97, 70).

Iodoformum.

Preparation. A mixture of tincture of iodine and solution of soda is heated during several minutes. It becomes colorless, and evolves the odor of iodoform. On now adding water, the separation of iodoform becomes copious. The water appears to prevent the decomposition of the iodoform by the free alkali present. Eschbaum (Zts. Oest. Ap. Ver. 97, 51. Proc. 97, 660).

Mercuric Chloride. Schuyten finds that an ethereal solution of mercuric chloride and iodoform in molecular proportions exposed to the sun for several days, became red with the formation of mercuric iodide, the nascent iodine thus replacing chlorine. This fact should be borne in mind when storing together gauzes and bandages of iodoform and mercuric chloride. (Ph. Ztg. 95, 659. Dr. Circ. 96, 9.)

Detection of Traces. (0.0005 Gm.) Heat the liquid very gently, and add 5 drops of a solution of resorcin-sodium (0.1 Gm. resorcin dissolved in 5 Cc. of alcohol, and a small piece of metallic sodium added). The green color of the reagent changes to an intensely red color. Klar (Ph. Ztg. 96, 631).

Specific Gravity. "2.000 at 15° C." Beyerinck finds that this is an error, he obtained an average of 4.008 at 17° C. (Ch. Ztg. 97, 83. Ph. Ztg. 97, 752.)

(Iodolum.)

Should be introduced, but under a scientific name. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Iodum.

Pure Iodine. From cuprous iodide. Lean and Whatmough (Ch. News, 98 . . . A. Jl. Ph. 98, 163).

Estimation. Riegler recommends a method, based on the liberation of iodine in the iodides by iodic acid (HIO_3), solution in benzin, titration of excess of iodic acid with decinormal sodium thiosulphate, and calculating the iodine from the quantity of iodic acid consumed. (Ch. News 96, July, 52. Zts. Analyt. Ch. 96, 305. Proc. 97, 594.)

Waste-residues. Recovery of iodine. Dieterich (Ph. Centralh. 96, 361. Ph. Ztg. 96, 462. Ph. Era 96, 139. Proc. 97, 593).

Japanese. From kelp. (Ch. & Dr. 96, Oct. 609. A. Jl. Ph. 97, 48.)

Test. Wachhausen finds that paraldehyde liberates iodine from its combinations much more completely than any other reagent. It is not so rapid as many, but more delicate. Potassium permanganate, 1:10,000; chlorine, 1:100,000; hyponitric acid, 1:200,000; paraldehyde, 1:500,000 to 1:1,000,000. (Ph. Ztg. 97, 95. Merck's Rep. 97, 213. Am. Dr. 97, xxxi, 34.)

Ipecacuanha.

Histology. Dohme (Dr. Circ. 97, 249).

Microscopy. Rusby formulates the following addition to the official description. "The powder should not exhibit any starch grains, having a diameter of 16 mikrons, or more, and those having a diameter of 12 to 14 mikrons, should be rare. (Absence of Carthagena ipecacuanha.) (Dr. Circ. 97, 186.)

Carthagena Ipecacuanha. Schneider's assertion, that it is possible to distinguish microscopically between Rio and Carthagena ipecacuanha, the starch grains of the latter being so much larger, is not tenable, according to the editor of the Pharm. Journ. (London), the size being dependent upon the age of the root. (Ph. Jl. 97, Febr. 112. Dr. Circ. 97, 186. Proc. 97, 514.)

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Cultivation. Straits Settlements. (Ph. Jl. 96, Nov. 408. Ph. Rev. 97, Suppl. p. 3.)——East India. (Ph. Jl. 96, Oct. 349.)

Chemistry. Paul and Cownley find that Carthagena ipecacuanha is richer in cephaëline and the Brazilian in emetine. Cephaëline is the emetic, and emetine the expectorant. To separate them, dissolve the mixed alkaloids in hydrochloric acid, add ether, and alkalinize with sodium hydroxide. Separate the ethereal liquid, add dilute acid, and again alkalinize with sodium hydroxide. The ethereal liquids now contain the emetine; the alkaline aqueous liquids the cephaëline. Precipitate the latter by adding ammonium chloride, and purify by dissolving in ether. (Ph. Jl. 96, April, 321. Merck's Rep. 97, 277.)

Jalapa.

Manuring. Hooper found that phosphatic manure greatly increased the p. c. of resin and also the weight of the tubers. (Ph. Jl. 96, July, 21. A. Jl. Ph. 96, 537.)

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 140).

Histology. Dohme (Dr. Circ. 97, 6).——Jelliffe (Dr. Circ. 97, 351).

Convulvulin. Chemistry. Haehnel (Arch. D. Ph. ccxxxiv, 647. Merck's Rep. 97, 339).

Tampico Jalap. Account. (A. Jl. Ph. 98, 127.)

Juglans.

Microscopical Distinction from the bark of Juglans nigra, and whether the bark has been collected at the proper season. Grace Cooley (Jl. Pharmacol. 97, 195. Ph. Jl. 97, Aug. 191).

Kamala.

Microscopy. Dohme (Dr. Circ. 97, 5).

Ash. Patch reports that he has of late been unable to obtain any kamala with only 8 p. c. of ash (the official requirement); most of the samples contained from 43 to 50 p. c. of extraneous matter, chiefly sand. (Merck's Rep. 96, 403.)

Kino.

Myristica. Schaer calls attention to a kino-like substance obtained from the bark of several Asiatic species of Myristica, which shows but little difference, physically, from the official kino, and agrees chemically in all important points. This kind of kino may be distinguished from the official drug by its containing an admixture of smaller and larger amounts of a distinctly crystalline salt (under the microscope), which is calcium tartrate. Ph. Jl. 96, Aug., 117. Ph. Ztg. 96, 612, 662. A. Jl. Ph. 96, 546.

Australian. Bosisto calls attention to the fact that the "kino," obtained from Eucalyptus rostrata is an excellent substitute for the official kino, from Pterocarpus Marsupium. He also points out, that it is necessary to collect the kino within a few days after its appearance on the outer bark. The extreme bright sunlight of Australia, together with the warm thermal lines (day and night), rapidly cause the exudation to degenerate into an insoluble bassorin. (Ph. Jl. 97. Aug., 193. A. Jl. Ph. 97, 533. Am. Dr. 97, xxxi, 177.) ——See also Maiden (A. Jl. Ph. 97, 1. Proc. 97, 546).

Dragon's Blood. Schaer thinks that some of the resins, which for hundred of years have been known as "Dragon's blood" (from Pterocarpus Draco, West Indian or South American Dragon's blood) are in reality kino. (Ph. Ztg. 97, 662.)

African. From Pterocarpus erinaceus. Poir (Ch. & Dr. 96, Febr., 226).

Commercial Conditions. Smith (Ch. & Dr. 98 . . A. Jl. Ph. 98, 248).

Tannin. Estimation. Attention is called to Loewenthal's method, as one easily worked. One Gm. of a 1-p. c. decoction of kino and 2 Gm. of an indigo solution (5 Gm. indigo; 26.5 Cc. sulphuric acid, and water to one liter), should not give a green solution until at least 6 Gm. of a 1-p. c. solution of permanganate have been added. One Cc. of the permanganate solution indicates 0.001 Gm. of pure gallo-tannic acid. (Ch. & Dr. 96, Mrch., 460.)

Lappa.

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Lavandula.

Distinctive character of the nutlets. Jelliffe (Dr. Circ. 97, 34. Proc. 97, 500).

Leptandra.

Histology. Breithaupt (A. Jl. Ph. 97, 235. Proc. 97, 495).

Limonis Cortex.

Fruit. Development. Biermann (Arch. d. Ph. ccxxxv, 19. Proc. 97, 529).

Classification of the Citrus family. Confusion. Hart (A. Jl. Ph. 97, 181. Proc. 97, 530).

Limonis Succus.

Acidity. Robins states as the result of extended analyses, that the standard of acidity should be from 33 grains per fluid ounce, and upwards. (Ch. & Dr. 96, May, 742.)

Linimentum Ammoniæ.

Methyl alcohol should replace ethyl alcohol. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Linimentum Camphoræ.

Cold Process. Watterstroem prefers to dissolve the camphor in the cold oil; it gives a better color, and loss of camphor is avoided. (W. Dr. 97, 68. Proc. 97, 428.)

Linimentum Saponis.

Linimentum Saponis Mollis.

Linimentum Sinapis Compositum.

Methyl alcohol should replace ethyl alcohol in these three preparations. Ph. Rev. Com. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Linum.

Standard. As it is difficult to obtain flaxseed entirely free from other seeds, it is proposed to change the standard, and to give a miximum allowance of other seeds. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Liquor Ammonii Acetatis.

The second process (with two solutions) of 1880 should be reinstated. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

(Liquor Ferri Phosphatis.)

A 50-p. c. solution should be introduced. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Liquor Iodi Compositus.

Assay. Compton thinks that, besides the free iodine, the Pharmacopœia should also estimate the potassium iodide. First estimate the free iodine according to the official method, then titrate the residual liquid with decinormal silver nitrate to determine the total iodides. Deduct the volume of sodium hyposulphite required in the first assay from the volume of silver nitrate necessary, and multiply the Cc. so found by 0.016556 (the value of 1 Cc. of the silver nitrate solution equivalent to potassium iodide), which will give the amount of potassium iodide. He finds that practical results can also be obtained by boiling the liquor after dilution with water until all the free iodine is expelled, and then titrating with silver nitrate solution, which will at once give the amount of potassium iodide. (A. Jl. Ph. 97, 242. Proc. 97, 431.)

Liquor Magnesii Citratis.

The potassium bicarbonate should be added just before dispensing. Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)——Hiss places the magnesia, in small pieces, in a wide-mouthed bottle, adds spirit of lemon (10 drops to the ounce of magnesia), then places the citric acid on top of the magnesia, and adds barely sufficient water to cover both substances. From time to time more water is added, until the solution is complete. Instead of syrup, Hiss adds syrup and glycerin, one fluid ounce of each, to the bottle. He states that, prepared in this way, it keeps well. (Ph. Era 95, xiv, 173.)

Liquor Plumbi Subacetatis.

Preparation. Post finds that neither by the hot nor by the cold process do the proportions in the U. S. P. formula yield a product containing 25 p. c. of lead subacetate, while with the proportions of the Ph. Br. it is easy to obtain by the cold process a solution containing from 29 to 30 p. c. The proportions which he recommends are: 250 Gm. of lead acetate, 147 Gm. of lead oxide, and sufficient water to make 1,000 Gm. Dissolve the acetate in 700 Cc. of distilled water, add the oxide, and shake or stir until the bright-red color has faded to a light yellow, then add distilled water up to 1,000 Gm., and allow the mixture to stand the allotted time. (A. Jl. Ph. 96, 428. Proc. 97, 430.)——Claassen much prefers to place the solids into a glazed stone jug very little larger than the required quantity, pour on hot water, and let it stand in a warm place with occasional shaking until the sediment has turned white. Filter after cooling. (Merck's Rep. 96, 329. Proc. 97, 429.)——Smith finds that there is a lack of agreement between the accepted sp. gr. and the strength, as determined by the volumetric method given. He finds the following reasons for this discrepancy: The sp. gr. of a solution, containing 25 p. c. of the subacetate is 1.2485 at 15° C., instead of 1.195 (as given in U. S. P.), The official assay method gives unsatisfactory and misleading results. The quantities of lead acetate and lead oxide are insufficient to make a preparation of the official strength, even when materials of high grade are used, and much care taken in manipulations. The use of heat is neither necessary, nor does it shorten the time so very much. The volumetric method he modifies as follows: Weigh about 4 Gm. in a 200 Cc. graduated flask. Add 80 Cc. of $\frac{N}{10}$ oxalic acid, fill to the mark with water and mix well. Allow to stand till clear, then separate 100 Cc. by means of a pipette or by filtration, and add to it 10 Cc. of dilute sulphuric acid. Heat the solution, and titrate the excess of oxalic acid with $\frac{N}{10}$ potassium permanganate. About 4 Cc. will be required. One Cc. of $\frac{N}{10}$ oxalic acid indicates 0.013662 Gm. of subacetate of lead. ($Pb(C_2H_3O_2)_2.PbO$.) As to the cold process, all that is necessary is an almost constant gentle agitation for about 1 to 1½ hours, or until the color changes to white. The shaking prevents the "caking" of the litharge. (Ph. Rev. 96, 250. Proc. 97, 431.)——Haussmann does not find boiling necessary, merely digestion with hot water, 170 Gm. of lead acetate is added to 730 Cc. of boiling distilled water. After solution add the sifted lead oxide in divided portions, shaking thoroughly after each addition. In ten minutes the color will have changed. Allow to stand until cold, and filter. The sp. gr. should be 1.225. Haussmann recommends the introduction of a dried lead subacetate, which would much facilitate the preparation. (A. Jl. Ph. 97, 559.)——See also a paper by Fennel. (Am. Dr. 97, xxxi, 65.)

Liquor Potassæ.

Lead. Stratton has examined samples from English and Irish pharmacies, and found from 0.002 to 0.066 p. c. of metallic lead in

18 of 36 samples. He accounts for its presence by the methods of some manufacturers who make this solution by allowing lime, potassium carbonate and water to stand in lead-lined casks. (Ch. & Dr. 97, May, 700. Dr. Circ. 97, 188. Proc. 97, 432.)

Commercial. Bates found from 3.18 to 8.74 p. c. of potassium hydrate; and one sample contained only 0.018 p. c. (A. Jl. Ph. 97, 240. Proc. 97, 433.)

Lithii Benzoas

Two sets of tests for chloride and sulphate are given. In the first the nitric acid should be doubled to remove all benzoic acid, which interferes with the tests. In the second set the tests are directed to be applied to the aqueous solution without previous removal of benzoic acid. Addition of silver nitrate or barium chloride under these conditions causes precipitation of the corresponding benzoates. (C. E. Smith, see *Preface.*)

Lithii Citras.

Molecular Weight. Woolsey contends that this salt contains four molecules of water, of which it loses three molecules on being heated to from 100° to 105° C. "Dry" lithium citrate (last paragraph). It is to be queried whether the Pharmacopœia refers to the anhydrous salt, or to the salt with one molecule of water, or that with four molecules. The molecular weight of the citrate with four molecules would be 282. One Gm. of such a salt would, after ignition, require 10.6 Cc. of normal sulphuric acid, but one Gm. of the anhydrous salt would, after ignition, require 14.27 Cc. (Bull. Ph. 97, 344. Dr. Circ. 97, 282.)

Lithii Salicylas.

It is directed to test the residue, left after ignition, for chloride after solution in diluted acetic acid. According to Fresenius, lithium chloride, when ignited in moist air, is decomposed into lithium oxide and hydrochloric acid. The test can, therefore, not be depended upon. It would be preferable to test an aqueous solution of the salt after precipitation of the salicylic acid with dilute nitric acid. (C. E. Smith, see *Preface.*)

(Lithium.)

One Kgm. of metallic lithium, when in contact with water, generates 1600 liters of pure hydrogen gas. Moissan (Ph. Jl. Mrch. 96, 197).

Lobelia.

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140.)

Extraction. Experiments. Farr and Wright (Dr. Circ. 97, 120. Proc. 97, 419).

Histology. Dohme (Dr. Circ. 97, 250).

Lycopodium.

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140).

Histology. Dohme (Dr. Circ. 97, 5).

Macis.

Bombay Mace. Distinction. Besides a difference in the anatomical characters, Schneider gives a good test for the presence of Bombay mace, based on the color developed by the action of alkalies. On addition of potassa, Bombay mace gradually develops an orange color, and on the addition of 25-p. c. to 30-p. c. sulphuric acid the color changes to yellow, and the coloring matter is partly precipitated. True mace only gives a "light" orange coloration, which is changed to faint yellow. (Jl. Pharmacol. 97, 57. Ph. Jl. 97, April, 288. Proc. 97, 492.)

Powder. After treatment with potassa solution, the powder should not exhibit dark particles, which turn yellow upon the addition of sulphuric acid. (Absence of Bombay mace and of curcuma.) (Dr. Circ. 97, 186.)——Spaeth reports having found powdered mace adultered with sugar. (Ap. Ztg. 96, 716.)——The "chloroform shake" test would reveal this adulteration.

Magnesia.

Commercial. Puckner reports having met with samples which, on ignition, lost from 15.8 to as much as 38 p. c., while the U. S. P. permits only 5 p. c. (W. Dr. 97, 253. Proc. 97, 606.)

Magnesium.

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 123).

(Manganum.)

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Marrubium.

Distinctive character of the nutlets. Jelliffe (Dr. Circ. 97, 34. Proc. 97, 500).

Marrubiin. Chemistry. Matusow (A. Jl. Ph. 97, 201).

Mastiche.

Cultivation and collection in Cyprus. It is stated that the average yield per tree is not more than 8 to 10 pounds per annum. (Ch. & Dr. 97, Febr. 273. Proc. 97, 563.)

Mel.

Poisonous Honey. Kebler reports on such honey from N. J. (A. Jl. Ph. 96, 519.)

United States. How honey is rendered. (Ch. & Dr. 97, Jan'y 51).

Dextrin. Bœrrigter calls attention to the fact that all honey naturally contains a not inconsiderable proportion of albumin, which will be precipitated on addition of alcohol. It can be distinguished from dextrin by a flocky precipitate, while dextrin sticks to the sides of the test tube. (Ph. Ztg. 96, 368. Merck's Rep. 96, 514.) ——Kuenemann and Hilger state that dextrin is present in all honeys, whether dextro- or lævo-rotatory, and have identified it as achroo-dextrin. If other observers failed to find dextrin, it was because they employed contaminated fermenting agents. (Forschungs-Ber. 96, . . . A. Jl. Ph. 96, 570.)——Beckmann states that pure honey dissolves readily in acetone and in methyl alcohol, while dextrin separates. A solution of iodo-iodide of potassium is made lighter in color by pure honey, while dextrin deepens the color to red and violet. (Zts. Analyt. Ch. 96, 263. Ph. Ztg. 96, 728.)

Artificial Honey. The Belgian Board of Health states that there is no possibility of distinguishing *chemically* between natural and artificial honey. (Ph. Ztg. 96, 318.)

Melissa, Mentha Piperita and Mentha Viridis.

Distinctive character of the nutlets. Jelliffe (Dr. Circ. 97, 34. Proc. 97, 500).

Menthol.

Emulsification. Dissolve in olive oil, and emulsify with acacia. (Merck's Rep. 97, 341.)

Estimation. See under "Oleum Menthœ Piperita."

Mezereum.

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Mistura Glycyrrhizæ Composita.

Glucose. Should replace mucilage. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Mistura Rhei et Sodæ.

Glucose. Should replace glycerin. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Morphina.

Color Reactions. Pruys (Ph. Ztg. 96, 647).——Color reactions and spectroscopic reactions. Dragendorff (Ph. Centralh. 96, 382).

Codeine. Separation. Fouquet recommends anisol, in which liquid morphine is insoluble in the cold, and only slightly soluble at the boiling temperature. As to codeine, anisol dissolves in the cold 15 p. c.; and at 100° C., 164 p. c. (Jl. de Ph. & Ch. 97, 49. A. Jl. Ph. 97, 158. Dr. Circ. 97, 129.)

Bibliography. From 1875 to 1896. Brown (Ph. Rev. 97, 204, 225).

Forensic. Nagelvoort asserts that morphine can be recovered even after 50 days, and that ptomaines do not destroy the characteristic reactions of morphine. (A. Jl. Ph. 97, 374.)

Moschus.

Adulterant. Hornblower recently found cinnabar, and Conroy states that he has repeatedly found ground coffee; both substances not hitherto reported. (Ph. Jl. 96, Nov., 474. Ch. & Dr. 96, Nov., 772.)

Mucilago Acaciæ.

Stable. By replacing 25 p. c. of the water with lime water, mucilage is said to keep well. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Proportions. It is proposed to make the strength 50 p. c. Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)

Myristica.

History, pharmacognosy, etc. Warburg (Ap. Ztg. 97, 365).

