PHARMACEUTICAL ABSTRACTS

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ABSTRACTORS

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CHEMISTRY

ORGANIC

Unclassified (Continued)

Organic Compounds—Sulfonating of. The attempt was made to sulfonate anthraquinone with sulfur trioxide in a homogeneous phase, but was unsuccessful due to the lack of a suitable solvent. The use of hydrated sulfuric acid in sulfonating the compound rendered good results; 85.5, 93.3, 98.3, 99.2 and 100% sulfuric acid was used and the reaction conducted at a temperature between 160–230°. Remarkable sulfonation was obtained at 200° with 89.5%, at 190° with 93.3% and at 180° with 95.8% acid. With the other sulfuric acid concentrations good results were also obtained at 160°. A linear curve indicating a concentration of 89–95% sulfuric acid rises gradually; at greater concentrations, the curvature rises in a straight line. This is probably due to the high concentration of acid and free trioxide, or at least in the ease in which sulfur trioxide is converted to acid; the curve of the vapor pressure of the hydrated sulfuric acid shows a similar behavior at high temperatures. The authors claim that the sulfonation with hydrated sulfuric acid does not run uniform. A part of the sulfuric acid sulfonates in the same manner that nitric acid acts as a nitrating agent; however, part of the former is split up into water and trioxide which act independent of each other during the reaction. The course of the energy and action constants is understood. Because sulfuric acid has a greater molecule its constant action is greater than sulfur trioxide. Parallel to this, sulfuric acid must exhibit a greater energy than sulfur trioxide, which is only added, while the acid must give up its water first. Thus the greater the concentration the greater the tendency of sulfuric acid to be split up into water and trioxide, so that the increase of the sulfonating of sulfur trioxide falls in the same line with the action-heat and action-constant. An oxidation behavior of sulfuric acid was not observed during the experiment.—K. LAUER and R. ODA. *Chem. Zentralb.*, 107 (1936), 743. (G. B.)

***p*-Oxybenzoic Acid—Esters of.** The methyl, ethyl and propyl esters of *p*-oxybenzoic acid are prepared by reacting methyl, ethyl and propyl alcohol with *p*-oxybenzoic acid. The physical-chemical properties are given. The sodium derivative is prepared by treating the esters with aqueous sodium hydroxide. These esters have found application in the preserving of technical products and of nutritive substances, from pharmacologic experiments, their action being harmless to health.—LUIGI NOBILI. *Giorn. farm. chim.*, 84 (1935), 168. (A. C. DeD.)

Phenyl Urethane Anesthetics. II. The preparations of nine phenyl urethanes are given. A table of pharmacological properties is also given. They are reported to be more active on the rabbit's cornea than the *p*-aminobenzoates which have been tested and which are isomeric with the urethanes. The authors believe the phenyl urethane configuration confers more topical anesthetic activity upon a molecule than does the isomeric *p*-aminobenzoate group.—E. S. COOK and T. H. RIDER. *J. Am. Chem. Soc.*, 58 (1936), 1079. (E. B. S.)

Phenylazo-2,4-diaminobenzene Hydrochloride. Products which are modifications of this compound and which are suitable for treating genito-urinary and skin infections are obtained: (1) by coupling diazotized aniline with 2,4-diaminobenzene under conditions of almost complete absence of free hydrochloric acid in the reacting medium, precipitating the product with ammonia, filtering, washing with water and weak hydrochloric acid and drying, or (2) by treating any modification of phenylazo-2,4-diaminobenzene hydrochloride with concentrated hydrochloric acid, mixing and evaporating the resultant product on the water-bath.—ALEXANDER T. MAXIMOFF, assignor to AZODAL CO. U. S. pat. 2,053,095, Sept. 1, 1936. (A. P.-C.)

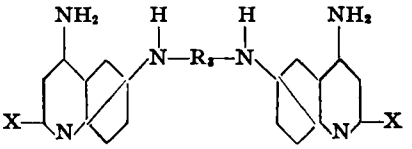
Phenylmercury Nitrate and Some Other Phenylmercury Salts. Several workers have studied phenylmercury nitrate and have assumed that it had the normal constitution $C_6H_5HgNO_3$. The present investigation, begun several years ago, leads to the conclusion that it is basic, $C_6H_5.HgOH.C_6H_5.HgNO_3$. Reasons for this conclusion are discussed and experimental work is reported in detail.—T. N. GRAVE, S. E. HARRIS and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 25 (1936), 752. (Z. M. C.)