Myrrha.

Origin of the Official Myrrh. Holmes has examined a collection of barks, fruits, leaves, etc., of several species of Commiphora in order to determine which one yields the official myrrh ; a point which is still unsettled. He thought that much light could be thrown upon the question by tasting them, presuming that the peculiar taste and odor would be found in the plant itself. From his examinations he concludes that Commiphora Myrrha, Engler, yields the official myrrh. (The one given in U. S. P.) Incidentially, he found that Commiphora Africana yields bdellium ("Abyssinian myrrh"). (Ph. Jl. 96, Dec. 507. A. Jl. Ph. 97, 110. Dr. Circ. 97, 71. Proc. 97, 561.)

"*Bissabol*" *Myrrh.* Distinction. Six drops of benzin extraction (1:15) are mixed with 3 Cc. of acetic acid, and 3 Cc. of sulphuric acid added so as to form a lower layer. A rose-red color is developed at the line of contact, and soon the whole acetic layer is colored likewise. The official myrrh gives only a slight rose coloration of the acid layer; the line of contact is first bluish-green, changing to brown, with a greenish fluorescence. Tucholka (Ph. Centralh. 97, 500. A. Jl. Ph. 98, 116.)

Naphthol (Beta-).

Alpha-Naphthol. Detection. Add to 10 Cc. of a saturated solution of the naphthol (made by triturating in a mortar), diluted with an equal volume of water, 2 drops of a solution of sodium hypobromite, when a violet color will indicate the presence of alpha-naphthol. This reaction is so sensitive that the color is produced even when the concentrated aqueous solution is diluted with nine times its volume of water. Pure beta-naphthol gives only an evanescent yellow color. One p. c. of alpha-naphthol is easily detected. The hypobromite solution is prepared by mixing 30 Cc. of a soda solution (36° B.) with 100 Cc. of water, adding 5 Cc. of bromine, and shaking well. Leger (Jl. de Ph. & Ch. 97, 527. A. Jl. Ph. 97, 368. Merck's Rep. 97, 465).

(**Niccolum.**)

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 123).

Nux Vomica.

Histology. Dohme (Dr. Circ. 97, 126. Merck's Rep. 97, 461).

Localization of strychnine and brucine. Sauvan (Jl. de Bot. 96 . . . Ph. Jl. 96, Aug. 177. Ph. Ztg. 96, 750. Dr. Circ. 97, 162. Proc. 97, 474).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Ignatia. Distinction from powdered nux vomica. Sauvan (Bull. Ph. de S. E. 97 . . . Dr. Circ 97, 162. Proc. 97, 503).

Botany, history, bibliography. Lloyd (W. Dr. 97, 109. Proc, 97, 503).

Ash, Moisture and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Squibb, Farr and Wright, Sayre, Patch, Newhall (Dr. Circ. 97, 120, 121, 214. Proc. 97, 419).

Assay. Sanders finds that the so-called "igasuric" acid, long believed to be malic acid, really is caffeo-tannic acid (di-oxycinnamic acid). As to the method of assay, he finds that the most convenient and most expeditious method is that of Keller (see Proc. 95, 1024). Respecting the determination of the relative proportions of brucine and strychnine, he finds that he best succeeds by destroying the brucine by means of potassium permanganate. Nux vomica yielded in total alkaloids from 43.9 to 45.6 p. c., and ignatia, from 60.7 to 62.8 p. c. The higher figure of nux vomica corresponds closely to a mixture of the two alkaloids in molecular proportions, while the higher figure of ignatia points to a mixture of 1 mol. brucine and 2 mol. strychnine. He infers from this that the two alkaloids exist in simple and uniform conditions in these seeds, and that they possibly are the products of splitting up of a more complex compound. (Arch. d. Ph. 97, 133. Proc. 97, 503.)

Oleoresina Aspidii.

Filicic Acid. Madsen found that the p. c. of filicic acid varies considerably (from 0.71 up to 9.59 p. c., and one sample gave as high as 13.07). The latter was from a root collected in the fall, and kept in the cellar until worked up. (Arch. f. Ph. & Ch. 97, 277. Dr. Circ. 97, 259).——Daccomo states that the yield of oleoresin is 10 p. c., and that he obtained from 11.86 to 42.54 p. c. of filicic acid. (Ph. Ztg. 96, 280.)——Kraft remarks, that this high p. c. certainly included the resins. He found the yield of *pure* acid to be as high as 10.14 p. c., and considers 5 p. c. a fair average. (Ph. Ztg. 96, 452.)

Oleoresina Capsici.

Yield. Alpers found experimentally, that the yield is 16 p. c., which differs widely from the statements of the text-books, which give only 5 p. c. On a large scale he obtained more than 19 p. c. (15 ounces from 5 pounds.) Instead of straining the residue, he filters. (Merck's Rep. 96, 593. Proc. 97, 435.)

(Olea Pinguia.)

Examination. Cowley gives the following outline of a systematic examination: 1. Specific gravity. 2. Melting and solidifying points. 3. Melting and solidfying points of the fatty acids. 4. Behavior to solvents. 5. Hehner value. 6. Reichert-Meissl value. 7. Saponification value. 8. Iodine value. (Ph. Jl. 97, April, 331. Ch. & Dr. 97, Mrch., 423. Proc. 97, 673. Am. Dr. 97, xxx, 264).

Bleaching. By shaking vigorously with a 4 to 5-p. c. solution of hydrogen peroxide, containing a small proportion of alkali. (Merck's Rep. 96, 601.)

Valenta's Test. This well-known test (heating equal volumes of oil and glacial acetic acid until completely dissolved, and then noting the temperature at which turbidity commences) has been shown by Parry to be not quite so unreliable as it is reputed to be. The chief thing to remember is, to take the temperature with each new batch of acid, and make the control experiment with that same batch. (Ch. & Dr. 96, Jan'y 145.)

Vreven's Test for fixed oils and fats. Vreven has found that on spreading a little of the oil, or fat, on a porcelain plate, sprinkling a little sugar on top of it, and then adding a drop of concentrated sulphuric acid, the, at first brownish, color soon changes to pink and violet. Neither volatile oils, nor wax, vaselin, glycerin or croton oil give this reaction. Codliver oil, lanolin, butter and almond oil show differences in the coloration. (Annales de Ph. 96, 9. Ph. Ztg. 96, 65.)

Bromination. Identification by means of the heat accompanying it. Bromwell and Mayer found that Maumené's method (rise of temperature on the addition of sulphuric acid) while a good one in the hands of an expert analyst, is not the best method for pharmacists. They therefore adopted Hehner and Mitchell's method of bromination. The rise in temperature, caused by the addition of 1 Cc. of bromine (preferably dissolved in 4 Cc. of chloroform) to one Gm. of the oil or fat. Since the action on some of the oils is rather violent, these were previously dissolved in chloroform (1 Gm. in sufficient chloroform to make 5 Cc.). (A. Jl. Ph. 97, 145. Proc. 97, 673.)

Resin Oils. Detection. Cornette suggests a method based upon the fact that salts of the resin acids are not precipitated by the "salting out" process. Saponify ten Gm. of the suspected oil with caustic soda, dissolve the soap in warm water, cool, and add a saturated solution of sodium chloride; the salts of the fatty acids are then thrown out, while the resinates remain in solution. Filter, and acidulate with sulphuric acid, when the resin acids will be separated in small globules. (Ph. Jl. 96, Nov., 406. Rep. de Ph. 96, 300. Ph. Ztg. 96, 720. Proc. 97, 672.)

(Olea Volatilia.)

Chemistry. The absolute necessity of the chemical study of the volatile oils. Kremers (Ph. Rev. 97, 196).

Tabulated List. Yield, sp. gr., rotation, constituents. Schimmel & Co. (Rep. April 1897. Merck's Rep. 97, 372, 432, 634, 697.)

Adulterations. Perls has put the smelling test upon a "scientific" basis. He never examines an oil alone, but always compares it with other oils of the same description. Narrow slips of glazed paper, of equal size, are dipped into the oils to be compared, the excess of liquid shaken off, and the slips exposed to the air for a fixed time. The slips are then trimmed to exact size and pinned to a board so as to hang free, when the odors are compared; with the precaution to use one and the same nostril with a deep inspiration. (Ph. Jl. 96, July 12. Merck's Rep. 97, 174.)——A new adulterant has made its appearance in the London market under a fancy name, which possesses an agreeable odor, and may be mixed in considerable proportions with the oils of lemon and bergamot, without being detected by the taste or odor. The sp. gr. is 0.869, its optical rotation is 59°, the flashing point (by Abel's method) is 100° F., and it is fairly soluble in 3 volumes of alcohol of 0.820. On fractioning, it yields 58.5 p. c. between 155° and 165° F., and 24 p. c. more up to 170° F.

It contains no aldehydes, and only a trace of ester, and it is probably a lævo-pinene. Barclay (Ph. Jl. 96, Nov. 463. Ch. & Dr. 96, Nov. 789. Proc. 97, 632.)

Thymol and Carvacrol. Test. Heat 0.01 Gm. of the oil with 0.01 of potassa and 20 drops of chloroform, when a purple color is produced. (Flueckiger's reaction.) (Ph. Rev. 96, 33.)——Quantitative estimation. Kremers and Schreiner (Ph. Rev. 96, 221. Proc. 97, 631).

Carvone. Quantitative estimation. After criticising the various methods proposed, Kremers and Schreiner prefer to estimate carvone in form of carvoxime, making use of the observation of Goldschmith that carvone combines with hydroxylamine to form an oxime, which is relatively stable. Although not absolutely perfect, the results are surprisingly good for such complex mixtures as volatile oils. (Ph. Rev. 96, 77.)

Emulsification. It is greatly facilitated by incorporating about 5 to 10 p. c. of castor oil with the volatile oil, and then proceeding as with fixed oils. Williams (Merck's Rep. 97, 494).

Victoria, Australia. Volatile oils. (Ph. Jl. 96, Sept. 199, 256. Proc. 97, 634.)

Oleum Adipis.

Bromination. Heat involved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

Oleum Æthereum.

Preparation. Dott and Clark propose the following for the next Ph. Br.: Mix 80 fl. oz. of rectified spirit (S. V. R.) with 72 fl. oz. of sulphuric acid. After a day, distill slowly with a thermometer in the liquid until the temperature rises to 340° F. (171° C.) Then separate the liquids, rejecting the lower or aqueous layer. The ethereal liquid is now mixed with 3 oz. of water, and sufficient sodium bicarbonate to render neutral, or nearly so (2½ oz. nearly). (Ph. Jl. 96, Mrch. 182. Ch. & Dr. 96, Mrch. 344.)

Oleum Amygdalæ Amaræ.

Hydrocyanic Acid. Volumetric estimation. Kremers and Schreiner suggest the following method, based upon that of Vielhaber: One Gm. of the oil is weighed into an Erlenmayer flask, and 10 Cc. of a mixture of magnesium hydrate with water, and a few drops of potassium chromate solution are added. Titration with $\frac{N}{10}$ silver nitrate solution is then effected very slowly until the red silver chromate formed indicates the end of the reaction. It is imperative to continually agitate the mixture. Every Cc. of silver nitrate solution corresponds to 0.0027 Gm. of hydrocyanic acid. On applying this test to commercial oils, they found that none contained any hydrocyanic acid, and further examination showed them to be artificial benzaldehyde, containing large quantities of free benzoic acid. (Ph. Rev. 96, 196. Ph. Ztg. 96, 688. Proc. 97, 656.)

Cherry-laurel Oil. Charas proves that Kremel's test is fallacious. This test depends on the observation that benzoic acid is formed, when oil of bitter almond is boiled with alcoholic potassa solution, but not when oil of cherry-laurel is treated in the same way. Charas asserts that there is as yet no reliable test for cherry-laurel oil. (Zts. Oest. Ap. Ver. 96, 549. Proc. 97, 657.)

Oleum Amygdalæ Expressum.

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. 97, 149. Proc. 97, 673).

Oleum Anisi.

From Dunolly, Victoria. This oil is stated by Umney to possess so striking differences from those of common anise and star anise, that its claim to be an anise oil is disputed. Sp. Gr. 0.914 at 15° C., optical rotation in 100 Mm. tube + 16°; it does not solidify when cooled to 4° C. and the odor suggests that of fennel. (Ph. Jl. 96, Sept., 199, 256. Ch. & Dr. 96, Aug., 258. Proc. 97, 634.)

Anethol. Since anethol is the active principle, it is suggested to either substitute it for the oil, or that the oil be required to have a certain p. c. of anethol. An assay method should be given. Com. Ph. Rev. A. Ph. A. (Ph. Era 96, 442.)

Adulteration. Schimmel & Co., have found that the stearopten of oil of fennel is much used for the adulteration of anise oil. Anise oil is slightly lævogyrate, while oil of fennel is strongly dextrogyrate, and since the stearopten of fennel contains usually the dextrogyrate fenchone, the addition of this stearopten must necessarily affect the rotatory power of the latter. (Ph. Rev. 97, 94. Proc. 97, 650. Dr. Circ. 97, 161.)

(Oleum Anisi Stellati ; Oleum Illicii.)

Adulteration. Umney found this oil recently adulterated with what appeared to be petroleum of a sp. gr. 0.835 at 15° C. The pure oil has a sp. gr. of from 0.980 to 0.982, and the melting point, after solidification, at from 15.°8 to 16.°2 C. The adulterated sample had a sp. gr. of from 0.894 to 0.939, and the melting point from 5.°7 to 11.°5 C. The probable p. c. of the petroleum was from 36 to 56. (Ch. & Dr. 97, Oct. 623. Dr. Circ. 97, 354. Am. Dr. 97, xxxi, 277.)

(Oleum Arachis.)

Distinction from *Olive Oil.* See under "Oleum Olivæ."

Sadtler calls attention to its good qualities, being especially less prone to rancidity than olive oil, for which it would furnish a desirable substitute. (A. Jl. Ph. 97, 490. Dr. Circ. 97, 336. Proc. 97, 179.)

Oleum Aurantii.

Preservation. Hill adds one oz. each of alcohol and glycerin to the pound of the oil. (Proc. Penn. Ph. Ass. 96, 121. Proc. 97, 641).

Specific Gravity. From 0.848 to 0.852. Schimmel & Co. (Ber. Oct. 96. Ph. Jl. 96, Oct. 357.)

Rotation. Oil of orange has the highest rotation of any essential oil; from 96 to 98 at 20° C. (Ibid.)

Solubility. A test for solubility is inapplicable for this oil. (Ibid.)

Oleum Bergamottæ.

Harvest and Manufacture. Schimmel & Co. (Ph. Rev. 96, 133.)

Specific Gravity. Most adulterants cause alterations of sp. gr., and the kind of alteration often furnishes a clue to the adulterant. The sp. gr. of the true oil is tolerably constant at between 0.882 to 0.886. Schimmel & Co. (Ber. Oct. 96. Ph. Jl. 96, Oct. 357.)

Rotation. This is of less importance with oil of bergamot than with the oils of lemon or of orange, but it is useful as a control of other data. The variation is very great; samples showing a rotation (calculated for 100 Mm. tube) from + 8 to + 20 at 15° to 20° C. may still be pure. Owing to the dark color, a 20 Mm. tube has to be taken, and the figures obtained must be calculated for a 100 Mm. tube. (Ibid.)

Solubility in Alcohol. With this oil the solubility test is not much to be relied upon. (Ibid.)

Linalool. A definite minimum can not be given, since the p. c. is influenced by the season, etc. (Ibid.)——Since linalool gives the characteristic odor, it is suggested to require a certain p. c. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Oleum Betulæ.

Should be dropped, being inferior to methyl salicylate. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Oleum Cadinum.

Odor Improved. According to Vaucher, the odor is greatly improved by an addition of acetone. (Ch. & Dr. 97, 16. Proc. 97, 640.)

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

Identification. See under "Pix Liquida" (*Juniper Tar*).

Oleum Caryophylli.

Chemistry. Erdmann (Jl. Pr. Ch. lvi, 175. A. Jl. Ph. 97, 638. Am. Dr. 97, xxxi, 306).

Constituents. Schimmel & Co. found quite a large quantity of furfurol. They also found that the peculiar fruit-like odor, especially noticeable in the first fractions of the oil, is due to minute quantities of methyl-amyl-ketone ($CH_3(CH_2)_4CO.CH_3$). (Ber. April 97. Ph. Rev. 97, 115. Proc. 97, 650.)

Oleum Cinnamomi.

Assay. Braithwaite calls attention to the, often overlooked, very obvious fact that the quality of the oil in different bottles of even the same consignment is apt to vary between wide limits. (Ph. Jl. 97, Nov. 397. Am. Dr. 97, xxxi, 306.)

China. Distillation. (Ph. Ztg. 96, 730.)

Adulteration. Kebler found very few samples containing above 70 p. c. of cinnamic aldehyde, and some as low as 56.64 and 54 p. c. One sample contained petroleum oil, which had been added in excess of saturation. He estimates the aldehyde by means of sodium bisulphite. (A. Jl. Ph. 96, 194.)

Cinnamic Aldehyde. Since cinnamic aldehyde is the active principle, it should be substituted for it, or a certain p. c. should be required, and also a method of assay given. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)——See also (Ph. Rev. 96, 94.)

Oleum Copaibæ.

Specific Gravity. Kebler thinks that the sp. gr. should be a little greater. (A. Jl. Ph. 97, 579.)

Gurjun Balsam. A test should be given. (Ibid.)

Oleum Eucalypti.

Oil of Turpentine. Detection. See under "Eucalyptol."

Oil of Eucalyptus rostrata. Account. Maiden (A. Jl. Ph. 97, 6).

Oleum Foeniculi.

Japanese Oil. Umney finds that this oil contains about 75 p. c. of anethol, 10 p. c. of fenchone, besides terpenes. It corresponds in the main well with the requirements of the U. S. P. (Ph. Jl. 96, Aug., 91. A. Jl. Ph. 96, 500. Proc. 97, 516.)

Fenchone. The p. c. varies in a surprising manner with the different oils: French contains none; Persian has 3.4 p. c.; Indian, 6.7; Japanese, 10.2; Galician, 18.1 to 19.3; Russian, 18.2; and Saxon, 22.5. Umney (Ph. Jl. 97, Mrch., 225. Ch. & Dr. 97, Mrch. 417. Proc. 97, 517).

Oleum Gaultheriæ.

Should be dismissed in favor of Methyl salicylate. Comm. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Oleum Gossypii.

Irritating effects. Elborne reports several complaints of irritating effect from its use. (Ch. & Dr. 96, Aug. 204. Proc. 97, 675.)

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

Oleum Hedeomæ.

Dunolly, Victoria. The sample examined was very probably a mixture of the oils of peppermint and pennyroyal. It had a marked odor of both. The p. c. of alcohol (probably menthol), was 36.92 p. c., of which 27.5 p. c. was calculated as free menthol. Rotation + 7, in a 100 Mm. tube; sp. gr. at 15° C. 0.918. Umney (Ph. Jl. 96, Sept., 199, 256. Proc. 97, 636).

Oleum Lavandulæ.

Specific Gravity. From 0.883 to 0.095. Schimmel & Co. (Ber. 96, Oct. Ph. Jl. 96, Oct., 358.)

Rotation. From —4 to —8 in 100 Mm. tube. (Ibid.)

Solubility in three parts of alcohol (70–p. c.) is characteristic. (Ibid.)

Ester. The p. c. is the best practical test of quality. It should not be less than 30 p. c. of linalyl acetate. (Ibid.)

Oleum Limonis.

Harvest and Manufacture. Schimmel & Co. (Ber. April, 96. Ph. Rev. 96, 134.)

Quality. Estimation. As yet, absolute quantitative determinations are unattainable, so that we have to be satisfied for the present with a method that will establish the purity of the oil, and determine approximately the foreign additions. Soldini and Berte conclude that distillation *in vacuo*, in conjunction with the polarimeter and the estimation of the citral, will suffice. They show that though the adulterants can be balanced to give a direct rotation equal to the pure oil, the distillation method serves to reveal the impurity. Oil of lemon may be declared pure when the rotation of the distillate of half its volume is at least 0.30 higher than that of the residue of the distillation. If it is lower, the presence of more than 2 p. c. of oil of turpentine is indicated. A residue, showing a higher rotation than the original oil, indicates oil of orange, or the terpene of either oil of lemon or orange. (Ch. & Dr. 97. Jan'y, 25 & April, 669. Dr. Circ. 97, 54. Proc. 97, 640.)

Citral. Being the valuable constituent, should either be substituted for the oil, or a certain p. c. of citral be required, together with the method of assay. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)——*Estimation.* Garnett estimates the citral by making use of the fact that just as geraniol yields its aldehyde (citral) on oxidation with chromic acid, so citral can by a process of reduction be converted into its alcohol (geraniol). (Liebermann and Semmler.) Now, Schimmel & Co. have shown that geraniol is capable of exact estimation by conversion into its acetic ether, the amount of the latter being determined by saponification with normal alcoholic potassa. The question is whether this reduction and acetylation of citral can be effected in the presence of a large excess of inactive terpene. A solution of the oil in glacial acetic acid is subjected to the action of metallic sodium, cut into small pieces. Dilute largely with water, separate the oil, wash it well with water, and free it from water by anhydrous sodium sulphate. The dried oil is then acetylated by Liebermann's method (boiling with acetic anhydride and anhydrous sodium acetate). Dilute with water, separate the acetylated oil, wash, and dry by anhydrous sodium sulphate. Titrate the dry oil with alcoholic potassa. (Ph. Jl. 96, April, 323. Ch. & Dr. 96, April, 599.)——Schimmel & Co. find that the method, proposed by Garnett, gives such wide deviations from the known composition of the materials operated upon as to leave no hope of a useful application. (Ber. Oct. 96. Ph. Jl. 96, Oct. 358.)——Coriol states that the citral estimation may be expected to be of little practical value, as there will be found a marked difference between lemons grown up in the hills and those grown on the plains. Oil from November lemons, which is among the finest, contains less citral than that from January or February lemons. The nose, after all, is more reliable for many essential oils than any chemical or physical test. (Ch. & Dr. 97, Oct. 639.)

Test. The "glazed paper" test is, after all, the best. Put a piece of glazed paper upon a lemon, and express the oil with the thumbnail, and then compare the odor with that of the oil. This is certainly the best standard. Perls. (Ch. & Dr. 97, May, 831).

Pinene. Schimmel & Co. find that pinene is no constituent of oil of lemon, as was formerly believed. Incidentally, they state that they found a batch of oil of lemon containing as much as 60 p. c. of oil of turpentine. (Ber. April, 97. Ph. Rev. 97, 160.)

Preservation. Schimmel & Co. state that dehydration of the oil by sodium sulphate is not only of no use, but decidedly detrimental. The best method is that recommended years ago for all essential oils, to fill the oil up to the neck of the vials, stopper carefully, and keep them in a dark place. (Ber. Oct., 96. Ph. Rev. 97, 16. Proc. 97, 641.) ——Lester has come to the same result. (W. Dr. 96, 298.)——Hill adds to each pound of the oil, one oz. each of alcohol and glycerin. (Proc. 97, 641.)——Typke and King assert, that when the oil is kept excluded from air, light and heat, it will keep sweet for several years. (Ch. & Dr. 97, Febr., 289.)——Both Robins and Pasquale state that when the oil is absolutely pure, no especial care need be taken, provided it be corked down as soon as it is pressed, and kept hermetically sealed. (Ch. & Dr. 97, Febr., 325, and Mrch., 406.)

Specific Gravity. From 0.858 to 0.861. Schimmel & Co. (Ber. 96, Oct. Ph. Jl. 96, Oct., 357).

Rotation. Normal from + 59 to + 67. From + 64 to + 67 is only found in oils from certain districts. (Ibid.)

Solubility in alcohol. This test is inapplicable for oil of lemon. (Ibid.)

Oleum Lini.

Bromination. Heat evolved. Bromwell and Mayer. (A. Jl. Ph. 97, 149. Proc. 97, 673.)

Oleum Menthæ Piperitæ.

Menthol. Estimation. Kebler improves the method proposed by Power and Kleber in 1894 (Ph. Rdschau. N. Y. 94, 157), so that it can be finished in three hours. The combined menthol is estimated by boiling a definite weight of the oil with alcoholic sodium hydroxide, and retitrating excess of soda with sulphuric acid, using phenolphtalein as indicator. The total menthol is estimated by acetylizing a definite weight of the oil, and boiling the acetylized oil with alcoholic sodium hydroxide, and retitrating, as before. Each Cc. of normal alkali corresponds to 0.156 Gm. of menthol. The free menthol is found by deducting the combined menthol from the total menthol. In examining oil of peppermint, it is necessary to determine: 1. The sp. gr. 2. The boiling point. 3. The amount of menthol. The combined menthol may vary from 3 to 16 p. c. The total menthol from 30 to 80 p. c. (A. Jl. Ph. 97, 192. Proc. 97, 643.)——Kleber states that the original method (that of Power and Kleber) can be carried out within thirty minutes. The chief difference between this and Kebler's method is that Kebler starts from a definite weight of oil, while Power and Kleber acetylize an arbitrary quantity, and saponify an exactly weighed quantity of acetylized oil. Kleber gives the following rapid method for approximation:

An exact quantity of oil is boiled with acetic anhydride. Titrate the acetylized mixture with normal soda and phenolphthalein. Titrate of the same acetic anhydride, a quantity equal to that employed, in the same way, and multiply the difference between the two titrations by 0.156. The result is the amount of menthol. (Ph. Rev. 97, 135. Ph. Jl. 97, July 82.)

Iodine Number. Bukowsky found that the superior qualities of the oil give an iodine number lower than 81. The numbers vary from 54.1 to 102.97. The p. c. of the least volatile portions (boiling between 160° and 229° C.) varies from 86. to 96. (Ph. Zts. Russl. 96, . . . Ph. Jl. 96, July, 3.)

Adulteration. Kebler reports an oil of which over 50 p. c. of a constituent passed over at below 200° C., while genuine oil should not yield more than 5 p. c. below that temperature. The fractions which passed between 140° to 180° C. had the odor of oil of turpentine, sp. gr. 0.8739, and fulminated with iodine. The residue, after distilling off the fractions up to 275° C., amounted to 19 p. c. It resembled a fixed oil in appearance, sp. gr. 0.9188, and was insoluble in alcohol; the saponification number was 55. This oil complied so closely with the requirements of the U. S. P., that an analyst would hesitate before pronouncing it adulterated; the determination of the boiling point, however, would have removed all doubt. Kebler, therefore, thinks that the Pharmacopœia should introduce at least the boiling point. (Am. Dr. 96, xxix, 64. Proc. 97, 644.)

Sulphur Derivatives in the American Oil. During the process of rectification of the crude oil, Power and Kleber observed in the beginning of the distillation a peculiar sulphurous odor, which was found to be due to the presence of methyl disulphide. It appears that there is also another organic sulphur compound present in the oil. (Ph. Rev. 96, 269. A. Jl. Ph. 96, 502. Proc. 97, 643.)

Russian Oil. At present this oil is of an unsatisfactory quality, the collection of the oil being carried on in the most primitive manner. (Ph. Post 97, 218. Proc. 97, 643.)

Differences in the Oils. Umney states that the principal difference found between black and white oil of Mitcham was in the proportion of esters of menthol present; the white oil yields as high as 14 p. c., whilst the black oil does not usually exceed 7 p. c. Plants grown in the U. S. from Japanese roots yielded as low as 2.5 p. c. He found, incidentally, that the intensity of the color reactions (§§ 6, 7, 8, 9 of U. S. P.) follows the p. c. of esters. The great superiority of English oil over the American oil is due to the greater care taken in the cultivation, scarcely a weed having been seen by him in a 100-acre field at Mitcham. (Ph. Jl. 96, Aug. 103. Ch. & Dr. 96, Febr. 250 Aug., 199. Dr. Circ. 96, 168. Proc. 97, 642.)

From Dunolly, Victoria. This oil has a sp. gr. of 0.912 at 15° C.; rotation, -27; fractionation yielded 36 p. c. at 200° to 210° C.; 53 p. c. at 210° to 230° C.; residue, 11 p. c. It contained menthol in the form of esters, 8.3 p. c.; free menthol, 45.6 p. c. Umney (Ph. Jl. 96, Sept. 199, 256. Ch. & Dr. 96, Aug. 258. Proc. 97, 636).

Oleum Menthæ Viridis.

Adulteration. Kremers and Schreiner have applied the carvoxime reaction to the quantitative estimation of carvone in this oil. They come to the conclusion that this method gives better results than the fractional distillation method with comparatively large quantities of oil. They also call attention to the applicability of Wallach's sesquiterpene reaction. (Ph. Rev. 96, 244. Proc. 97, 645.)

"*Complete*" *Oil.* Fritsche & Bro. obtained 0.3 p. c. from the fresh plants at Garfield. The sp. gr. is 0.980, which is considerably higher than that of the ordinary oils of commerce (0.920 to 0.940); the rotation is —42° 32′. The flavor is entirely different from that of the commercial oils, and more like that of carvol. They also noticed a considerable quantity of oil, heavier than water. Perhaps the difference in the sp. gr. noted is due to the non-collection of this heavier oil. (Ph. Rev. 97, Suppl. 4. Proc. 97, 645.)

Oleum Morrhuæ.

Newfoundland Oil. Improvement in the product, due to the employment of more modern methods. (W. Dr. 97, 63. Proc. 97, 579.)

Specific Gravity. Best Norwegian oil has been found to range in specific gravity between 0.9267 and 0.9289 at 15° C. during a number of years. The Pharmacopœia gives 0.920 to 0.925 at 15° C. (C. E. Smith, see *Preface.*

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

Chemistry. Gundlich states that morrhuol contains a considerable quantity of amines. (Jl. Pharmacol. 97, 223. A. Jl. Ph. 97, 644.)

Oleum Myrciæ.

Two Kinds. There exist two kinds of this oil in the American market. One is the natural one, the other has an addition of eugenol, in order to raise the sp. gr. so as to conform to the requirements of the U. S. P. Comm. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 42. A. Jl. Ph. 98, 54.)

Oleum Olivæ.

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

California Oil. Account. (Ph. Era 97, xviii, 198. Ch. & Dr. 96, Oct. 580.)

Arachis Oil. Blarez recommends the following method as expeditious, based on the property of its potash soap in being almost insoluble in strong, cold alcohol in presence of a notable excess of potassa. To one Cc. of the oil in a test tube, provided with a vertical condenser, add 15 Cc. of a 4 or 5-p. c. alcoholic solution of potassa heat the tube for twenty minutes, and, when the oil is saponified, allow the tube to cool for 24 hours, when the arachis soap will be solid. Pure olive oil shows no sign of solidification, even after 48 to 72 hours. In a mixture of both oils there will always be noticed a flocculent precipitate, showing distinct crystals. (Bull. Ph. Bord. 97, . . . Ch. News 97, May 251. Ch. & Dr. 97, July 209. Proc. 97, 675.)——Van Engelen uses sodium molybdate dissolved in concentrated sulphuric acid, which gives an intense purple color with arachis oil; neither olive, sesame nor almond oil show this color. (Ch. Ztg. 96, 440. Ap. Ztg. 96, 516.)

Castor Oil. Annibale states that olive oil is largely adulterated with castor oil, which he detects by taking advantage of the fact that castor oil is soluble in alcohol, and that it also dissolves fuchsin. Put 5 volumes of the suspected oil into a test tube, and then add carefully (so as to form a layer) 25 volumes of alcohol, containing about 5 p. c. of a solution of fuchsin (1:2,000). Mark the point of contact, shake for several minutes, allow to rest for half an hour, and notice the increase, if any, of the alcoholic layer, which will also contain all the color, if castor oil was present. (Ph. Ztg. 97, 124. Dr. Circ. 97, 189. Proc. 97, 499.)

Cottonseed Oil. Goldberg proposes to make use of the different congealing temperature, and the temperature at which they liquefy, to distinguish between olive oil and cottonseed oil. (Ph. Ztg. 97, 310. Ph. Jl. 97, Oct. 386.)

Sesame Oil. Emilio improves Baudouin's test (hydrochloric acid and sugar) as follows: To one volume of oil add half a volume of hydrochloric acid (1.18), containing 1 p. c. of sugar, shake well for half a minute, and allow to stand for five minutes. Now add three times as much water as acid, and shake, when the acid layer will be colored pink in the presence of sesame oil. Pure olive oil gives only a yellow, or brown color. (Orosi. 95, 87. Ph. Centralh. 96, 95.)

See also under "Oleum Sesami."

Oleum Ricini.

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

Oleum Rosæ.

Constituents. Erdmann and Huth (Jl. Pr. Ch. liii, 42. Ph. Jl. 97, Nov. 417).

Composition. Bush & Co. state that they have had Turkish oil solidifying as low as 19° C., and the sp. gr. as low as 0.860 at 20° C. They give an example of how enormous is the difference in composition in the different fractions. The first third of the total yield from each batch is very rich in stearopten, but has neither so pure or powerful an odor as the remainder. First third: solidifying point, 26° to 27° C.; sp. gr. at 20 C., 0.8189 to 0.8224; rotation, —4 to —5. The remainder: solidifying point, 5 to 6.5 C.; sp. gr. at 20 C., 0.8812 to 0.8838; rotation, —1.9 to —2.5. The amount of stearopten appears to be influenced by the wetness or dryness of the season, and the earlier or later gathering of the flowers. (Ch. & Dr. 97, Jan'y 53. Proc. 97, 647.)

Tests. Jedermann, who for years has been chemist for Ihmsen & Co., Constantinople, and therefore been in a position to get undoubtedly pure oil, states as the result of his examinations, that most of the tests published are inaccurate, and some positively false, because it is well-nigh impossible to obtain a pure oil. This difficulty is increased by the fact that most of the growers and distillers are in the habit of sprinkling the rose-buds or flowers with Turkish oil of geranium, before placing them in the still. As to the sulphuric acid test of the U. S. P. (with subsequent addition of alcohol), he says that the brown color is due to small portions of resinous substances from the calyces, which substances are always carried over during distillation. Their increase is indirectly due to the temperature which obtains during the gathering of the flowers. The flowers can not be stored, but must be distilled as soon as gathered, and they must be gathered as soon as unfolded. If the temperature at the time of gathering be high, there will be more flowers than the respective stills can ordinarily hold. The peasants, therefore, stuff in as much as possible, and thereby increase the p. c. of resinous substances. As to the stearopten, it is well-known to be an inodorous body, the p. c. of which depends on the temperature of the season. Moreover, the least change in the mode of distillation influences more or less considerably the physical properties of the oil, for which reason alone little reliance can be placed on many of the tests. The freezing point is therefore of minor importance. Rotation may be fixed at an average of 43.30 at 30° C. The sp. gr., taken at 30° C., runs from 0.8555 to 0.8645 (the various geranium oils run from 0.8830 to 0.8895). No single test, taken by itself, can decide the genuineness. (Ch. & Dr. 96, Aug. 349. Am. Dr. 97, xxix, 223.)

Geranium Oil. A correspondent asserts that in 1896 not less than 1,550 pounds of geranium oil were smuggled into Bulgaria. (Ch. & Dr. 96, Sept. 461.)

Quality. Conroy states that after all, the sense of smell is the most reliable test, and recommends to dissolve one drop in about 20 drops of alcohol, and pour this into one ounce of warm water (100° C.), shake up well, and smell. To show the fallacy of the assumption that physical tests are reliable, he instances a recent assertion that all oils of rose should be rejected, the freezing of which is under 65° to 68° F.; sp. gr. beyond the limits of 0.850 to 0.856 at 86° F., and rotation which does not correspond to —2.3 to —2.7. The above freezing points allow of 11 p. c. admixture of geranium oil; the sp. gr. allows of 15.8 p. c. of the same oil; and the rotation of 31.5 p. c., or, for the matter of that, of as much as we like, in case the rotation figures be corrected by the addition of 5 p. c. of citrene. Umney relies a good deal on the acetylization test, which for a good oil is 71 to 72.5 p. c., while oil of geranium yields almost 85 p. c. An abnormal p. c. of stearopten reduces the alcohol figure. Nothing but a pure oil can pass the four specific tests: Sp. gr.; Freezing temperature; Rotation; and Alcoholic p. c. (Ph. Jl. 96, Nov. 474. Ch. & Dr. 96, Nov. 772, 795; Dec. 931; and 97, Jan'y 33. Dr. Circ. 97, 8. Proc. 97, 648.)

Stearopten. Groves has long ago recommended a stearopten-free oil, which is also more difficult to adulterate. (Ch. & Dr. 96, Dec. 837.)——The stearopten is most conveniently removed by mixing one volume of the oil with two volumes of rectified spirit (S. V. R.), removing the stearopten by filtration under reduced pressure at 5° C., and then removing the spirit by distillation in vacuo. Umney (Ch. & Dr. 96, Dec. 936).

From Dunolly, Victoria. The odor compares favorably with that of the Turkish oil. Sp. gr., 0.8886 at 15° C.; does not solidify at 5° C., but becomes slightly opaque. It is, however, quite possible that in this particular sample the stearopten has been partially removed in the condensation of the oil. More than 75 p. c. distils between 215 and 235° C. Geraniol exists to the extent of 57.8 p. c. Umney (Ph. Jl. 96, Sept. 199, 256. Ch. & Dr. 96, Aug. 257. Proc. 97, 636).

Oleum Rosmarini.

From Dunolly, Victoria. Sp. gr. 0.906; rotation, + 0.25 (100 Mm. tube). Fractionation yielded 13 p. c. below 176° C.; 64 p. c. between 176° and 200° C.; 23 p. c. above 200° C. The last p. c. points to a large p. c. of borneol, of which the oil was found to contain 13 p. c. Umney (Ph. Jl. 96, Sept. 199, 256. Proc. 97, 636).

Oleum Santali.

Purity. When this oil has been badly preserved, or when it is old, it may not give a clear solution with 5 parts of alcohol (70-p. c.). Hendrix, therefore, proposes the following test: Weigh into a 10 Cc. flask 2 Gm. of a solution of 3 parts of crystallized phenol in 1 part of alcohol, add 0.5 Gm. of the oil, and shake. Add 5 Gm. of hydrochloric acid without shaking. At the zone of contact will be found, with pure oil, a yellow coloration, changing in a few minutes to red. Oil of cedar wood causes the upper layer to become cloudy, and the zone of contact is brownish. Oil of copaiva causes the upper layer to become purple (mauve). (W. Dr. 97, 262. A. Jl. Ph. 97, 224. Proc. 97, 652.)

Constants. Sp. gr., not below 0.975 at 15° C.; rotation, —17 to —19; solubility, 1:5 alcohol (70-p. c.) at 20° C.; santalol, at least 90 p. c. Schimmel & Co. (Ber. April 97. Merck's Rep. 97, 344.) ——Bush & Co. contend that the sp. gr. should be 0.970 to over 0.980; and the rotation —10 to —20. (Am. Dr. 97, Dec. 932.)

Oleum Sassafras.

Safrol. Since safrol is the odoriferous principle of this oil, it should be substituted for it, or at least a certain p. c. of it required. Comm. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Adulteration. It is stated that thousands of pounds of the artificial oil are shipped to the country where oil of sassafras is produced, and get back from there to the market—but *not* labeled "artificial" oil. (Proc. Pa. Ph. Ass. 96, 43. Proc. 97, 633.)

Pure Oil. Power and Kleber examined oil, distilled by themselves from the bark. They found that the air-dry bark yielded 7.4 p. c. The color of this oil was yellowish, or reddish-yellow; sp. gr. at 15° C., 1.075; rotation, 3°16′ (100 Mm. tube). The wood yielded only 0.9 p. c. As to the safrol, they obtained 78 p. c. They found that no separation of crystals takes place in a freezing mixture of ice and salt, even after rubbing the sides of the glass vessel with a sharp-edged glass rod. But as soon as a trace of solid safrol (obtained otherwise) was added, the safrol crystallized immediately. In its qualitative composition there is a marked similarity with oil of camphor.