2-Phenylquinoline-4-carboxylic Acid—Hydroxyalkoxy Derivatives of, and Method of Making. Hydroxyalkoxy derivatives of 2-phenylquinoline-4-carboxylic acid which are crystalline light yellow to light brown powders, soluble in water and in alcohol, have about the same therapeutic value as, but a considerably lower toxicity than the parent compound.—PAUL DIEDRICH, assignor to SCHERING-KAHLBAUM A.G. U. S. pat. 2,064,297, Dec. 15, 1936. (A. P.-C.)

Piperitone and the Menthols. A review of the Streatfield Memorial Lecture, 1936, delivered by Professor John Read. His address was entitled "A Chapter in the Chemistry of Essential Oil." Piperitone and the menthols formed the main theme of his address.—ANON. *Perfumery Essent. Oil Record*, 27 (1936), 424. (A. C. De D.)

Polymeric Carboxylic Acids—Salts of, Such as Polacrylic Acid. Salts of a heterocyclic tertiary base such as quinine, nicotine or methylene blue and a polymeric carboxylic acid such as polyacrylic acid may be used as medicines, insecticides or dyes.—MAX HAGEDORN, assignor to I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT. U. S. pat. 2,054,903, Sept. 22, 1936. (A. P.-C.)

Quinoline Compounds. Therapeutic compounds of the general formula



where X stands for hydrogen or methyl, and R_3 for an alkylene radical with at least two carbon atoms, forming water-soluble hydrochlorides, are obtained by several described methods. The two quinoline nuclei may be substituted in 2-position by methyl. There may also be used the quinolines unsubstituted in 2-position. The alkylenediamines thus obtained, the two nitrogen atoms of which contain a 4-aminoquinolyl radical each, have bactericidal and trypanocidal action.—HEINRICH JENSCH, assignor to WINTHROP CHEMICAL CO. U. S. pat. 2,050,971, Aug. 11, 1936. (A. P.-C.)

Resorcinol—Detection of, in Phenol. A few drops of aqueous 4-diazophenol-3, 5-disulfonic acid and of concentrated aqueous ammonia are added to aqueous 1% phenol or cresol, when a red coloration is obtained in presence of not less than 10^{-5}% of resorcinol.—V. I. CUZNETZOV. *Anilinokras. Prom.*, 5 (1935), 218; through *J. Soc. Chem. Ind.*, 55 (1936), B., 440. (E. G. V.)

Saligenin—Production of. The following method was devised in obtaining saligenin: One part of phenol was mixed with one part of a 45% solution of formaldehyde, 0.5 part of calcium oxide and 2.5 parts of alcohol. This mixture is left standing in the air until the odor of formaldehyde disappears completely. A small amount of acetic acid is added and the mixture extracted with ether. The residue obtained from the ether extract is recrystallized first from benzene and finally from water. The yield of saligenin is about 15%.—I. M. ROTBART and D. G. KOLESSNIKOW. *Chem. Zentralb.*, 107 (1936), 1261. (G. B.)

Tertiary Butylacetic Acid—Esters of. Various of these esters are suitable for therapeutic use as hypnotic, sedative or soporific agents, and details are given for the production of: methyl ester, boiling at 126.5° C. under 739 mm.; ethyl ester, boiling at about 144.5° C. under 739 mm.; propyl ester, boiling at 92° C. under 65 mm.; isopropyl ester, boiling at 94° to 95° C. under 110 to 112 mm.; butyl ester, boiling at 91° C. under 30 mm.; secondary butyl ester, boiling at 104° to 105° C. under 80 mm.; 4,4-dimethyl-2-pentanol ester, boiling at 92° to 94° C. under 7 to 8 mm.; allyl ester, boiling at 104° to 105° C. under 110 to 112 mm.; benzyl ester, boiling at 146° to 148° C. under 26 mm.; bornyl ester, boiling at 115° to 117° C. under 5 mm., and menthyl ester, boiling at 114° to 115° C. under 4 to 4.5 mm.—FRANK C. WHITMORE and AUGUST H. HOMEYER, assignors to MALLINCKRODT CHEMICAL WORKS. U. S. pat. 2,052,995, Sept. 1, 1936. (A. P.-C.)

Tetraalkyl Barbituric Acids. The following barbituric acids, namely, 1,3,5-triethyl-5-phenyl,1-methyl-3-phenyl-5-ethyl-5-propyl, 1-methyl-3-benzyl-5, 5-diethyl-1,5,5-triethyl-3-benzyl, 1,3 - dimethyl - 5 - ethyl - 5 - hexyl, 1,3 - dimethyl - 5 - ethyl - 5 - isoamyl and 1,3 - dimethyl-5-ethyl-5-(1-methylbutyl) were prepared. No physiological tests are reported.—ARTHUR W. DOX. *J. Am. Chem. Soc.*, 58 (1936), 1633. (E. B. S.)