Bark oil consists of safrol, pinene, phellandrene, eugenol, dextro-camphor and a high-boiling portion. Leaf oil consists of pinene, myrcene, phellandrene, linalool, geraniol, acetic and valerianic esters, cadinene and a paraffin. This leaf oil possesses a somewhat lemon-like odor; sp. gr. 0.872 at 15°C.; rotation 6° 25′ (100 Mm. tube). The yield is 0.028 p. c. (Ph. Rev. 96, 101. (Am. Dr. 96, xxviii, 273, 330.)

Oleum Sesami.

Bromination. Heat evolved. Bromwell and Mayer (A. Jl. Ph. 97, 149. Proc. 97, 673).

Baudoin's Test (hydrochloric acid and sugar). Since this reaction is caused by all sugars, which easily form furfurol, Villavecchia and Fabris simplify the reaction by using a 1-p. c. solution of furfurol in alcohol and hydrochloric acid. (Ch. Centralbl. 97, 772. Ph. Ztg. 97, 871). See also under "Oleum Olivæ."

Oleum Terebinthinæ.

Fractionation. Kremers has collected the distillate in fractions, which, from the uniformity in the results of three different experiments, would seem to show that each consecutive fraction is uniformly distinct from the preceding one. Although much of the rectified oil, when fresh, has a pleasant enough odor, it soon undergoes the usual resinification. (Ph. Rev. 97, 9. Proc. 97, 638.)

Odor. Szigethy thinks that the odor is due only to the oxidizing influence of the air. He recently obtained an odorless oil by shaking it with a 10-p. c. solution of sodium carbonate, then washing repeatedly, and finally distilling under a reduced pressure of 12 Mm. in a current of steam and carbon anhydride. It should be left in the carbonic anhydride atmosphere, until entirely cold. (N. Erf. & Erf. xxiv, 173. Ph. Rev. 97, 93. Proc. 97, 638. Ch. & Dr. 97, Aug. 235.)

Kerosene and Rosin. Detection. Evaporate 50 Cc. of the oil to 2 Cc., and add glacial acetic acid. If pure, no color reaction occurs, while kerosene produces a yellowish-brown coloration. Rosin is detected by shaking the oil with sulphurous acid. Absence of color indicates purity. (Merck's Rep. 97, 434. Dr. Circ. 97, 282.)

Oleum Theobromatis.

Adulteration. It has been found adulterated in Europe with petrolatum and paraffin. The melting point is lower, and it is milky when fused. (Ph. Ztg. 96, 109. Ch. & Dr. 96, April, 526.)

Iodine Number. Strehl finds, that the iodine number varies (according to origin, degree of ripeness of the beans, etc.) from 32.8 to 41.7, and the index of refraction from 1.4565 to 1.4578 at 40°C. A low iodine number carries with it also a low index of refraction. (Zts. Analyt. Ch. 96, 166. Ch. News. 96, Aug. 109. Proc. 97, 678.)

Bromination. Heat evolved. Bromwell and Mayer. (A. Jl. Ph. 97, 149. Proc. 97, 673.)

Specific Gravity. Evers found the sp. gr. at 100°C. 0.890 to 0.897. All known adulterants decrease the sp. gr. (Ph. Ztg. 96, 737, 97, 838.)

Oleum Thymi.

Constituents. Schimmel & Co. made the observation, that this oil sometimes contains only thymol, and sometimes only carvacrol, and sometimes both. (A. Jl. Ph. 96, 539.)

Oleum Tiglii.

Bromination. Heat evolved, Bromwell and Mayer. (A. Jl. Ph. 97, 149. Proc. 97, 673.)

Opium.

Adulteration. Jelliffe has examined the nature of the admixtures found in opium. (Am. Dr. 97, xxx, 41. Proc. 97, 541.)

Strontium Salts. Kebler and La Wall have found, besides starch, strontium salts, which, of course, vitiate the p. c. of impure morphine, increasing it to that extent. Incidentally they raise the question, whether all the usual admixtures (starch, poppy capsules, rumex fruit, etc.) can be classed as true adulterations, provided the opium contains the official p. c. of morphine? Considering the present impurities found in opium, they consider the ash method as the best for correction of results. (A. Jl. Ph. 97, 244. Proc. 97, 541.)——Trimble suggests (in the light of recent finds of strontium in the ash of several barks from the Botanical Gardens at Singapore) that its presence in opium may be naturally accounted for (from the soil). (A. Jl. Ph. 97, 296. Proc. 97, 606.)

Assay. Farr and Wright find that the process of Ph. Br. is the best for general pharmaceutical purposes. They give a modification of this process, which in the main is the lime process of U. S. P. 1880. (Ph. Jl. 97, Mrch. 202. Proc. 97, 542.)

Grandval and Lajoux state that the following process is both easy and rapid: Triturate 10 Gm. of opium in a glass mortar with 40 Gm. of distilled water to a smooth paste, throw it on a folded filter, and wash the mortar with 40 Gm. more of water, which is also poured on the same filter. Allow to drain well, return the filter and its contents to the mortar, and repeat the trituration with a third portion of 40 Gm. of water, but added in several portions. Pour the whole on a plain filter and wash until the washings are free from color and taste. Evaporate the filtrate and washings on a water-bath to 13 Gm; add 13 Gm. of alcohol (95 p. c.), and allow to stand for half an hour for the sulphate and meconate of calcium to deposit. Filter through a small filter, moistened with alcohol (60 p. c.), wash the filter and precipitate with alcohol, drop by drop, so as to complete the washings with not more than 10 Gm. of alcohol. The edges of the filter are kept from drying during the washing by covering the funnel with a watch crystal. Add ammonia, drop by drop, until the color is just apparent, and agitate for some minutes, then set aside for twelve hours in a cool place. Collect the precipitate of morphine and narcotine on a plain filter, previously well dried at 100° C., tared, and moistened with alcohol (60 p. c.). Wash the drained precipitate with alcohol (40 p. c.), until the liquid runs colorless, when not more than 25 Cc. should have been used. Dry filter and contents at 100° C., weigh and return to the funnel, when 5 Cc. ether are added and then 10 Gm. of chloroform, which dissolves the narcotine. Dry the morphine and the filterate 100° C., and weigh. (Jl. de Ph. & Ch. v, 153. A. Jl. Ph. 97, 216).

Moerk finds that the alcohol method will give as morphine everything soluble in alcohol, hence narcotine and coloring matter will be returned as morphine. This method is expensive, and the fine precipitate filters with difficulty. The lime-water method does not reveal all organic matter, and the ash-yielding substances are, in part at least, chemically changed. The ash method will not reveal organic matter, and as the necessary factors for the correction are rather uncertain, the correction, based upon the weight of the ash, will be too high, unless counterbalanced by the presence of foreign organic matter. While no one of these methods can be considered satisfactory, Moerk gives preference to the lime-water method as involving less change during manipulation, and because the solution is more easily filtered. Care must be taken to keep the funnel covered with a watch-glass to prevent the formation of calcium carbonate, if working near a flame. 0.5 Gm. of the well-mixed crude morphine is weighed into a flask, and thoroughly moistened with 5 Cc. of lime-water before adding the remaining 45 Cc. Rotate the contents of the flask repeatedly during half an hour, filter the solution through a counterbalanced filter (7 Cm.), rinsing the precipitate in the flask upon the filter by the use of a small portion of the filtrate, and wash the flask and filter with 5 Cc. of lime-water, added in portions of one Cc. After draining, set aside the filtrate, and wash the filter with 5 Cc. of distilled water, in portions of one Cc. After draining, press the filter between bibulous paper, and dry at 50° to 55° C. to constant weight. This weight is then calculated to entire weight of crude morphine, and, when subtracted from the weight of the crude morphine, as weighed on a watch-glass, gives the weight of the pure morphine, which is then calculated to 100 parts of opium. The lime-water solution of the crude morphine (the filtrate above-mentioned) is thoroughly agitated, after adding 6 Cc. of ether (just enough to saturate the solution; morphine, particularly in the presence of organic matter, is less soluble in water saturated with ether than in pure water), 0.150 Gm. of ammonium chloride is next added, and the agitation continued for ten minutes, before setting aside for 10 to 12 hours. Filter through counterbalanced filters (7 Cm.), rinse the flask with a little of the filtrate, then wash the morphine and filter with 15 Cc. of distilled water, in portions of one Cc. each, dry the filter at 55° C., and weigh. The combined weights of the recovered morphine and the correction, subtracted from 0.500, gives the loss sustained in the purification, and represents chiefly the morphine remaining dissolved in the 55 Cc. of the mother-liquor. Moerk states that the ability to accurately state the quantity of morphine in the mother-liquors, will also solve the problem of the purity of any isolated morphine. (A. Jl. Ph. 97, 343.)

Purity. Although any opium, which contains the official 9 p. c. of morphine, will pass the U. S. inspection, Massey recommends to put a limit to the amount of adulteration, which in some samples reached the high p. c. of 33. He thought that by raising the standard to 10 p. c. (for instance), greater care would be exercised in preparing opium for the market. (Dr. Circ. 97, 55.)

Bulgarian Opium. It is fully as rich as the Asia Minor opium. Samples from Kustendil yielded as much as 20.75 p. c. of morphine (the opium had 1.17 p. c. of moisture). Strzyzowski. (Ap. Ztg. 96, 18. Ch. & Dr. 96, May. 733. Merck's Rep. 97, 306.)

Chinese Opium. Kweichow opium contained 4.3 p. c. Yunnan, 9.4 p. c. Szechuen, 11.2 p. c. of morphine. Browne (Ch. & Dr. 96, Aug. 210, 315.)

Greek Opium. This opium showed as high as 14 p. c. of moisture and 13.7 p. c. morphine. Dambergis. (Ap. Ztg. 96, 12.)

Persian Opium. McDonald reports upon the cultivation in Persia, and thinks that the climatic conditions of the Gulf States (U. S.) are favorable. It is absolutely necessary, however, that two skilled persons should be engaged, the cultivator and the kneader, otherwise the enterprise will be a failure. (A. Jl. Ph. 96, 438. Proc. 97, 540.) ——See also (Am. Dr. 96, xxviii, 219.)

Color Reactions. Pruys. (Ph. Ztg. 96, 647.)

Opium Deodoratum.

Benzin should be used instead of ether. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Pancreatinum.

Papain. Distinction. Nitric acid colors a solution of pancreatin yellow, with a flocculent, permanent precipitate. A solution of papain is rendered opalescent, an excess of acid clearing it; the color is yellow, but there is no precipitate. Mercuric chloride T. S., added to a solution of pancreatin, causes a light precipitate, slightly yellow, and remaining in suspension; it settles very slowly. On addition of nitric acid, the color becomes deeper and the flocculence remains diffused. Papain gives a heavy precipitate with mercuric chloride T. S., which is milky white, and settles more quickly; addition of nitric acid changes the color to yellowish, while the precipitate dissolves, and the liquid clears. Harding. (Ch. & Dr. 96, May. 779.)

(Papainum; Papoid.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

(Paraffinum.)

Specific Gravity. Evers found it at 100° C., according to the fusing point, to be 0.774 to 0.792—the lowest fusing point possessing the lowest sp. gr. (Ph. Ztg. 96, 737; 97, 838.)

Pareira.

Histology, and distinction from the false root. Dohme states, that the difference between these two roots is quite marked, macroscopically as well as microscopically. (Dr. Circ. 96, 296. Proc. 97, 524.)

Pepo.

Oil. Yield and properties. Sieker. (Proc. 97, 545.)

Pepsinum.

Pharmacopoeial Standards. Sherrard has subjected American pepsin (1:3,000) to the tests of the different European pharmacopoeias, and found that there is a greater or less difference in the results; a wide variation being in the time allotted, temperature, amount, kind and condition of albumen or proteids, acidity, kind of sieve and p. c. of the pepsin used. (Proc. Mich. Ph. Ass. 96, 38. Proc. 97, 745.)

Heat. Effect. Thompson's experiments bear out the statement of the U. S. P. (third paragraph), that *dry* pepsin can stand heat, without injury to its digestive power. Insoluble pepsin of 4,000 digestive power, stood heating for one hour to 121.1° C. (250°F.); at 137.7° C. (280° F.) the power was reduced to 1:1,000; at 154.4° C. (380° F.) it was reduced to 200. Soluble pepsin in scales (1:4,000) stood 121.1° C. (250° F.); at 137.7° C. (280° F.) it was reduced to 200; at 154.4° C. (380° F.) it became inert. Soluble powder (1:2,000) lost its activity when exposed to the two last temperatures. (Bull. Ph. 95, 539. Ph. Jl. 96, Febr. 86.)

Estimation. Klingele points out, that almost any pepsin loses its activity by keeping, and that therefore, pepsin should be assayed from time to time. (Ph. Ztg. 97, 682.)

Albumose. Separation from Peptone. Boemer recommends the use of zinc sulphate as preferable to ammonium sulphate for the precipitation of albumose, as it obviates the difficulty in quantitative operations, arising from the presence of nitrogen. If the preparation contains ammonium salts, the possible formation of a double sulphate of zinc, which is sparingly soluble, must be borne in mind. (Zts. Analyt. Ch. 95, 562. Ph. Centralh. 96, 177. Ph. Jl. 96, Febr. 161.)

Testing. Allen precipitates the peptones from the filtrate of Boemer (see the foregoing paragraph) with bromine water, which leaves all the basic and amido products of the digestion in solution. The process is as follows: Reduce one Gm. of egg albumin in scales to powder, and treat it in a 100 Cc. flask with 20 Cc. of warm water. When the albumin has dissolved, heat the liquid in a bath of boiling water until coagulated, and then cool it to a temperature not exceeding 40° C., add 100 Gm. of the pepsin and then 25 Cc. of $\frac{N}{10}$ hydrochloric acid. Keep the liquid at a temperature of 40° C. for 3 hours. Now add $\frac{N}{10}$ sodium carbonate (the exact equivalent of the acid), and heat on a water bath to 90° C. for 10 minutes-Cool, dilute with water to 100 Cc., and pass through a dry filter. The precipitate consists of syntonin and any unaltered albumin, while the filtrate contains albumoses and peptones. Now saturate 50 Cc. of the filtrate in the cold with powdered sulphate of zinc (about 60 Gm.), allow to stand with occasional agitation for half an hour, and then filter. Acidulate the filtrate with hydrochloric acid, and treat with an excess of bromine water. Transfer the precipitate to an asbestos filter, treat it, while still moist, with strong sulphuric acid, and determine the nitrogen by Kjeldahl's method. An allowance must, of course, be made for the nitrogen contained in the pepsin employed. (Ph. Jl. 97, Dec. 561.)

Peptone, estimation. Dutto precipitates with potassium-bismuth-iodide, allows the precipitate to stand for 24 hours, washes it with water acidulated with sulphuric acid, and determines the bismuth in the metallic state; 0.141 to 0.147 Gm. of bismuth corresponding to 1 Gm. of peptone. (Ph. Centralh. 95, . . . Dr. Circ. 96, 10.)

Alcohol. Effect on Digestive Power. Symes found that when a liquid, containing coagulated albumen, pepsin and alcohol, is enclosed in a wetted animal membrane, the alcohol diffuses soon, leaving the pepsin with unimpaired digestive power. (Ch. & Dr. 97, Nov. 723. A. Jl. Ph. 97, 636. Merck's Rep. 97, 673.)

(**Petrolatum.**)

Russian and American Petroleum. The Russian consists chiefly of naphthenes, whilst the American is principally composed of hydrocarbons, belonging to the methane series; the products of the two must therefore differ widely in composition. Bird (Ch. & Dr. 97, Aug., 288).

Specific Gravity. Evers found the sp. gr. of the solid petrolatum (Unguentum Paraffini of Ph. G.) to be at 100° C. 0.844 to 0.847. Vaselin at the same temperature, 0.830 to 0.840. (Ph. Ztg. 96, 737; 97, 838.)

Fatty Matter. Detection. Heat 5 Gm. of petrolatum with 5 Cc. of ammonia, until the mixture no longer gives an alkaline reaction. In the presence of fatty matter, the mixture will be opalescent. After the complete evaporation of the ammonia, add 5 Gm. of hydrochloric acid, and heat, until the vapors no longer give an acid reaction. If the residue still gives an acid reaction, the presence of fatty bodies is indicated. In such cases, ammonium chloride is formed, which can be washed out and determined. (Union Ph. 97, . . . Dr. Circ. 97, 330.)

Absorption. 100 parts will take up 10 parts of water, 5.72 of alcohol, and 100 of glycerin. With 5 p. c. of yellow wax, it takes up from 35 to 65 p. c. of water. The different kinds of vaselin, cosmolin, albolin, etc., vary necessarily. St. Onge (Am. Dr. 97, xxix, 37. Merck's Rep. 97, 602).

Sulphur. Bird asserts that sulphur in some form is found in nearly every Russian petrolatum. The easiest test is the reduction test with zinc and hydrochloric acid. One drachm of the oil, or jelly, and half a drachm of absolute alcohol are shaken in a test tube, and fifteen minims of hydrochloric acid with a piece of pure zinc are added. A strip of paper, moistened with subacetate of lead solution, is suspended over the tube. (Ch. & Dr. 97, Aug. 288. Merck's Rep. 97, 729.)

Petrolatum Liquidum.

Miscible with Water. The addition of about 20 p. c. of ammonium oleate will render liquid petrolatum miscible with water. With the unavoidable gradual loss of ammonia, the miscibility will become less, and finally disappear. (Ph. Ztg. 96, 133.)

(Phenacetinum.)

Introduction under a scientific name suggested. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Physostigma.

Botany, history, bibliography. Lloyd (W. Dr. 97, 249.)

Assay. Both assay and standard should be introduced. (Comm. Ph. Rev. A. Ph. A. Merck's Rep. 96, 442.)

Eserine. Color reactions and spectroscopic reactions. Dragendorff (Ph. Centralh. 96, 381.)

Phytolaccæ Radix.

Ash and Gases of Combustion of the root. Frankforter has analyzed the ash, and found, among other things, the remarkably high amount of 41.62 p. c. of potassa. Among the gases given off by a destructive combustion of the root, he found a considerable p. c. of a gas, estimated as nitrogen, giving the spectrum for argon. (A. Jl. Ph. 97, 134. Proc. 97, 493.)

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419.)

(Pilocarpina.)

Constitution. Neither Knudsen nor Merck succeeded in obtaining pilocarpine by methylation of pilocarpidine, nor did they obtain pilocarpidine by starting from pyridine-lactic acid, or picoline-alpha-lactic acid, as claimed by Hardy and Calmels. (Ber. d. D. Ph. Ges. vi. 164. Ph. Jl. 97, Febr. 161. Proc. 97, 716.)——Petit and Polonovski state that the greater part of the commercial salts of so-called "pilocarpine" are in reality a mixture of the salts of pilocarpine and pilocarpidine. They combat the theory of Hardy and Calmels that pilocarpidine is a decomposition product, and they have determined that the isomerism of these two alkaloids is reasonably certain. (Jl. de. Ph. & Ch. 97, 482. Ph. Jl. 97, May, 466. Proc. 97, 716.)——See also "Pilocarpus."

Pilocarpinæ Hydrochloras.

Melting Point. Paul and Cownley state that the melting point is not a constant, they having found that the beginning of liquefaction is at 192.7° C. and that the liquid clears at 196.7° C., which behavior probably indicates the presence of two substances (Ph. Jl. & Tr. Nov. 96, 437.) A. Jl. Ph. 97, 108. Proc. 96, 97, 717.)

Pilocarpus.

Alkaloids. Paul and Cownley find that the p. c. of alkaloid, which the several kinds of Pilocarpus of commerce yield, varies considerably; P. microphyllus yielding 0.84 p. c. and P. spicatus only 0.16 p. c. They also state, that the product obtained is nearly always a mixture of two or more distinct alkaloids, and that the question whether these alkaloids are natural constituents of the leaves, or products of the alteration of pilocarpine, can not at present be answered. (Ph. Jl. 96, July, 1. A. Jl. Ph. 96, 445. Dr. Circ. 97, 24. Proc. 97, 525.)