Thalleioquin Reaction—Quinone Formation in the. A New Preparation of Quinoline-o-Quinone. Detailed procedures for preparing 6-hydroxyquinoline, quinoline-*o*-quinone and a quinone compound from aniline are given.—GEORGE W. HARGREAVES. *J. Am. Pharm. Assoc.*, 25 (1936), 975. (Z. M. C.)

Thiobarbiturates. II. Twenty 5,5-disubstituted thiobarbituric acids have been prepared. The method of preparation corresponds to that used for the oxygen analogs, but higher yields

are obtained. The results of pharmacological studies are not given.—ELLIS MILLER, JAMES C. MUNCH, FRANK S. CROSSLEY and WALTER H. HARTUNG. *J. Am. Chem. Soc.*, 58 (1936), 1090. (E. B. S.)

Thymol Derivatives of Possible Medicinal Value. Report is made of the preparation of thymol derivatives which might have medicinal value. Experimental procedure is given in detail. Nitroso-thymol was prepared by a modified Klages method. Unusual color changes were noted and some equations are given as a possible explanation. Aminothymol was prepared by the Liebermann-Illinski method. Analysis showed low percentage of nitrogen probably due to oxidation. An attempt to produce aminothymol by diazotization failed. Aminothymol was acetylated by the Chattaway procedure, and from the product was separated a new diacetyl derivative.—F. A. GILFILLAN and JOHN R. MERRITT. *J. Am. Pharm. Assoc.*, 25 (1936), 860. (Z. M. C.)

Trans-π-Hydroxycamphor—Process for Preparing Optically Active. Optically active trans-π-hydroxycamphor is prepared from α-π-(trans)-dihalogen camphor by heating the raw material in a lower aliphatic acid with an alkali metal salt of the corresponding acid so as to convert the material into α-halogen-π-acyl-hydroxycamphor, and heating the product with zinc powder in alcohol whereby the product is reduced and saponified.—EMIL H. BALZ, assignor to PLASKON CO. U. S. pat. 2,056,441, Oct. 6, 1936. (A. P.-C.)

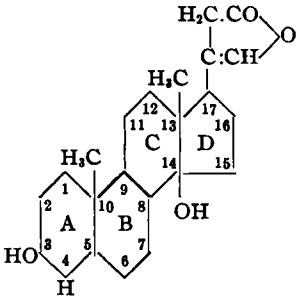
Urea—Production of Synthetic. The commercial manufacture of urea from carbon dioxide and ammonia is described. A 50% yield of 99.9% pure urea is obtained by interaction for two hours at 150° and 130 atmospheres.—G. FAUSER. *Mat. Plast.*, 3, (1936), 7; through *J. Soc. Chem. Ind.*, 55 (1936), B., 536. (E. G. V.)

Urea and Thiourea Derivatives. Compounds such as N-phenyl-N′-diethylaminoethoxyphenylthiourea hydrochloride (m. p. 190° C.), N-phenyl-N′-diethylaminoethoxyphenylthiourea hydrochloride (m. p. 161° to 163° C.), hydrochloride of symmetrical bis-diethylaminoethoxyphenylurea (m. p. 127° C.), N-allyl-N′-diethylaminoethoxyphenylthiourea hydrochloride, diethylaminoethoxyphenylthiourea (m. p. 101° C.), the dihydrochloride of N-cyclohexyl-N′-(*p*-diethylaminoethoxyphenyl)-thiourea (decomposing at 210° to 212° C.), and other compounds of the general formula p-(RNHC(:X)NH)$C_6H_4OC_2H_4N(C_2H_5)_2$, where X is oxygen or sulfur and R is hydrogen, an unsaturated lower alkyl, phenyl, hexahydrophenyl, 4-butylphenyl, 4-hydroxyphenyl, 4-(diethylaminoethyloxy)-phenyl, 2-methyl-3-chlorophenyl or α-chloronaphthyl, are prepared in various ways. It is possible to start from primary or secondary amines of the aromatic, heterocyclic or aromatic-heterocyclic series containing at least one basic side chain, the basic nitrogen of which is bound to an aliphatic radical, and to transform these compounds into urea or thiourea derivatives, *e. g.*, by causing them to react with compounds such as potassium cyanate or potassium rhodanate or the like, as well as with isocyanate, such as phenyl isocyanate, phenyl mustard oil or the like, or with urea or thiourea chlorides, etc. By starting from amino compounds containing in the molecule only one amino group, the urea- or thiourea-groups in the reaction products are combined with aromatic, heterocyclic and aromatic-heterocyclic nuclei so as to have the form of a chain. If the starting materials, however, contain several amino-groups in the molecule espccially in ortho position, cyclic urea and thiourea derivatives are obtained, such as phenylene urea or phenylene thiourea (benzimidazolones and thiobenzimidazoles).—MAX BOCKMÜHL, WALTER PERSCH and ERICH BARTHOLOMAÜS, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,050,557, Aug. 11, 1936. (A. P.-C.)