Adulteration. Maranham Jaborandi, which yields a good p. c. of pilocarpine, has lately been found by Holmes adulterated with the leaves of a plant, which he provisionally calls "Swartzia decipiens." (Ph. Jl. 96, July, 2. A. Jl. Ph. 96, 449. Dr. Circ. 96, 211. Proc. 97, 526.)

Histology. Dohme (Dr. Circ. 97, 149. Merck's Rep. 97, 429).

Microscopy of the Powder. Schneider (Jl. Pharmacol. iv. 141. Ph. Jl. 97, July 5.)

Varieties. Commercial. Pilocarpus Jaborandi, Holmes; P. pennatifolius, Lem.; P. trachylophus, Holmes; P. microphyllus, Stapf.; P. spicatus, St. Hil.; and the above-mentioned Swartzia decipiens, Holmes. There are few macroscopical characteristics, but many microscopical. Geiger (Ber. d. D. Ph. Zts. 97, 356–424. Ph. Ztg. 97, 704.)

Ash, Moisture and Active Principles. Percentages. La Wall (A. Jl. Ph. 97, 140).

Extraction. Experiments. Sayre (Dr. Circ. 97, 120, 121. Proc. 97, 419.)

(Pilulæ.)

Excipient. Brown speaks highly of a mixture of 12 parts by weight of liquid glucose, 3 of glycerin and 1 of water. (Ch. & Dr. 96, 425. Proc. 97, 445.)

Pilulæ Cartharticæ Compositæ.

Resina jalapæ should replace the extract. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Pilulæ Ferri Carbonatis.

Improvements. Harding suggests to replace the tragacanth and althaea (one Gm. each) with powdered althaea 3 Gm., and then to add glycerin and water, following the directions of the Pharmacopœia. These pills will not crack. (Proc. Minn. Ph. Ass. 96, 117. Proc. 97, 436.)——Rava states that the following will make pills, which will remain white permanently. Dissolve 278 parts of ferrous sulphate in 90 of water, add 168 of sodium bicarbonate. After the reaction is over, add 50 parts of honey, 35 of powdered acacia and 20 of glycerin. Evaporate, while stirring, to a pill mass. (Ph. Centralh. 97, 97. Merck's Rep. 97, 339.)

Pilulæ Phosphori.

Scoville states that the official quantity of acacia is too large, rendering the pill mass too elastic. One-tenth of the quantity would be sufficient, using so much more althaea. (Am. Dr. 97, xxxi, 247.)

Pimenta.

McPherson found a sample of berries, coated with ferric oxide (probably Armenian bole). (Ph. Jl. 97, Jan'y 75. Proc. 97, 548. Dr. Circ. 97, 117.)

Pix Liquida.

Identification of different varieties of tar.

I. Completely soluble in 95-p. c. acetic acid.

- A. French turpentine dissolves it completely. The petroleum ether extract of the tar is colored greenish, when shaken with a dilute solution of cupric acetate (1:1,000). Chloroform and absolute ether dissolve it completely.—Pine Tar.
- B. Turpentine oil dissolves it only partially. The petroleum ether extract is not colored by copper acetate solution. Chloroform and absolute ether do not entirely dissolve it. —Beech Tar.

II. Not completely soluble in 95-p. c. acetic acid.

- A. Turpentine oil dissolves it completely.
  - *a.* Aniline dissolves it completely. The aqueous extract (1:20) yields a red coloration with a dilute solution of ferric chloride (1:1,000).—Juniper Tar.
  - *b.* Aniline does not dissolve it completely. The aqueous extract is colored greenish by ferric chloride.—Birch Tar.
- B. Turpentine oil dissolves it only partially. Benzol, chloroform, absolute ether and olive oil dissolve it only partially. —Aspen Tar.

Hirschsohn (Ph. Ztg. 97, 396. Ph. Zts. Russl. 97. . . . Merck's Rep. 97, 465.)

(Platinum.)

Phosphates. Action. Stratton finds, that when phosphates are heated in a platinum vessel in the presence of carbon, a marked erosion and eventually an absolute fusion of the metal may result. (Ph. Jl. 97, Aug. 157.)

Reaction. Limit of sensitiveness. Neuman (Ph. Ztg. 97, 123.)

(Plumbum.)

Reaction. Limit of sensitiveness. Neuman (Ph. Ztg. 97, 123.)

Plumbi Acetas.

Calcium. Hausmann has found calcium in every specimen examined, and as this might interfere with the accurate estimation, he proposes to precipitate the calcium with $\frac{N}{10}$ potassium dichromate. (A. Jl. Ph. 97, 570.)

Plumbi Oxidum.

Impurities. The Pharmacopœia gives directions for the determination of impurities, insoluble in acetic acid, but fails to recognize the liability of the presence of soluble impurities or adulterants. Haussmann, therefore, suggests the propriety of introducing a fixed valuation, and thinks that an actual p. c. of 95 of lead oxide can be demanded. (A. Jl. Ph. 97, 572.)

Podophyllum.

Assay. Introduction proposed. A good average yield from prime root appears to be four p. c. of the purified resin U. S. P. (Com. Ph. Rev. A. Ph. A. Dr. Circ. 97, 298. Proc. 97, 175.)

Resin. Ryan states that the time of collection of the root materially influences the amount, and should, therefore, be stated. (Proc. 97, 177.)——Podophyllin is not found in the fresh root, but develops after drying, and not until the drug is two years old does it contain the full amount. Lohman (Merck's Rep. 96, 353. Proc. 97, 437.)

Indian. East Indian podophyllum (from Podophyllum Emodi) is stated by Dunstan to contain from two to three times as much resin (identical with the American, however) as the American root. (Ph. Jl. 96, Dec. 516. Ch. & Dr. 96, Dec. 827. A. Jl. Ph. 97, 75 and 98, 246.)

Ash, Moisture and Active Principles. Percentages. La Wall (A. Jl. Ph. 97, 140.)

Histology. Dohme (Dr. Circ. 97, 179.)

Extraction. Experiments. Sayre. Newhall. (Dr. Circ. 97, 121, 214. Proc. 97, 419.)

Potassa.

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 123.)

Potassii Bitartras.

Calcium Tartrate. (Ninth paragraph.) Enell states, that the half hour, directed by the Pharmacopoeia, for the shaking with acetic acid, is hardly sufficient to dissolve all calcium tartrate, and the one minute allowed for the action of ammonium oxalate T. S., is certainly too short. (Nord. Ph. Tidskr. 96, 393.) Ph. Ztg. 96, 504.)

Titration (last paragraph). Direct titration of the salt with caustic alkali is preferable to titration with acid after ignition, as the result is not affected by the presence of calcium tartrate, which Coull has pointed out to be an objection to the official test. It is also more convenient. (C. E. Smith, see *Preface.*)

Potassii Citras.

Reaction (fourth paragraph). The pure, chemically normal salt is not neutral, but decidedly alkaline to litmus. It is neutral to phenolphthalein. (C. E. Smith, see *Preface.*)

Potassii et Sodii Tartras.

(Fourth paragraph.) The remarks under "Potassii Citras" apply also to this salt. It is liable to contain alkali carbonate, for which a test should be given. (C. E Smith, see *Preface.*)

Potassii Hypophosphis.

Permanganate Method. (Last paragraph.) Tyrer. See under "Hypophosphites."—See also remarks under "Acidum Hypophosphorosum." (C. E. Smith, see *Preface.*)

Potassii Iodidum.

Preservation of Solutions. Eschbaum and Knobloch deprecate the use of sodium hyposulphite (proposed by Carles in Ph. Ztg. 97, 6) on account of the free sulphurous acid liberated by the acids of the gastric juice in the stomach. They assert that no chemical whatever is necessary; the only thing requisite is the use of water, which has been distilled from glass, or from a zinc-lined iron kettle. If the water has been distilled from copper, it is sure to carry over minute traces of copper, in the form of oxide, which traces possess powerful oxidizing properties. (Ph. Ztg. 97, 77, 78. Zts. Oest. Ap. Ver. 97, 178. Dr. Circ. 97, 129. Proc. 97, 595.)——They also draw attention to a difference in the keeping quality between concentrated and dilute solutions. A 2-p. c. solution kept unchanged for a year, while a 20 to 50-p. c. one spoiled very soon. (Ph. Ztg. 97, 353. Dr. Circ. 97, 257.)

Coloration of Solutions. At times, otherwise clear and colorless solutions of potassium iodide acquire a pink coloration. Hager thinks it due to the presence of manganese in the filtering paper. (Ph. Ztg. 95, 468.)

Potassii Permanganas.

Preservation of Solutions. Meinecke and Schroeder state that solutions of potassium permanganate may be kept for two or more months in excellent condition for analytical purposes, by pouring a layer of the purest vaselin oil on the surface. (Ph. Ztg. 97, 157. Merck's Rep. 97, 244. Proc. 97, 610.)

Titration (last paragraph). The addition of strong sulphuric acid to the hot solution of the salt, as directed in the volumetric assay with oxalic acid, is liable to cause a partial decomposition, with evolution of a gas, probably oxygen; diluted sulphuric acid would be preferable. (C. E. Smith, see *Preface.*)

Prunus Virginiana.

Assay. Proposed, with standard HCy requirement. Ph. Rev. Com. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175.)

Hydrocyanic Acid. Stevens finds that the strength decreases when the bark is kept in stock. He found that the green bark yields the least hydrocyanic acid; the bark of the twigs, more; and the bark of the trunk, most. Macerate the ground bark in ten times its weight of cold water for 24 hours, then distil and titrate with $\frac{N}{10}$ argentic nitrate. (A. Jl. Ph. 96, 522. Dr. Circ. 96, 304.)

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 140).

Proper Season. The official bark must be collected in autumn. Grace Cooley found two characteristics which she thinks are reliable as indications of the period of collection. Starch is most abundant in the months of September, October and part of November, when it gradually disappears, to appear again in March and April. In May it commences to disappear again, and in August there is little or no starch in the bark. The absence of starch will, therefore, indicate that the bark has been collected during the summer. In order to distinguish between spring and fall bark, she thinks that a color test of tannin will be found reliable. Upon the surface of distilled water sprinkle a little of the powdered bark, which will spread like a film, then after ten seconds add, drop by drop, a 1-p. c. solution of ferric chloride. Spring bark causes immediately a cloudiness, produced by the greenish precipitate; fall bark does not show any noticeable coloration under ten to twenty seconds. (Jl. Pharmacol. 97, 167. Dr. Circ. 97, 220. A. Jl. Ph. 97, 414.)

Pulvis Effervescens Compositus.

Commercial. Discrepancies in the weights of the separate powders, as sold. Culbreth (Dr. Circ. 97, 274), and Hill (Ph. Jl. 97, Nov., 481).

Pulvis Ipecacuanhæ et Opii.

The formula of U. S. P. 1870 (with potassium sulphate), is by many physicians considered superior. Investigation is suggested. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442. Proc. 97, 175.)

Pyrogallol.

Melting Point. The proper melting point is 132° C. In order to dry pyrogallol, before taking the melting point, it is better to dry it at 100° C., than over sulphuric acid. (Ph. Ztg. 97, 779.)

Pyroxylinum.

Process. Tyrer states that the process of the U. S. P. is, in the main, a better one than that of Ph. Br. He recommends the following for introduction in the latter Pharmacopœia: Cotton wool, 200 grains; sulphuric acid (1.845), 8 fluid ozs.; nitric acid (1.450), 4 fluid ozs.; water, 1½ fluid ozs. The temperature of the mixed acids should be 162° F.; then on adding the water, the temperature should be allowed to cool to 150° F.; the cotton is immersed for 2 minutes and 20 seconds. Transfer to a porcelain strainer, press thoroughly and quickly with a pestle, and throw into not less than three gallons of distilled water; stir, drain, and press, which process is to be repeated until the cotton is free from acidity, and the wash-water free from sulphates. Wring out as dry as possible, pick, and dry at a temperature of 90° F. This process is not suitable for large batches. Tyrer considers the keeping of pyroxylin in water objectionable, as decomposition is brought about. (Ch. & Dr. 96, Aug., 207. Ph. Jl. 96, Aug., 109.

Quassia.

Botany, history, bibliography. Lloyd proves that the original quassia is identical with Quassia amara, Linn. The present official quassia is not a true Quassia, but a Simaruba, for which the U. S. P. retains the name Picraena excelsa (Swartz), Lindley (W. Dr. 97, 7. Proc. 97, 527).

Histology. Hills (Jl. Pharmacology 97, 116. Ph. Jl. 97, May, 467).——Dohme (Dr. Circ. 97, 351.)

Description. The following should be added to the description: "Upon a tangential view, none of the medullary rays should exhibit a single row of cells, the latter having a sub-rotund outline; and no stone-cells should be present. (*Absence of Surinam wood.*)" Rusby (Dr. Circ. 97, 186).

Quillaja.

Assay. Proposed. Comparison suggested with senega, and the more valuable drug to be retained, the other one to be dropped. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175.)

Histology. Dohme (Dr. Circ. 97, 251.)——Sayre (A. Jl. Ph. 97, 436.)

Powder. Microscopy. Sayre (A. Jl. Ph. 97, 438.)——Quantitative microscopy. Kraemer (A. Jl. Ph. 97, 529.)

Saponin. Color and spectroscopic reactions. Dragendorff (Ph. Centralh. 96, 351.)

Quinina.

Marmé's Reagent. (Cadmium-potassium-iodide.) Sensitiveness. (1:32,300.) Vernen. (Ch. Ztg. 97, 116. Dr. Circ. 97, 278.)

Alkali. It may contain caustic or carbonated alkali from incomplete washing of the precipitated alkaloid. Shaken in a test-tube with water, the mixture should not be reddened by phenolphthalein. (C. E. Smith, see *Preface.*)

Solubility. Relative solubility and the p. c. of alkaloid quinine in the various quinine salts. (Am. Dr. 97, xxx, 166.)

(Quininæ Salicylas.)

Introduction proposed. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Quininæ Sulphas.

Fluorescence. Sestini and Campani find that the presence of phenacetin conceals the fluorescence. Aqueous solutions of phenacetin are colored yellow on the addition of chlorine water and ammonia, while mixtures of phenacetin and quinine are colored light-blue. (Orosi, 96 . . . Dr. Circ. 96, 299. Proc. 97, 704.)

Efflorescence. Cownley suggests that the air-dried salt should be adopted $(C_{20}H_{24}N_2O_2)_2,H_2SO_4,2H_2O$ containing 4.6 p. c. of water. The variation in the amount of water is from 8.1 to 15.95 p. c. (Ph. Jl. 96, Dec., 525. Proc. 97, 709.)——Farr and Wright state that one Gm. of the anhydrous salt absorbed 0.015 Gm. of water in seven minutes. The hydrochlorate is even more hygroscopic: in six minutes 0.626 Gm. of the anhydrous salt gained 0.017 Gm.; and in three hours had resumed its original weight with 2 molecules of water. (Ph. Jl. 97, Mrch., 203. Dr. Circ. 97, 128. Proc. 97, 709.)

Sulphuric Acid Test. (Ninth paragraph.) · · · "faintly yellowish tint" . . . Schlickum has long ago noted that the color is generally decidedly greenish, and this is corroborated by more recent chemists. (Ph. Ztg. 97, 122.)

Thalleiochin Test. According to Hyde, a solution of calcium hypochlorite gives a more brilliant and certain coloration than either chlorine or bromine water. After acidulating the quinine solution with one drop of dilute sulphuric acid (1:4), the hypochlorite solution is filtered into the solution until the blue fluorescence just disappears, and the liquid acquires a faint golden tint. Now add a few drops of dilute ammonia (1:3), when a brilliant emerald color will appear. (Jl. Am. Ch. Soc. 97, 331. Proc. 97, 704.)

Tests. Howard reviews the two chief tests (Liebig's ether test and Kerner's ammonia test), states their advantages, and points out in which respects they are insufficient. (A fairly full condensation can be seen in Proc. 97, 705, from Ph. Jl. 96, Dec. 505. See also Ch. & Dr. 96, Dec. 846. Am. Dr. 97, xxix, 389.)

Prices since 1823. (Dr. Circ. 96, 32.)

Resina Copaibæ.

Might well be dismissed from the Pharmacopœia. If retained, the requirements should be more stringent. As it is, almost anything in the way of resin will answer. Kebler (A. Jl. Ph. 97, 579).

Resina Jalapæ.

Acetone. Will give better results than the official menstruum. Hahn (A. Jl. Ph. 98, 22).

Resina Podophylli.

Menstruum. Schmidt recommends the official method, but prefers using *hot* water for washing the resin, drying it in a cool place. (Ph. Ztg. 96, 270.)——Acetone is recommended by Hahn. (A. Jl. Ph. 98, 22.)——Purified methyl alcohol ("Columbian Spirit") is preferred by the Illinois Ph. Rev. Com. (Ph. Era 97, xviii, 41.)

Precipitation. Lohmann calls attention to the oft-observed fact, that not only the color, but also the yield and activity depend very much on the method of precipitation followed. Precipitation, in water only, gave 10 grains from 2 fluid ozs. of fluid extract. Precipitation in acidulated water yielded 23 grains. Precipitation in a solution of alum yielded 35 grains.

As to the activity: It is not safe to give more than $\frac{1}{100}$ [$\frac{1}{10}$?] of a grain of the first; $\frac{1}{4}$ grain of the second; and 1$\frac{1}{2}$ grains of the third. He thinks that the alum resin is the one most generally found in our stores. (Proc. N. J. Ph. Ass. 96, 51. Proc. 97, 437.)

Podophyllotoxin and *Picropodophyllin.* Color and spectroscopic reactions. Dragendorff (Ph. Centralh. 96, 353).

Rhamnus Purshiana.

Chemistry. Dohme and Engelhardt (Proc. 97, 193).

Ash. Percentage. La Wall (A. Jl. Ph. 97, 140).

Active Principles. Localization. Cabannes finds that these are concentrated in the layers of bast immediately adjoining the cambium, and in the medullary rays traversing those layers. By treating sections of the bark with alcoholic potassa, the cells containing frangulin become deep-red. (Ph. Jl. 96, May, 343. Ph. Ztg. 96, 491. Am. Dr. 96, xxix, 4.)

Dry Extract. Linde found that by removing the bitter principle, the p. c. of extract is decreased. (Ph. Ztg. 96, 518. Ph. Centralh. 96, 423.)

Frangula. Distinction. Sayre proposes the following amendment and additions to the description of U. S. P.: . . . "outer surface dark gray, and much incrusted by ashen-gray lichen patches, with longitudinal grooves from 3 to 10 Mm. apart. Taste, slightly bitter. When chewed, the bark imparts a yellowish color to the saliva. Medullary rays in groups, converging at their outer ends (*distinction from Rhamnus Californica.*) Stone cells present (*distinction from Rhamnus Frangula.*") . . . As to the powder, the only reliable distinction is the presence of stone cells, which merely testify to the presence of Rh. Purshiana, it being impossible to recognize the presence of Frangula. (A. Jl. Ph. 97, 126. Proc. 97, 564.)

Rheum.

Histology. Dohme (Dr. Circ. 97, 127. Merck's Rep. 97, 461).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 530).

Extraction. Experiments. Newhall (Dr. Circ. 97, 214).

Chemistry. Hesse (Ph. Jl. 95, Oct., 325. Dr. Circ. 96, 193).

Commercial History. (Ch. & Dr. 97, Aug., 333. Dr. Circ. 97, 278.)

Canaigre Root. (Hymenosepalus.) Detection. In the powder, the form and size of the starch grains. which differ entirely from those of rhubarb, serve to show the adulteration at once; besides, the parenchyma cells are much larger than those of rhubarb. Sayre (A. Jl. Ph. 98, 129).

Rhaponticum. The powder, moistened with ammonia, shows a salmon-red color, while that of Chinese rhubarb is dark brick-red. In mixture the difference is hardly perceptible. (Ibid.)

Rosa.

Alpers suggests that the oil be substituted for the petals in galenical preparations. (Am. Dr. 96, 384. Proc. 97, 400.)

(Sabal Serrulata.)

The berries of Sabal serrulata should be introduced. Com. Ph. Rev. A. Ph. A. (Merck's Rep., 96, 442.) ——Also recommended by Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

(Saccharinum.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)——Gordon suggests its use to replace sugar, either wholly or in part. (Proc. Tenn. Ph. Ass. 96, 28. Proc. 97, 693.)

Saccharum.

Glucose Reactions. Haussmann compares Crissler's safranin test;

the cupric salicylate test; and Worm-Mueller's modification of Fehling's test. (A. Jl. Ph. 96, 358.)

Different Sugars. Distinction. If to an aqueous solution of cane sugar be added a few drops of a 5-p. c. solution of cobaltic nitrate, and then a 50-p. c. solution of sodium hydrate in excess, the liquid turns violet. Glucose gives a blue reaction, which is soon changed into a dirty-green. Milk sugar gives an evanescent blue reaction, which, of course, does not interfere with the cane sugar color. Honey reacts like glucose. If the solutions contain acacia or dextrin, these should first be precipitated with lead acetate, or barium hydrate. Papasogli. (W. Dr. 96, 357. Merck's Rep. 96, 514.)

Saccharum Lactis.

American Manufacture. (A. Jl. Ph. 97, 161.)

Impurities. Considering the methods of manufacture, sugar of milk may contain albumen, phosphate, magnesia, sulphate and acetic acid. Tests for these substances may, therefore, be advisable. (C. E. Smith, see *Preface.*)

Salicinum.

Melting Point. By slow fusion, 194° C.; by rapid fusion, 198° C.; Nagelvoort (Dr. Circ. '97, 130. Merck's Rep. 97, 342.)

Sambucus.

Description. Rusby proposes the following addition to the description: "The powder should display single, stout, slightly curved, blunt, unicellular hairs and clusters of much smaller, short, crooked, multicellular hairs." (*Difference from Sambucus nigra.*) (Dr. Circ. 97, 186.)

Microscopy. Grace Cooley (Ph. Era. 96, xvii, 564.)

Sanguinaria.

Assay. Is proposed, and a certain p. c. of sanguinarine should be required. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175.)

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 141).

Histology. Dohme (Dr. Circ. 97, 149. Merck's Rep. 97, 429.)

Helonias dioica (Chamaelirium.) Holmes reports the admixture of nearly 40 p. c. of Helonias root, which admixture is hardly intentional, Helonias being much more expensive. The exterior resemblance, however, is sufficiently close. The grayish surface is perforated with small holes and the transverse section shows a well-defined central column. (Ph. Jl. 96, July, 21. A. Jl. Ph. 96, 552. Proc. 97, 544.)

(Santalum.)

From Western Australia. (Santalum Cygnorum.) Ednie Brown. (Ch. & Dr., 97, Jan'y, 17).

Santalum Rubrum.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141.)

Sapo Mollis.

Free Alkali. Neither the method of preparation nor the tests given would seem to insure a product of sufficient uniformity for dermatological uses. The proportion of water and particularly of free caustic potash are subject to greater variation than seems admissible. The quantity of such an active substance as caustic potash cannot fail to influence materially the medicinal effect of the soap. It is understood that the therapeutic value of soft soap is derived partly from an excess of caustic alkali, and it appears desirable that this excess be definitely limited, since either a deficiency or too great an excess would give a different effect from that desired. (C. E. Smith, see *Preface.*)

Sarsaparilla.

Assay. Proposed. Based on the active principle. (Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175.)

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Extraction. Influence of temperature. Norris (Dr. Circ. 97, 213).

Chemistry. Schulz (Ph. Inst. Dorpat. Ch. & Dr. 97, Mrch. 473).

Sassafras Cortex.

Description. Additions proposed: "A No. 60 powder exhibits only very thin-walled cells, almost invariably without pores and well filled with starch grains, besides rarely a bast-fibre, which is always completely detached (*absence of stem-bark*). The starch grains are mostly in groups; the single ones lenticular and occasionally reaching a diameter of 12 to 15 mikrons." Rusby (Dr. Circ 97, 186.)

Histology. Burnett (Ph. Era. 97, xvii, 413.)

Scammonium.

Adulteration. Thomsen reports having examined a sample of scammonium with a "guaranteed" 84.864 p. c. of scammonin. He found it to contain: Matter soluble in ether 0.4 p. c.; in alcohol 2.0 p. c.; inwater 42.6 p. c. (apparantly acacia); starch 43 p. c.; moisture 12 p. c.; ash 2.12 p. c. (Ph. Jl. 97, Mrch., 245. Ch. & Dr. 97, Mrch., 463. A. Jl. Ph. 97, 313. Proc. 97, 500.)

Scilla.

Histology. Dohme (Dr. Circ. 97, 126. Merck's Rep. 97, 461). ——Jelliffe (Dr. Circ. 97, 351).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 530).

Repercolation. Experiments. Kelly (Dr. Circ. 97, 213).

Scutellaria.

Distinctive character of the nutlets. Jelliffe (Dr. Circ. 97, 34. Proc. 97, 500).

Senega.

Assay. Proposed. It has been asserted that the therapeutical value is identical with that of Quillaja; comparison is suggested, and the more valuable drug to be adopted; the other to be dismissed. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175).

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141).

Miscroscopy of Northern and southern senega. Sayre (A. Jl. Ph. 97, 433, 437).

Histology. Dohme (Dr. Circ. 97, 250).

Dry Extract. Percentage. Linde (Ph. Centralh. 96, 423).

Senna.

Extraction. Experiments. Squibb (Dr. Circ. 97, 120. Proc. 97, 419).——Influence of temperature. Norris (Dr. Circ. 97, 213).

Histology. Dohme (Dr. Circ. 97, 64).

Powder. Addition to the official description proposed: "If a thin layer of the powder be placed upon a glass slide, laid upon white paper, and one drop of a 5-p. c. solution of ferric chloride be allowed to fall upon it, none of the particles should be blackened within thirty seconds (*absence of Chestnut leaves*)." Rusby (Dr. Circ. 97, 186).——Microscopy of different varieties. Sayre gives also the distinguishing characteristics of chestnut leaves. As to the guard cells? ("Nebenzellen"), which Schneider considers a good characteristic, Sayre says that this character is too inconstant to be of any practical value. He considers the relative number of hairs found in the field as a good distinctive character, and also the shape of the stomata. (A. Jl. Ph. 96, 585 and 97, 298. Proc. 97, 551, 552.)——Rusby does not consider the counting of the hairs of practical use by itself; and of no use in mixtures. (Dr. Circ. 97, 186.) ——Schneider lays especial stress upon the number of "Nebenzellen" (around the hairs) and hair-scars which, according to him, differ in Alexandrian and India senna. (Am. Dr. 97, xxx, 195. Proc. 97, 554.)——Latour has an article on the powder. Union Ph. 96, May . . . Ph. Jl. 96, June, 481. Ph. Ztg. 96, 583.)

Serpentaria.

Contamination. Patch reports that serpentaria is often found mixed with hydrastis to the extent of 10 p. c. (Merck's Rep. 96, 403. Proc. 97, 490.)

Sevum.

Specific Gravity. Evers finds the sp. gr. at 100° C., 0.889 to 0.907. The sp. gr. increases on keeping, especially when in thin slabs. (Ph. Ztg. 96, 737 and 97, 838.)

Sinapis Alba.

As it is difficult to obtain it in the market entirely free from other seeds, it is proposed to change the standard, and allow a certain maximum of other seeds. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Sinapis Nigra.

Ash. Percentage. La Wall (A. Jl. Ph. 97, 141).
Standard. See remarks under "Sinapis Alba."

Soda.

Strength. Klar finds that the English caustic soda "in flakes" (formed by pouring the fused soda in a thin stream on a revolving, cooled cylinder) is stronger than that sold in tin boxes. (Ph. Ztg. 97, 164.)

Sodii Acetas.

Reaction. According to the Pharmacopœia this salt does not redden phenolphthalein unless carbonate be present. It has been invariably found that sodium acetate, when crystallized from a solution containing an excess of acetic acid, and the crystals washed with distilled water, slightly, but distinctly, reddens phenolphthalein. The fact that this salt yields a perfectly clear solution with lime water, would seem to prove the absence of carbonate. (C. E. Smith, see *Preface.*)

Sodii Bicarbonas.

Carbonate. In applying the test for normal carbonate (ninth paragraph) it is advisable to use more water (about 50 Cc.) and to perform the test rapidly, to prevent the escape of carbon dioxide before it is finished. (C. E. Smith, see *Preface.*)

Sodium "Tetra-borate." 1.9 parts of borax and 0.6 parts of boric acid are carefully powdered together, and heated with 0.1 part of water in a porcelain capsule on a water-bath. By continued stirring, the mass soon melts, and is then allowed to cool. (Suedd. Ap. Ztg. 96, . . . Ph. Ztg. 97, 184, 191. Proc. 97, 601.)

Reaction. (Fourth paragraph) . . . "colors litmus paper blue" . . . it should be mentioned that concentrated solutions are neutral. Nagelvoort.

Sodii Hypophosphis.

Permanganate Method. (Last paragraph.) See under "Hypophosphites." — See also remarks under "Acidum Hypophosphorosum." (C. E. Smith, see *Preface.*)

Sodii Hyposulphis.

Preservation of Solutions. The addition of a little carbon disulphide is stated by Allcock to prevent the deterioration for quite a time. This addition does not interfere with reactions. (Ch. & Dr. 96, April, 575.)

Sodii Phosphas.

Indicator. According to experiments described under "Acidum Phosphoricum," pure sodium phosphate is reddened by phenolphthalein; this indicator can, therefore, not be used as a test for carbonate in the salt, as has been proposed. (C. E. Smith, see *Preface.*)

Sodii Sulphis.

Commercial. Examination. Puckner (W. Dr. 97, 254. Proc. 97, 597.)

Spiritus Aetheris Nitrosi.

Process. Patch states, that the criticism, that the official process may prove faulty (or even dangerous), in the hands of the inexperienced, is entirely unfounded, having made hundreds of pounds without either inconvenience or danger. Incidentally he remarks that there is a wide difference in the value of sodium nitrite, from 78 to 99.89 p. c. Usually it runs from 84 to 96 p. c. (Am. Dr. 96, 63. Proc. 97, 440.)

Assay. Walker proposes a method (suggested by Dott, see "Digest" for 1880, p. 158) based on the measurement of the iodine liberated from potassium iodide, through the decomposition of the spirit by the U. S. P. process of assay. (Am. Dr. 95 . . . Proc. 96, 441.)——MacEwan points out that this method is liable to give too high results on account of liberation of iodine by nitrogen tetroxide, the reaction going on from the time the materials are mixed, and even during titration. The rapidity with which the normal hyposulphite solution is added, and also the quantity added at a time. influence the amount required for decoloration. (Am. Dr. 96 . . . Proc. 96, 442.)——Kessler finds, that the official method needs only slight modifications to become entirely trustworthy. Since most samples of spirit are acid, and some strongly so, the spirit will react with potassum iodide, and liberate nitrogen dioxide before the sulphuric acid is added; it will therefore be necessary to alkalinize the spirit by the addition of one-fifth its volume of alcoholic solution of potassa. In order to avoid air bubbles, which always are formed when the aqueous solution of potassium iodide is allowed to flow into the burette of the nitrometer, Kessler substitutes 20 Cc. of a saturated alcoholic solution of the iodide for the 10 Cc. of the aqueous solution. (A. Jl. Ph. 97, 307. Proc. 97, 439.)——Dietze adds 20 Gm. of a 5-p. c solution of potassium chlorate to 10 Gm. of the spirit, and then 5 Gm. of nitric acid (1.153), and allows it to stand in a closed flask for one hour. Then add 25 Cc. of $\frac{N}{10}$ silver nitrate solution and 3 drops of a saturated solution of ferric acetate. Retitrate the excess of silver nitrate with $\frac{N}{10}$ ammonium sulfocyanide solution. Multiply the Cc. of silver nitrate solution by 0.0225, which will give the p. c. of ethyl nitrite. (Suedd. Ap. Ztg. 97, 306. Ph. Ztg. 97, 388. Dr. Circ. 97, 258. Am. Dr. 97, xxxi, 5.)

Spiritus Ammoniæ Aromaticus.

Precipitation. Persse thinks that the troublesome precipitation sometimes observed, may be avoided by adding the alcoholic solution of the oils to the aqueous solution of ammonia. (Proc. Ga. Ph. Ass. 96, 47. Proc. 97, 440.)

Spiritus Camphoræ.

Assay. Eschenburg has tried the method of Manseau (see "Aqua Camphoræ" p. 25) . . . precipitating with water, and taking up with ether . . . but the camphor left on evaporation of the ether contained too much moisture. He next tried chloroform, but the camphor being specifically lighter, formed a kind of cover preventing the evaporation of the chloroform. Finally he succeeded by using benzin. (Ph. Ztg. 97, 672.)

Spiritus Frumenti.

Acidity. England prefers to use a decinormal solution of sodium hydrate, and to employ 10 Gm. of whiskey. Place a sample in a flat bottomed test tube resting upon a piece of white paper. Add a few drops of phenolphtalein solution and run in the soda solution from a burette, graduated to a tenth Cc. He finds that the acidity does not increase with age beyond a certain point. The acid is very probably valerianic acid (something like ¾ grain of free acid to the fluid ounce). The official acid standard is too low (1.2 Cc. last paragraph); a three or four year old whiskey should contain at least 1.4 to 1.5 Cc. A two-year old whiskey is too young. (A. Jl. Ph. 97, 580.)

Whiskey should be dismissed. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Spiritus Menthæ Piperitæ.

Weber thinks it better to first macerate the leaves in alcohol, and after filtering, to add the oil. (Dr. Circ. 97, 125.)

Spiritus Menthæ Viridis.

See the foregoing remark.

Spiritus Myrciæ.

Menstruum. Purified methyl alcohol ("Columbian Spirit") is proposed to replace the alcohol. Ph. Rev. Com. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Spiritus Vini Gallici.

Should be dismissed. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

(Stannum.)

Reactions. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 124).

Stramonii Folia.

Structure. Comparison with Belladonna and Hyoscyamus. Schlotterbeck and Zwaluwenburg (Proc. 97, 202).

Histology. Dohme (Dr. Circ. 97, 4).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 529).

Season. Should be collected with the blossoms, which are quite active. Nagelvoort (A. Jl. Ph. 97, 142. Proc. 97, 497).

Alkaloids. Location. Molle (Bull. Belge Micro. 96 . . . Dr. Circ. 96, 108).

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 141).

Extraction. Experiments. Farr and Wright (Dr. Circ. 97, 120. Proc. 97, 419).

Stramonii Semen.

Alkaloids. Location. See under "Stramonii Folia."

Ash and Active Principles. Percentage. La Wall (A. Jl. Ph. 97, 141.)

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419.)

(Strontium.)

Occurrence in plants. Trimble (A. Jl. Ph. 97, 296.)

Strontii Bromidum.

Tests. Carl E. Smith is dissatisfied with the official tests, which, while excluding impurities in dangerous amounts, admits a salt far from pure. The test for barium does not show the presence of less quantities than 0.5 p. c. of this substance; a test for calcium, which is a very common impurity, is absent; and the method of estimating chlorine is apt to give misleading results, as it stands now. He proposes the following directions:

If 2 Gm. of the salt be dissolved in 6 Cc. of water, the solution acidulated with a drop of diluted acetic acid, and then 5 drops of potassium dichromate solution added, the solution should remain clear for at least one minute (absence of more than 0.1 p. c. of barium).

Heat on a water-bath for 5 minutes a mixture of 1 Gm. of the salt, 3 Gm. of ammonium sulphate, 10 Cc. of water and a few drops of ammonia water. Filter and add to the filtrate 5 drops of ammonium oxalate test solution. If the solution becomes turbid at once, 1 p. c. or more, of calcium salt is present; if only after 5 to 10 minutes, about 0.5 p. c. is present.

As to chlorine, it will be necessary to use a much higher temperature for drying the strontium bromide in order to secure accurate results. The presence of only a small amount of water will cause a large error in the calculation. It is best to heat to 95° C. for about two hours, when 5 molecules of water will be lost, and then to 150° C., when the sixth mol. will be gone. (Ph. Rev. 96, 268. Dr. Circ. 97, 23. Proc. 97, 608.)

(Strophanthin.)

Introduction recommended by H. C. Wood. (A. Jl. Ph. 96, 358. Proc. 97, 735.)

Color Reactions and spectroscopic reactions. Dragendorff (Ph. Centralh. 96, 349).

Strophanthus.

Microscopy. Jelliffe (Dr. Circ. 96, 101, 284).

Assay. Proposed. The most valuable variety should be adopted, the others excluded, and a minimum p. c. of strophanthin indicated. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175.)——See also "Tinctura Strophanthi."

Strophanthus Nicholsoni ("White, woolly" strophanthus seed). Account. Holmes (Ph. Jl. 97, Sept., 209. A. Jl. Ph. 97, 520. Dr. Circ. 97, 328).

Adulteration. Siedler reports having met with the seeds of Kicksia Africana. The distinguishing characteristics are that Kicksia seed has no hair. On a transverse section the cotyledons will be seen to be much folded, and concentrated sulphuric acid turns the section brown, then red; while true strophanthus has hairs, the cotyledons are parallel, and the acid colors it green. (Zts. Oest. Ap. Ver. 97, 398. Ph. Ztg. 97, 400. Ph. Rev. 97, 161.)

Strychnina.

Sulphuric Acid. Action, especially in the separation of this alkaloid from organic matter. Bailey and Lange find that sulphuric acid seriously impairs the delicacy of the reactions, and still more so when chloroform is used in the isolation of the alkaloid. A solution which originally permitted $\frac{25}{100,000}$ of a Mgm. to be detected, after treatment with sulphuric acid only allowed $\frac{11}{100.000}$ Mgm., and using chloroform to shake out, only $\frac{2}{100}$ Mgm. (Kansas Univ. Quart. 97 . . . A. Jl. Ph. 98, 18.)

Styrax.

Adulteration. Kruer reports a balsam, adulterated with a mixture of 2 parts of rosin and 1 part of castor oil. (Ph. Ztg. 97, 883.)

Purification. Allow the balsam to stand for a couple of hours in a water-bath to allow sand, etc. to settle, and then strain. In order to free it from water it is heated over a gentle fire, with constant stirring, until it ceases foaming and it runs clear from the spatula. ——Ph. G. directs the styrax to be dissolved in alcohol, the solution to be filtered and to be evaporated to proper consistence. Evers states, that the residue on the filter does not consist merely of bark, sand, etc., but contains in addition a proportionately large amount of a resinous ester of cinnamic acid. This residue is almost insoluble in strong alcohol, ether, benzol, chloroform and benzin, but quite soluble in warm dilute solutions of soda and potassa and of sodium carbonate. It is almost soluble in the warm, purified styrax. (Ph. Ztg. 96, 245.)

Solubility. Evers proposes to state the solubility of the purified balsam as follows: It should dissolve clear in alcohol, ether, benzol and carbon disulphide, in the proportion of 10:7 to 10:12. These solutions become turbid again on further addition of the solvents. (Ibid.)

Examination. Dieterich proposes the following data: 1. p. c. of water. 2. Determination and weighing of the alcohol-soluble portion. 3. The same of the alcohol-insoluble portion. 4. Ash of the latter. 5. Acid number. 6. Saponification number. 7. Ester number. (Ph. Ztg. 96, 401.)

Specific Gravity. Evers obtained, at 100° C., the sp. gr. 1.101 to 1.106 for the purified balsam (all foreign additions decrease the sp. gr.); and 1.117 to 1.120 for the dehydrated balsam, clarified by standing in a warm place. (Ph. Ztg. 96, 680. 97, 838.)