Urethanes as Local Anesthetics. III. Alkyl N-(8-Quinolyl) Carbamates. Eight alkyl N-(8-quinolyl) carbamates, in which the alkyl radical varied from methyl to *n*-hexyl are reported. The methyl and ethyl derivatives produced local anesthesia for a short time. All the compounds were irritating.—R. E. DAMSCHROEDER and R. L. SHRINER. *J. Am. Chem. Soc.*, 58 (1936), 1610. (E. B. S.)

Uzarigennins—Constitution of. Careful analysis revealed the fact that many derivatives of uzarigennins can be formed with 2 H atoms instead of H as in the past. Contrary to the presumption of other investigators it was established that anhydrouzarigennin takes up only two molecules of hydrogen. The former hexahydro derivatives are regarded as tetrahydro derivatives. Uzarin takes up one mole of hydrogen during the catalytic reaction and is formulated as follows: $C_{35}H_{54}O_{14} + 2H_2O$. This hydrolyzes as follows: $C_{35}H_{54}O_{14}\cdot 2H_2O \longrightarrow C_{23}H_{32}O_3 + 2C_6H_{12}O_6$

+ H_2O. The line formula of α- and β-anhydrouzarigennin is $C_{23}H_{32}O_{11}$, of the acetate: $C_{25}H_{34}O_4$. Uzarigennin has the following structural formula:



The stereochemical arrangement of the OH group is at the C-atom 3; this arrangement is different from other gennins and does not fall in the class of the digitonin compounds. α-Anhydrouzarigennin is a double bond derivative. Because there is a possibility of an iso-uzarin derivative, the tertiary (OH) group is attached to the C_{14} atom. In the α- and β-anhydrouzarigennin the C:C bond is at one time between C_{14} and C_{15}, at another between C_8 and C_{14}. Uzare compounds were obtained by hydrolyzing anhydrouzarigennins; *α-anhydrouzarigennin benzoate*, m. p. 261–262°; *α-anhydrouzargenon* was obtained from α-anhydrouzarigennin with chromic oxide, separates in prisms from acetic acid, m. p. 255°; *oxime*, $C_{23}H_{31}O_3N$, in crystalline form, m. p. 283–285°; *semicarbazone*, $C_{24}H_{33}O_3N_3$ in needles, m.p.266–268°. α-Anhydrouzarigennin acetate takes up 2 moles of hydrogen during the catalytic (reduction) reaction. Isouzarin $C_{35}H_{54}O_{14}$ + $3H_2O$ was obtained by boiling uzarin with methyl alcohol and potassium hydroxide, and acidified; needle-like crystals separate, m. p. 240°.—R. TSCHESCHE and K. BOHLE. *Chem. Zentralb.*, 107 (1936), 777. (G. B.)

Vanillin—Process for, and like Alkoxy-Hydroxybenzaldehydes. A process for the production of vanillin and like alkoxy-hydroxybenzaldehydes comprises oxidizing a 4-hydroxy-3-alkoxyphenyl glycollic acid to the corresponding 4-hydroxy-3-alkoxybenzaldehyde by heating in an aqueous solution of caustic alkali with an aryl nitro compound in which the aryl group does not contain any negative substituent. Several examples are given.—EWART NATHER and WM. E. HAMER, assignors to the MONSANTO CHEMICALS, LTD., London. British pat. 453,482. *Perfumery Essent. Oil Record*, 27 (1936), 407. (A. C. DeD.)