Ammonia Test. Heat the crude or purified balsam so as to become liquid, and dissolve 5 drops of it in 5 drops of alcohol, and shake with 3 Cc. of ammonia. The genuine balsam gives only a little foam, hardly half of the volume of the liquid; this foam disperses soon and the mixture does not gelatinize. Turpentine, rosin and fixed oils give a strong foam, from 2 to 5 times the volume of the liquid, and this foam does not disappear after half an hour. It does not gelatinize. (Ibid.)

Odor. Triturate purified styrax with benzin, pour off the clear liquid and allow to evaporate spontaneously in a watch-glass on a water-bath till all the benzin has been driven off. The residue must not possess a turpentine odor. (Ibid.)

Nitric Acid Test. One drop of purified balsam is allowed to spread on a white porcelain plate, and put in contact with one drop of nitric acid (1.38 to 1.40), when the line of contact will show a dirty-greenish color. Turpentine will show an intensely blue color. (Ibid.)

Acid, Saponification, and Iodine Numbers. In examining styrax for these numbers it is necessary to deprive it of all water, of which it generally contains from 17 to 25 p. c., and it is best to start from the purified balsam of Ph. G., provided it is deprived of all alcohol. Evers found: Acid number, average of 59.1; saponification number, average 218.3; ester number, average 159.2, iodine number, average 73.2. (Ibid.)

(Succi.)

Alkaloidal Strength. Farr and Wright find that the vegetable juices are exceedingly variable in strength, and therefore should not be used. Alcoholic extracts are in every case to be preferred. (Ch. & Dr. 96, Aug., 219. Ph. Jl. 96, Aug., 93, and 97, Dec., 517. A. Jl. Ph. 96, 501. Proc. 97, 441.) See also under "Extracta," Green Extracts.

(Sulfonal.)

Introduction proposed under a scientific name. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41).

Sulphur.

Selenium. Reed finds that there is no difficulty in obtaining sulphur which answers the requirements of the U. S. P. as regards the absence of selenium. He calls attention to the possible presence of iron, which it is very difficult to get rid of, and the sulphocyanate test is very sensitive to it. (Dr. Circ. 97, 335. Proc. 97, 251.)

"*Insoluble*" *Sulphur.* (Second paragraph.) "Carbon disulphide promptly dissolves a portion of it, but leaves a residue of insoluble sulphur." Reed suggests that "amorphous" would be better, since the various crystalline forms of sulphur are all soluble in carbon disulphide, only the "gamma" or amorphous sulphur being insoluble. (Ibid.)

Sicily. Statistics of trade. (A. Jl. Ph. 97, 420.)——Extraction. Aichino. (Dr. Circ. 97, 163.)

Sulphur Praecipitatum.

"*Lac Sulphuris.*" Detection. Reed rubs a little of the sulphur smooth on a paper with a spatula, and examines it with a lens in good light. Shining particles indicate the presence of the calcium sulphate. (Dr. Circ. 97, 335. Proc. 97, 240.) See also Sayre (Dr. Circ. 97, 318.)

Sumbul.

Proximate Principles. Hahn (A. Jl. Ph. 96, 395. Proc. 97, 520.)

Cultivation in England. Holmes found that the fresh root has a strong, persistent, musky odor; and exudes an abundance of white, milky juice, wherever injured. The chief obstacle to cultivation is to obtain good seed. (Ph. Jl. 97, April 347. A. Jl. Ph. 97, 314. Dr. Circ. 97, 162. Proc. 97, 520.)

Suppositoria.

Preparation. Lewin states that the medicament should be equally distributed in the suppository, be readily separable from the basis, be easily inserted, that the basis itself should be as sterile as possible, and that the dosage should be exact. He found that

Cacao Butter allows of an equal distribution only if the suppository is made in the cold way. By melting and moulding, the distribution must necessarily always be unequal, and the medicament is usually most of it at the tip of the cone.

Glycerin-gelatin is in some respects vastly superior to cacao butter, because the medicament can be dissolved, and therefore evenly distributed. The suppositories are introduced without loss, and are quickly dissolved and speedily absorbed. But they are not always sterile, and the glycerine often irritates the rectum.

Agar-agar is superior to any other basis. Lewin uses 1 part of commercial agar powder, heated with 29 parts of water and neutralized by adding sodium bicarbonate (about 1 p. c. of the agar powder). The suppositories are best made in paraffin paper, and the mass distributed by weight, placing the paraffin cone in a suitable frame on a scale-pan. Keep the suppositories in their moulds. (D. Med. Woch. 97, . . . Ph. Ztg. 97, 26. Ph. Jl. 97, May 411. Am. Dr. 97, xxx, 72. Proc. 97, 442.)

Agar-Agar. See also Eichler (Dr. Circ. 97, 152).——Buchholz does not agree with Lewin. He states that a jelly (1:29) does not dissolve at the usual body heat; besides, these suppositories soon get horny. Glycerin-gelatin is better. (Ph. Ztg. 97, 173, 225. Dr. Circ. 97, 349.)

Glycerin Suppositories. In order to prevent these suppositories from slipping too high up in the rectum, Overlach proposes to attach to the broad end a crosspiece by means of a string. (Ap. Ztg. 97, 296. Am. Dr. 97, 315. Proc. 97, 444.)

Assay. (Tannin; morphine; iodoform; mercuric chloride; zinc oxide.) White and Braithwaite (Ph. Jl. 97, Nov. 454. Ph. Ztg. 97, 817.)

(Syrupi.)

Glycerin. It is proposed to investigate the liability of the sugar in many of the syrups of undergoing conversion; and it is suggested to replace part of the sugar by glycerin. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Preservation. Fill up to neck, pour carefully a little glycerin on top, and stopper with sterilized, absorbent cotton. Schmatolla. (Ap. Ztg. 97, 598. Merck's Rep. 97, 636.)

Preparation. Hiss suggests to first heat the water to boiling, then add the sugar gradually, with constant stirring, and continue the heat until dissolved. The taste will be purely sweet and not mawkish. (Ph. Era, 97, xiv, 173.)

Fruit Syrups. Attention is called to the value of an old test for artificial colors (aniline). Add an excess of lead acetate to the syrup, dilute with twice its volume of water, and filter through a dry filter. The natural color is precipitated by the lead salt, while the artificial color is retained in the filtrate. (Zts. Oest. Ap. Ver. 96, 866. Proc. 97, 442.)

Syrupus Acidi Hydriodici.

Stability. Since this syrup is not stable, it is proposed to keep a concentrated solution of hydriodic acid, and make the syrup, as wanted. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 175.)

Discoloration. Cameron counsels to digest the syrup with a little powdered animal charcoal. (Proc. 97, 447. Dr. Circ. 96, 140.)

Glucose. Walker finds that glucose, replacing in part or wholly the sugar, is the best preservative, unless hypophosphorous acid, which is still better, be admissible. (Merck's Rep. 97, 570. Proc. 97, 221).

Glycerin. Mason adds one ounce of, glycerin to the tartaric acid solution, before it is added to the solution of the potassium salts. (Merck's Rep. 97, 693.)

Syrupus Allii.

Should be dropped, being but seldom used. If retained, the quantity of dilute acetic acid should be reduced; as it is now, the finished product will generally yield about 100 Cc. more than the 1,000 Cc., if the garlic be of good quality. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176).

Syrupus Aurantii.

Preparation. According to Webber, the official formula may be simplified by macerating 1 part of fresh orange peel with 5 parts of alcohol for a few days. Of this tincture add 2 parts to 14 parts of syrup. (Am. Dr. 97, 255. Proc. 97, 445.)

(Syrupus Caffeae.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

(Syrupus Chloroformi.)

Should be introduced. Mix 1 part of spirit of chloroform with 15 parts of syrup. Webber (Am. Dr. 97, 255. Proc. 97, 445).

(Syrupus Cinnamomi.)

Should be introduced. Mix 1 part of the tincture with 5 parts of syrup. (Ibid.)

(Syrupus Eriodictyi.)

Should be introduced. Illinois Ph. Comm. (Ph. Era. 97, xviii, 41).

Syrupus Ferri Iodidi.

Preservation. Walker finds that the presence of glucose, either in part or wholly, preserves the syrup. Hypophosphorous acid is still better. (Proc. 97, 221.)——Illinois Ph. Rev. Comm. adds 10 p. c. anhydrous grape-sugar. (Ph. Era. 97, xviii, 41.)

Strength. When made strictly according to the directions, this syrup cannot be expected to be fully up to the required strength of 10 p. c., owing to loss of iodine by volatilization and loss of iodide through insufficient washing of the filter. Experience has shown the yield of a 10 p. c. product to be 950 to 970 Gm. instead of 1000 Gm. when working with the quantities directed by the Pharmacopœia. (C. E. Smith; see *Preface.*)

Syrupus Ferri, Quininæ et Strychninæ Phosphatum.

Preparation. Brodie rrcommends the following: Iron wire, free from rust, 90 grains; phosphoric acid (1.50), 3 oz. av.; hypophosphorous acid, 1 drachm; strychnine, 2½ grains (to correspond with the U. S. P. strength); hydrochlorate of quinine, 120 grains; sugar, 16 oz. av.; water, sufficient to make 24 fluid ounces. Dilute the acids with 2 oz. of water, introduce the iron wire, and allow to dissolve without the application of heat. Dissolve strychnine in 1 oz. of water, adding an additional drachm of phosphoric acid, then dissolve the quinine hydrochlorate. Filter both solutions into the syrup (16 oz. sugar and 8 oz. water). Solutions and syrup must both be cold, before mixing them. (Ph. Jl. 97, Aug. 149. Dr. Circ. 97, 263.)

Syrupus Hypophosphitum.

The *sulphuretted odor*, so often noticed in this syrup, arises most probably from the use of animal charcoal used in the decoloration of the hypophosphorous acid, which reduces a trace of sulphuric acid, left in the hypophosphorous acid, to sulphurous acid. Tyrer. (Ch. Dr. 97, Aug. 287.)——Bird thinks that the odor is caused by the presence of sulphites. (Ibid.)

Sugar. Hiss states that if 800 or 858 Gm., instead of 500 Gm. of sugar be used, it will keep better. (Ph. Era 95, xiv, 491.)

Syrupus Hypophosphitum cum Ferro.

Turbidity. Ott avoides the cloudiness, and obtains a clear syrup at once, by either dissolving the salts in a little hot water, adding the solution to the syrup; or by dissolving the salts in hot syrup. (A. Jl. Ph. 96, 405. Proc. 97, 447.)

Syrupus Krameriæ.

Turbidity. Ott proposes to replace part of the sugar with glycerin, to insure clearness. (Proc. 97, 446.)

(Syrupus Pini Albi Compositus.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

(Syrupus Rhamni Purshianæ.)

Should be introduced. Webber (Am. Dr. 97, 255. Proc. 97, 445).

Syrupus Rubi Idæi.

Hiss recommends to replace part of the sugar with glycerin. (Ph. Era, 95, xiv, 491.)

Syrupus Scillæ.

Hiss heats 7½ fluid ounces of the vinegar of squills to boiling, and, after filtering, adds sufficient water to make 8 fluid ounces. Dissolve 8 ounces av. of sugar in this filtrate by shaking, and add sufficient glycerin to make 16 fluid ounces. (Ph. Era. 95, xiv, 491.)

Syrupus Stillingiæ Compositus.

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Syrupus Tolutanus.

Preparation. Wyatt recommends to make it with "tolu-sand." Powder the balsam, rub it intimately with four times its weight of well-washed, coarse sand, previously heated so that the hand can just bear it. This sand is readily extracted by successive portions of water of 120° to 140° F. When cold, dissolve the sugar. (Ch. & Dr. 97. . . . .)——Hendrix first makes an aqueous distillate, and then heats the remainder with constant stirring for a few minutes. Filter hot, and add to the distillate. Dissolve in it the sugar. (Annal. de Ph. 97, 473. Merck's Rep. 97, 47.)

Benzin Odor. This odor will often be noticed in syrup made by the hot process. It is recommended to add to the syrup, as soon as made, 5 grains of benzoic acid to the pint. (Ch. & Dr. 97, Sept. 502.)

(Syrupus Trifolii Compositus.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Tabacum.

Alkaloids. Location. Molle (Bull. Soc. Belge Micro. 96, . . . Dr. Circ. 96, 108).

(Talcum.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era. 97, xviii, 41.)

Taraxacum.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141).

Constituents. Sayre (A. Jl. Ph. 96, 518 and 97, 543. Dr. Circ. 96, 212 and 97, 334. Proc. 97, 223).

Histology. Dohme (Dr. Circ. 97, 178).

Extraction. Experiments. Gregory. (Dr. Circ. 97, 121. Proc. 97, 419). Newhall (Dr. Circ. 97, 214).

Percolation and Repercolation experiments. Meyer (Dr. Circ. 97, 213).

Terpini Hydras.

Preparation. Hahn finds from his experiments, that the commercial terpin hydrate is probably obtained by a process similar to that of Hempel's (120 Cc. of oil of turpentine, 30 Cc. of ethyl alcohol, and 30 Cc. of nitric acid, (1.35)), substituting methyl alcohol for ethyl alcohol. Mix, and keep in a closed vessel for 3 days; then pour it out into a flat dish. The addition of 30 Cc. of water hastens the separation of the crystals. (A. Jl. Ph. 97, 73. Proc. 97, 639.)

Melting Point. With slow fusion, 110° C.; with rapid fusion, 114° C. Nagelvoort (Dr. Circ. 97, 130).

Thymol.

Estimation in volatile oils, see under "Olea Volatilia."

(Tincturæ.)

From Fluid Extracts. Squibb objects, because it is not authorized by the U. S. P., and because it pushes back the responsibility for quality from the pharmacist to some one behind.——Rice. It is not practicable to classify drugs into groups representing such as will, or will not, yield precipitable fluid extracts, and therefore it is unwise to give a general endorsement of the practice of preparing tinctures, etc. from fluid extracts. It must be borne in mind, too, that there is no guarantee that any precipitate, thrown out, consists *only* of inert matter.——Lloyd. Non-official tinctures may be made from fluid extracts. As to official tinctures, the pharmacopoeial directions should be implicitly followed, notwithstanding the undeniable fact that the fluid extracts of some drugs may be diluted without causing a disturbance of the dissolved matter. (A. Jl. Ph. 97, 98.)——See also Kebler (Am. Dr. 97, xxx, 68).

Dismission. All tinctures, of which fluid extracts are official, should be dismissed, and such tinctures should be replaced by 50 p. c. fluid extracts under a distinct title. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442).——Williams opposes this, because it would replace tinctures with preparations from 40 to 400 p. c. stronger. (Dr. Circ. 97, 153, 214.)

Identity. Kunz-Kraus proposes capillary analysis. He finds, that by hanging strips of filtering paper (2 Cm. broad and 20 Cm. long) for 24 hours into the tinctures, so that 5 Mm. dip, there will after drying be found different outlines (zones) of absorption, which are characteristic of each tincture. (Ph. Ztg. 97, 751, 770.)

Identification and Estimation. Dieterich proposes to do this by the acid and saponification numbers, which for each tincture are different. Three Gm. of the tincture is mixed with 200 Cc. of 90 p. c. alcohol, and the perfectly clear and almost colorless mixture is titrated with $\frac{N}{10}$ alcoholic potassa, using phenolphthalein as indicator. The acid number, will, of course, indicate how many Mgm. of potassa can combine with 3 Gm. of the tincture. Saponification: Boil 3 Gm. of the tincture with 20 Cc. of $\frac{N}{2}$ alcoholic potassa in an open vessel, for one hour, and take up the residue with 500 Cc. of water. Titrate as usual. If strongly colored, dilute to one liter; do not filter! Calculate accordingly. (Ph. Centralh. 96, 702, 704, 716.)

Narcotic Tinctures. Oefele proposes to remove indifferent matter from narcotic tinctures by treating them with calcined magnesia. This is proposed especially for the tinctures of digitalis and belladonna. (Ap. Ztg. 97, 335.).

Tinctura Aconiti.

Color and Miscibility with Water. Lester points out that there is a great difference in the aconite tinctures of the three last Pharmacopœias, that of 1870 (with 50 p. c. alcohol) being dark of color and mixing clear with water; that of 1880 (with strong alcohol) being lighter, and mixing turbidly; and that of 1890 (with 7 alcohol and 3 water) being darker and quite as turbid. He finds that 50-p. c. alcohol extracts the drug as thoroughly as a stronger alcohol, with the advantage of giving a clear mixture with water. (W. Dr. 96, 297. Proc. 97, 451.)

Tinctura Arnicæ Florum.

Purified methyl alcohol ("Columbian Spirit") should replace ethyl alcohol. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Tinctura Benzoini.

Purified methyl alcohol ("Columbian Spirit") should replace ethyl alcohol. Com. Ph. Rev. A. P. A. and Illinois Ph. Rev. Com. (Dr. Circ. 97, 298. Proc. 97, 176. Ph. Era. 97, xviii, 41.)

Tinctura Benzoini Composita.

Methyl alcohol. See the foregoing. Illinois Ph. Rev. Com. (Ph. Era. 97, xviii, 41).

Tinctura Calendulæ.

Methyl alcohol. See the foregoing. (Ibid.)

Tinctura Cantharidis.

Methyl alcohol. See the foregoing. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.)

Tinctura Catechu Composita.

Preparation. This tincture should be made either by maceration, or the powder should be mixed with a porous, insoluble substance previous to percolation. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Tinctura Cinchonæ Composita.

Miscibility with water. Vojtek proposes to replace the diluted alcohol by alcoholic cinnamon water ("Aqua cinnamomi spirituosa"), the solvent power of which has been increased by the addition of 3 p. c. of diluted hydrochloric acid. (Alcoholic cinnamon water contains 20 p. c. alcohol.) (Zts. Oest. Ap. Ver. 96, 332. Proc. 97, 451.)

Tinctura Colchici Seminis.

Benzin should be used to remove the fat before percolation. Illinois Ph. Rev. Com. (Ph. Era. 97, xviii, 41).

Tinctura Ferri Chloridi.

Commercial. Examination. (Proc. Ohio Ph. Ass. 96, 21. Proc. 97, 449.)

(Tinctura Ferri Citro-Chloridi.)

Should be introduced. Illinois Ph. Rev. Com. (Ph. Era. 97, xviii, 41.)

Tinctura Iodi.

Menstruum. Purified methyl alcohol should be used. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176.) Illinois Ph. Rev. Com. (Ph. Era. 97, xviii, 41).——Hallberg would not advise it, because more or less iodoform would be formed, and the tincture would become correspondingly colorless. (Proc. 97, 179.) This, however, is contradicted by Eliel and Ebert. (Ibid.)

Stability. Feil states, that under ordinary conditions this tincture will keep its strength for one month, and, if kept in a dark closet, or otherwise protected from light, for a couple of months. The Pharmacopœia should, therefore, direct accordingly. (Proc. 97, 182.)

Assay. Stevens points out that an apparent deficiency in contents of iodine is often due to the formation of hydriodic acid. He found that generally from 1 to 2 p. c. of iodine had been converted. The tincture he proposes to make by percolation, rubbing the iodine with coarse sand or glass. (Proc. Mich. Ph. Ass. 96, 46. Proc. 97, 451.)

Hydriodic Acid. Detection. Pouchet states that if turbidity does not occur at once when the tincture is mixed with water, the presence of hydriodic acid may be suspected. (Ph. Ztg. 96, 519.)

Loss by Exposure. Ph. G. limits the allowable deficiency to 5 p. c. of the official amount. A limitation should be introduced into the U. S. P.

Commercial. Examination. Baldauf (Am. Jl. Ph. 96, 610. Proc. 97, 451).

Tinctura Moschi.

Strength. Two p. c. of musk is all the present menstruum can exhaust properly. It is recommended to replace 100 Cc. of the water with lime water, the better to exhaust. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298, Proc. 97, 176.)——Also the Illinois Ph. Rev. Com. (Ph. Era. 97, xviii, 41.)

Tinctura Nucis Vomicæ.

Commercial. Examination. (Proc. Ohio Ph. Ass. 96, 21. Proc. 97, 449.) Johnson (Am. Jl. Ph. 96, 609. Proc. 97, 452).

Preparation. A return to the formula of U. S. Ph. 1880 (8 alcohol and 1 water) is recommended, as yielding a better product. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442).——Kebler points out a seeming inconsistency in the official process, in that it orders the tincture to be made from the solid extract by dissolving it in a menstruum different from that with which the seeds were extracted. (Am. Dr. 97, xxx, 69.)

Tinctura Opii.

Preparation. Kebler prefers the use of granulated opium, and packs only one-third in a percolator, as usual, adding menstruum to cover the packed opium, and then enough more to cover the remainder of the opium, which is merely to be dropped into the menstruum (but not packed). The percolation to proceed immediately, and to continue until 10 p. c. of the percolate has been obtained. Now close the lower orifice of the percolator, and allow to macerate for three hours, when the percolation is allowed to proceed until another 10 p. c. is obtained. Repeat this alternation of maceration and percolation until the exhaustion is complete. (A. Jl. Ph. 96, 406. Proc. 97, 452.)——Clarke macerates 100 Gm. of opium in No. 10 powder with 250 Cc. of water for 24 hours, strains, and repeats the process three times with similar quantities of water. The dregs from the first maceration are packed in a percolator, and percolated with 250 Cc. of water. Unite the liquids, evaporate upon a water bath to 500 Cc., and add 500 Cc. of alcohol, mix and filter. (Proc. Wisc. Ph. Ass. 96, 39. Proc. 97, 452.)

Tinctura Opii Camphorata.

Preparation. There appears no good reason why this tincture should not be made from the simple tincture, instead of starting from the powder. (A. Jl. Ph. 96, 405. Proc. 97, 452.)——Williams proposes to add the oils and solids to the proper quantity of strong alcohol, and after solution add the requisite quantity of water, hot. This will prevent the usual cloudiness. (Am. Dr. 97, xxxi, 99.)

Tinctura Opii Deodorata.

Temperature. Effects upon percolation. DeForrest Smith (Proc. 97, 248).

Preparation. The official process is wasteful and tedious, and the following is proposed: Macerate 100 Gm. of granulated opium with 400 Cc. of deodorized gasolin (87°) for 24 hours, shaking occasionally; add 200 Cc. of gasolin, and macerate as before; transfer to a filter, and after the liquid has ceased dropping, add gradually 200 Cc. more of gasolin. Dry the opium at a gentle heat. Macerate this opium in 300 Cc. of warm water for 24 hours; transfer to a percolator, and continue percolation with warm water to obtain 800 Cc.; add 200 Cc. of alcohol, and filter. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442).——Benzin should be used instead of ether. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Tinctura Pyrethri and Tinctura Quillajæ.

Purified methyl alcohol ("Columbian Spirit") should be used instead of ethyl alcohol. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Tinctura Strophanthi.

Assay. Barclay proposes to estimate the strophanthidin produced by the hydrolytic decomposition of the impure strophanthin, as being more reliable than the methods proposed for the estimation of strophanthin direct. To 50 Cc. of the tincture add 50 Cc. of water, and distil off the alcohol. Shake the filtrate with chloroform, and digest for one hour on a water-bath with dilute sulphuric acid, which produces a flocculent deposit of strophanthidin. Treat, after cooling, with three successive small portions of chloroform. The chloroform after separation is removed by distillation, and the residual strophanthidin dried at below 150° F. and weighed. The "brown" seed gave the most alkaloidal tincture. (Ph. Jl. 96, Nov. 463. Proc. 97, 453.)

Benzin should be used to remove the fat. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41).

Tragacantha.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141).

Ulmus.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141).

(Unguenta.)

Basis. Strictures on the basis (benzoated lard and simple ointment). "Galen, Jr." (Am. Dr. 97, xxx, 63. Proc. 97, 402.)——A mixture of 7 parts of paraffin, 35 parts of anhydrous lanolin, 53 parts of yellow vaselin and 5 parts of water has been recommended as an ointment base under the name of "Adipatum." (Zts. Oest. Ap. Ver. 96, 687. Proc. 97, 405.)

Rancidity. Lester speaks highly of formalin in the proportion of 2 drachms to the pound, as a preservative. (W. Dr. 96, 345. Proc. 97, 404.)

Absorption. Amount of water, alcohol and glycerin with which ointments will mix without separation (water, from ? to 400 p. c.; alcohol, from 3 to 200 p. c.; glycerin from 25 to 600 p. c.) St. Onge. (Am. Dr. 97, xxix, 37. Merck's Rep. 97, 602.)

Unguentum.

Absorption. 100 parts will take up 40 parts of water; 11.49 of alcohol and 200 parts of glycerin. St. Onge. (Am. Dr. 97, xxix, 37. Merck's Rev. 97, 602).

Benzoinated Lard should be used. Illinois Ph. Rev. Comm. (Ph. Era. 97. xviii, 41.)

Unguentum Acidi Carbolici.

Strength. The reduction to 5 p. c. is still in excess of the usual requirements. The tendency to separate is overcome by mixing the acid with glycerin and lanolin, and making up with soft petrolatum. "Galen, Jr." (Am. Dr. 97, xxix, 63. Proc. 97, 402.)

Unguentum Aquæ Rosæ.

Absorption. 100 parts will take up 50 parts of water, 5.68 of alcohol and 300 parts of glycerin. St. Onge (Am. Dr. 97, xxix, 37. Merck's Rep. 97, 602).

Preparation. Hiss thinks that the amount of water should be increased, and he prefers oil of benne. Spermaceti and white wax, of each 2 oz. are melted together, 10 fluid ounces of benne oil added, and then 4 fluid ounces of water, containing 40 grains of borax. Beat the whole together, and add finally 5 drops of oil of rose. (Ph. Era 95, xiv, 173).

Unguentum Diachylon.

Preparation. Precipitated lead oleate and soft petrolatum would probably give a more satisfactory ointment. "Galen, Jr." (Am.

Dr. 97, xxix, 63. Proc. 97, 403.)——Denhardt proposes to saponify 100 parts of fresh lard in a capacious kettle, or dish, with 90 parts of prepared litharge, with occasional addition of water. Stir until cold, and after a few hours beat it vigorously. This will make a homogeneous, dazzling white ointment, which keeps well. (Ph. Ztg. 96, 623).

Preservation. Dieterich finds that the addition of water to this ointment prevents rancidity, by facilitating the conversion of the separate acids into soluble lead salts. He also finds that the ointment is best preserved under water. (Ph. Centralh. 96, 345. Proc. 97, 407.)

Unguentum Hydrargyri.

Preparation. Miehle recommends to keep in stock a concentrated ointment, prepared by extinguishing 80 Gm. of metallic mercury with 20 Gm. anhydrous lanolin, which can be done inside of twenty minutes. This 80 p. c. ointment can then be reduced as required. (Ph. Ztg. 96, 880. Proc. 97, 405.)——After trituration with the oleate, Hallberg adds about 5 p. c. of the mixed fats, and continues the trituration until complete extinction of the globules. Then add the remainder. It is not the oleic acid which extinguishes the mercury, but the insoluble oleate, which separates from the oleic acid in the official oleate of mercury. (Am. Dr. 97, xxviii, 326.)

Trituration. Miehle proposes the direction, that the mercury globules shall not measure more than 4 mikrons. (Ph. Ztg. 96, 393.)

Unguentum Hydrargyri Nitratis.

Preparation. Lucas gives the following process, which has been used by J. Bell & Co. for years. Dissolve the mercury in the acid without heat. Melt the lard in the oil, and raise the heat to about 380° F. (193° C.). Pour the fused mass into a hot earthen vessel, capable of holding ten times the quantity, and when the temperature has fallen to 350° F. (176.5° C.), add gradually the solution, stirring briskly with a wooden spatula, until cold. (Ph. Jl. 97, Febr. 121. Proc. 97, 404).——Squire states, that, whether the acid solution of mercuric nitrate be added to the mixture of fats, or only after the fat has been acted upon by a proper proportion of nitric acid, is immaterial, provided proper precautions as to temperature be observed. He, of course, uses the Ph. Br. formula, heats the fats to 100° C., and adds half the prescribed quantity of nitric acid. Heat to brisk effervescence, which will commence at 105° C.; at 120° C. turn off the heat. When effervescence has ceased, allow to cool at 60° C. then add the mercury (dissolved in the remaining acid), and stir until cold. (Ph. Jl. 97, Febr. 172).——Maben contends, that the aim of a proper process must be to get an ointment containing as little free acid as possible, otherwise it will be an ointment of mercuric nitrate plus a good deal of free nitric acid. In this respect the formulas of the U. S. P. and of Squire err. The higher the temperature, the more free acid is driven off. He has repeatedly made this ointment with temperatures ranging from 300° to 350° F. (149° to 177° C.) with color and consistency perfect. The question, respecting Squire's process, is: Does Squire's process produce a more acid ointment than the official one (Ph. Br.), and if so, is then the increased acidity an improvement? (Ph. Jl. 97, Mrch. 223, 265.) ——England heats 760 Gm. of lard oil to 100° C., withdraws the heat, and gradually adds 75 Gm. of nitric acid. When the reaction moderates, reapply the heat, until brisk effervescence takes place, and then again withdraw the heat. Dissolve 75.5 Gm. of red oxide of mercury (as purer and more readily weighed than metallic mercury) in 100 Gm. of nitric acid, add gradually to the oxidized fat, previously cooled to 60° C., and stir until cold. When nearly cold, add 50 Gm. of glycerin (to prevent the ultimate friable condition). (A. Jl. Ph. 97, 209. Proc. 97, 406.)——La Wall does not admit the greater purity of the mercuric oxide, and queries the advisability of adding glycerin. (A. Jl. Ph. 97, 232.)——England defends his position. (Ibid 97, 211. Proc. 97, 407.)

Unguentum Hydrargyri Oxidi Flavi and Unguentum Hydrargyri Oxidi Rubri.

Basis. A mixture of 1 part of lanolin and 3 parts of white petrolatum is more satisfactory. "Galen, Jr." (Am. Dr. 97, xxix, 63. Proc. 97, 403.)

Fineness. Edel states that water rapidly reduces the oxide to an impalpable fineness, and he afterwards adds a small quantity of lanolin, and finally the "ointment." (W. Dr. 96, 487. Merck's Rep. 97, 46.)

Unguentum Picis Liquidæ.

The formula of the U. S. P. 1880 (with suet) is preferable. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)——Also Hiss (Ph. Era 95, xiv, 491).

Unguentum Plumbi Carbonatis.

An ointment mill will give a superior product. "Galen, Jr." (Am. Dr. 97, xxix, 63. Proc. 97, 403.)

Unguentum Potassii Iodidi.

The water should be increased three-fold, and the basis should be lanolin with petrolatum. "Galen, Jr." (Ibid.)

Unguentum Sulphuris.

The sulphur should be sifted into the melted lard. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Unguentum Zinci.

Preparation. Edel passes the oxide through a paint mill with a small quantity of the liquefied lard, and then mixes this smooth portion as usual with the remainder. (W. Dr. 96, 488. Proc. 97, 407.)——Williams triturates the oxide with 10 p. c. of hot castor oil in a warm mortar, and then adds the benzoated lard. (Merck's Rep. 97, 495.)

Uva Ursi.

Histology. Anderson and Kaellstroem (Nord. Farm. Tidskr. 96, 33. Ph. Zts. 96, 257).

Repercolated. Experiments. Kelly (Dr. Circ. 97, 213).

Valeriana.

Histology. Dohme (Dr. Circ. 97, 5).

Extraction. Influence of temperature. Norris (Dr. Circ. 97, 213).

Mexican. Schimmel & Co. recently found that the root of Valeriana mexicana, D. C., yields almost no oil, but only free valerianic acid. (Ber. 97, April. Ph. Rev. 97, 114. Proc. 97, 654.)

Vanilla.

Vanillas of Commerce. Rolfe (Kew Bull. 96 . . . Dr. Circ. 96, 105).

Seychelles. Cultivation dates back only about 20 years. (Ch. & Dr. 97, Nov. 844. A. Jl. Ph. 98, 54.)

Reunion. Bennet (Merck's Rep. 97, 636. Ph. Jl. 97, Aug. 187).

Tahiti. Gehe & Co. (Ph. Ztg. 96, 271. Ph. Jl. 96, July 12.) The odor is more like heliotrope.

Mauritius versus Mexican. Lehn and Fink state that owing to increased care in the cultivation and better official control, the Mauritius variety is not only the equal but often the superior of the Mexican variety. They also point out that only lately has it been discovered why apparently choice beans often give unsatisfactory products. This is due to the ravages of the vanilla mite, which occurs most frequently in Mexican beans. Such beans look as if covered in spots with brown powder, among which small brown specks can be seen moving about, and the small end of such an infected bundle of beans has a characteristic offensive odor. (Proc. 97, 489.)

Drying. Vanilla may be dried over calcium chloride. Enclose the pods in hermetically sealed vessels with an equal weight of the chloride and "desiccating salt" (?). 2.981 kilos of raw vanilla yield 1 kilo of prepared beans, which retain much more vanillin than those dried in the open air. Dolabartz (Ph. Jl. 96, Nov. 406 and 97, Aug. 187. Merck's Rep. 97, 114. Proc. 97, 489).

Tonka. Detection in preparations. Evaporate the liquid to dryness, and fuse the residue with potassa; this will convert the vanillin into the potassium salt of protocatechuic acid, and the coumarin into potassium salicylate. This may be verified, either by adding concentrated sulphuric acid and then, drop by drop, methyl alcohol, heating to boiling, when the odor of wintergreen will be noticed; or, treating the residue with water, and adding ferric chloride solution to the filtrate. Eccles (Dr. Circ. 97, 103).

(Vanillin.)

Should be introduced. Com. Ph. Rev. A. Ph. A. (Dr. Circ. 97, 298. Proc. 97, 176).

Identity. To a solution, supposed to contain vanillin, add a few drops of a 1-p. c. solution of ferrous sulphate, and then bromine water, drop by drop. In the presence of vanillin, a bluish-green color will appear, turning yellow after a time. (Ph. Jl. 97, Febr. 167. Ch. & Dr. 97, June 897. Dr. Circ. 97. 129.)

Commercial Aspects. Schimmel & Co. (Am. Dr. 97, xxx, 265).

Veratrina.

Marmès Reagent. (Cadmium-potassium-iodide.) Sensitiveness. (1:5,400.) Verven (Annal. de Ph. 97, 145. Dr. Circ. 97, 278).

Chemistry. Frankforter thinks that the reason why the substance known as veratrine varies so widely in its composition and other properties, is to be looked for in the extreme difficulty with which the alkaloid crystallizes, and partly in the fact that the name of "veratrine" has been given to a variety of veratrum alkaloids, or to a mixture of them. (Minn. Bot. Stud. 97 . . . A. Jl. Ph. 97, 372.)

Veratrum Viride.

Alkaloids. Localization. Sauvan (Ph. Jl. 96, Aug. 177. Proc. 97, 474).

Ash, Moisture and Active Principle. Percentage. La Wall (A. Jl. Ph. 97, 141).

Extraction. Experiments. Farr and Wright; Sayre; Gregory (Dr. Circ. 97, 120, 121. Proc. 97, 419).

Viburnum Opulus.

Extraction. Experiments. Sayre (Dr. Circ. 97, 121. Proc. 97, 419).

Viburnum Prunifolium.

Dry Extract. Yield. Linde (Ph. Centralh. 96, 423).

Valerianic Acid. Schamelhout finds that the acid is not caproic but valerianic acid. (Annal. de Ph. 97, 114. Ph. Jl. 97, April 290. Proc. 97, 515.)

(Vina.)

Artificial Red Coloring Matter. Belar proposes to take advantage of the fact that most coal-tar colors dissolve readily in nitrobenzol (some of them with different colors), whilst the natural coloring matter is almost insoluble in it. (Ch. News 96, 197. Zts. Analyt. Ch. 96, 322. Proc. 97. 536.)

Artificial Yellow Coloring Matter. Aguiar and Da Silva shake the wine with amylic alcohol, which is afterwards shaken with an excess of ammonia, when the natural coloring matter is precipitated. The amylic alcohol solution can then be subjected to appropriate tests. (Comptes Rend. 97 . . . Ch. News 97, 256. Proc. 97, 537.)

(Vina Medicata.)

Dismiss, and replace by vinegars. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Vinum Album.

Should be dismissed. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Vinum Colchici Seminis.

Benzin should be used to deprive the seeds of fat. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Vinum Ergotæ.

Benzin. See the foregoing. (Ibid.)

Vinum Rubrum.

Should be dismissed. Com. Ph. Rev. A. Ph. A. (Merck's Rep. 96, 442.)

Xanthoxylum.

Ash and Moisture. Percentage. La Wall (A. Jl. Ph. 97, 141).

Histology. Dohme (Dr. Circ. 97, 65).

Zinci Acetas.

Solubility. Should be easily and quickly soluble in 3 times its weight of cold water (absence of basic salt). (C. E. Smith; see *Preface.*)

Zinci Sulphas.

Free Acid. A readily applied and sensitive test for free acid is the addition of a drop of methyl orange solution to an aqueous solution of the salt. In presence of acid the solution is reddened. (C. E. Smith; see *Preface.*)

(Zinci Sulphocarbolas.)

Should be introduced. Illinois Ph. Rev. Comm. (Ph. Era 97, xviii, 41.)

Zincum.

Estimation in Organic Salts. Cover the salt with concentrated nitric acid, cautiously evaporate off the acid, and ignite the residue, when the zinc is left behind as oxide. The heat to drive off the acid must be gentle, to avoid spirting, and the apparently dry residue must not at once be ignited, but merely heated a little more strongly than before. Zinc benzoate must be treated cautiously, as it explodes easily on igniting. Ritter (Ch. News 96, Oct. 186. Zts. Analyt. Ch. 96, 311. Ph. Ztg. 96, 712. Proc. 97, 612).

Reaction. Limits of sensitiveness. Neumann (Ph. Ztg. 97, 124).

Zingiber.

Oleoresin. Yield. Glass and Thresh have obtained from Jamaica ginger, from 3.29 to 5.0; Cochin ginger, from 4.33 to 4.965, and African ginger, from 6.33 to 8.075. All p. c. (Ph. Jl. 97, Mrch. 245, 251. Ch. & Dr. 97, Mrch. 463. A. Jl. Ph. 97, 320. Proc. 97, 487.)

Effects of Solvents on the Analytical Character. Liverseege gives the results of experiments, made with a view to ascertain what influence different solvents had on the final results of the analysis of the "spent" ginger. (That is: Ginger was extracted by different menstrua, and the dregs were subjected to the action of different solvents, noting the results.) He finds that exhausted ginger is best detected by determining the cold water and the methylated spirit extract.

Cold water extracts from normal ginger 11.8 p. c.; from the same ginger, previously exhausted by absolute alcohol, the same p. c.; but when previously exhausted by diluted alcohol, the extract was only 4.7 to 6.8 p. c. Methylated spirit extracted from normal ginger 6.5 p. c.; when the same ginger had been previously exhausted by absolute alcohol, the extract was only 2.9; and when previously exhausted by water, the extract was 5.6 p. c. (Ph. Jl. 96, Aug. 112. Ch. & Dr. 96, Aug. 210. Proc. 97, 488.)——Umney remarks that the amount of extractive matter is not a constant factor, so that Liverseege's deductions are unreliable. (Ibid.)

Extraction. Experiments. Gregory (Dr. Circ. 97, 121. Proc. 97, 419). Newhall (Dr. Circ. 97, 214).

Cultivation in Jamaica. Kilmer (A. Jl. Ph. 98, 65).

Microscopy. Quantitative. Kraemer (A. Jl. Ph. 97, 529.)

Correspondence regarding the *contents* of this Digest may be addressed to any member of the Committee. But all correspondence referring to its *distribution* should be addressed to the Chairman.

The addresses of the members will be found on page v.