BIOCHEMISTRY

Acetonic Compounds in Urine and in Blood—Semi-Micro Method for the Determination of Different. The principle of the method consists in converting all the acetonic compounds into acetone, converting the latter into iodoform by treatment with caustic soda and excess iodine, and titrating the excess iodine with sodium thiosulfate. *Preformed Acetone.*—Treat the urine with iodine in presence of caustic soda, distil by entrainment with air into a flask containing standard iodine and caustic soda, acidify, and titrate the excess iodine using starch indicator. *Preformed Acetone + Diacetic Acids.*—Dilute the sample with water, add sulfuric acid and vaseline, distil, collecting the distillate in standard iodine and caustic soda, acidify, titrate with sodium thiosulfate and calculate diacetic acid by difference. *β-Hydroxybutyric Acid.*—After defecation proceed as for total acetone; when 10 cc. of distillate have been collected change the receiver after having added a 2% potassium dichromate solution to oxidize β-dihydroxybutyric acid to diacetic acid, redistil the second distillate after addition of caustic soda and hydrogen peroxide, add excess of standard iodine and titrate the excess. *Acetonic Compounds in Blood.*—Precipitate albuminoids, acidify the filtrate, distil; after 10 cc. have been collected add potassium dichromate solution in the distillation flask and change the receiver; determine acetone by titration in both distillates.—H. SCHMIDT-HEBBEL. *Rev. Estud. Farm. Bioquim.* (*Buenose-Aires*), 25 (1935), 526–528; through *Chimie & Industrie*, 36 (1936), 288. (A. P.-C.)

Alcohol in Blood—Determination of, Method for. Modifications in Widemark's technic are described, consisting of a change of construction of distillation flasks, special apparatus holders, and heating to a higher temperature. Concentrations of 0.1–8.0 per 1,000 may be determined in

blood, urine and cerebrospinal fluid.—U. A. POVORINSKY and I. V. KANTOROVICH. *Arch. sci. biol., St. Pétersb.*, 40 (1935), 155; through *Physiol. Abstr.*, 21 (1936), 598. (E. V. S.)

Antirachitic Vitamin—On the Formation of a Sulfate Salt of. A method is described for the formation of a sulfate salt of vitamin D from a cod liver oil concentrate. The method promises a means of obtaining a high concentration of the vitamin from natural sources.—ALBERT E. SOBEL, GILBERT GOLDSTEIN and BENJAMIN KRAMER. *J. Am. Chem. Soc.*, 58 (1936), 1056. (E. B. S.)

Antirachitic Substances. A sterol-containing substance such as provitamin-low cholesterol is subjected to a mild oxidation treatment (suitably with hydrogen peroxide or benzoyl peroxide) to increase the provitamin content but limited to avoid destruction of the provitamin and the material is subsequently irradiated with ultraviolet light.—JAMES WADDELL, assignor to E. I. DU PONT DE NEMOURS AND CO. U. S. pat. 2,056,992, Oct. 13, 1936. (A. P.-C.)

Antitoxins—Method for the Purification of. Antitoxin contained in a solution of serum proteins is purified by adding a proteolytic enzyme to the solution and digesting the greater part of the serum proteins without substantial destruction of the antitoxin, the digestion being carried out under acid conditions but at an acidity not greater than that corresponding to p_H 4.—IVAN A. PARFENTJEV. U. S. pat. 2,065,196, Dec. 22, 1936. (A. P.-C.)

Arsenic in Must and Wine—Micro-Determination of. Arsenic is isolated as arsenious chloride, converted into arsenic acid, and determined colorimetrically by Zinzadze's method. A modification is described for amounts of arsenic between 0.01 and 0.05 mg. which adds considerably to the accuracy. The method is suitable for serial determinations on foodstuffs, etc.—J. BURKARD and B. WULLHORST. *Z. Unters. Lebensm.*, 70 (1935), 308; through *J. Soc. Chem. Ind.*, 55 (1936), B., 119. (E. G. V.)

Ascorbic Acid—Precipitation and Color Reaction for. Specificity of Acidified Sodium Selenite Solution. Carbohydrates reduce alkalinized selenite solution on heating; thiocompounds, including cysteine and glutathione, reduce the neutral and alkaline solution cold but the acid solution only, when heated. Many other reducing substances reduce also the acid solutions when hot. Ascorbic acid differs in that it reduces the acid selenite solution at room temperature. The reaction is characterized by the appearance of a brick-red color of free selenium.—VICTOR E. LEVENE. *Proc. Soc. Expil. Biol. and Med.*, 35 (1936), 231. (A. E. M.)

Ascorbic Acid—Test of, Value of Acid Silver Nitrate Reaction as. It is emphasized that the absence of a coloration caused by acid silver nitrate in an organ being tested for vitamin C does not necessarily mean the absence of ascorbic acid, but a positive reaction is a very specific test for this substance. Negative results in organs known to be rich in the vitamin are explained by the presence of substances which inhibit the reducing action.—A. GIROUD and C. P. LEBLOND. *Nature*, 138 (1936), 247; through *Scient. Abstr.*, 7 (1936), 132. (E. V. S.)

Ascorbic and Iso-ascorbic Acids—Reaction of, with Ferrous Salts. The deep blue compound formed when ascorbic or iso-ascorbic acid is allowed to react with ferrous salts in weakly alkaline solution in the presence of air has been prepared. Its solutions are stable in the absence of air, but if air has access to the solution ferrous oxalate is deposited in about 50% yield. The residual solution after removal of iron can be shown to contain a strongly reducing substance which gives an amorphous precipitate with phenylhydrazine. It does not contain ascorbic or iso-ascorbic acids.—K. MAURER and B. SCHIEDT. *Biochem. Z.*, 285 (1936), 67; through *Physiol. Abstr.*, 21 (1936), 604. (E. V. S.)

Barbital—Approximative Rapid Determination of, in Urine and Drugs. Positive qualitative tests for barbital in urine do not justify diagnoses of barbital poisoning because of the prolonged retention in the body of this drug and its derivatives following their administration. The Zwikker reaction, as modified by Koppanyi, permits the rapid determination of small quantities (20γ per cc.) of barbital in the urine. Ten cc. of urine are acidified with several drops of 0.1N hydrochloric acid and shaken vigorously in a small separatory funnel for 15 seconds with 20 cc. of chloroform. The chloroform layer is passed through a tough filter moistened with chloroform and 2 cc. of the clear, almost colorless filtrate are added to each of three test-tubes: A, B and C. A 0.2% solution of cobalt acetate in absolute methyl alcohol is added in the following amounts: to A, 0.05 cc., to B, 0.1 cc. and to C, 0.15 cc. After shaking, a 0.2% solution of lithium hydroxide is added in the same proportion. All solutions must be measured from micro-apparatus. An intensive blue coloration in all three tubes or in B and C indicates more than 20 mg. p. c. of a

barbituric acid derivative in the urine (1 cc. of chloroform extract = about 0.1 mg. barbital). If A and B are positive, and C negative, the urine contains about 10 mg. p. c. barbituric acid. If only A is clearly positive, about 5 mg. p. c. is present. In case all three or only B and C are positive, the remainder of the chloroform solution is diluted with an equal volume of chloroform and again tested.—H. OETTEL. *Arch. Pharm.*, 274 (1936), 1. (L. L. M.)

Blood—Preservation of. To preserve the blood and prevent it from coagulating, the following method was found to be applicable: the vessels or containers were coated with a thin layer of a 2–3% solution of either agar-agar, gelatin or a solution of flexible collodion to which a sterilization substance like 2-aminonaphthaline-3,6,8-trisulfonic acid has been previously added.—W. A. BAGDANOW and W. D. JANKOWSKI. *Chem. Zentralb.*, 107 (1936), 1265. (G. B.)

Bromine—Contributions to Biochemistry of. Bromine was determined by a modification of the Frances and Harvey alkaline ashing procedure and Yates chromic-sulfuric method of oxidizing to free bromine, which is aspirated off and determined iodimetrically; extensive tests of the accuracy of the method are cited. Many analyses of marine algæ, land plants and marine invertebrates and fishes are reported. In the rat, rabbit and dog, the thyroid and the blood contain rather more bromine (about 0.004% of dry weight) than other organs. The bromine content of the thyroid is less than, and not related to, its iodine content; thyreoglobulin is not especially rich in bromine. The methods and results of other workers are discussed; the view that the hypophysis is notably rich in bromine is rejected.—A. H. NEUFELD. *Canad. J. Res.*, 14 (1936), 160; through *Physiol. Abstr.*, 21 (1936), 489. (E. V. S.)

Citric Acid—Formation of, from Inulin. The formation of citric acid from inulin with fungus stocks has been observed by only a few authors. A very brief review of the literature is given. Although the reddition is rather low, yet this is the first example of the formation of citric acid from inulin using stocks of Penicillium. The transplanting of the stocks was made on agar glucose (3%). The composition of the liquid culture was as follows: sodium nitrate 3.15 Gm., magnesium sulfate 0.79 Gm., potassium chloride 0.16 Gm., phosphoric acid 0.09 Gm., distilled water 3.15 liters. To the liquid culture solution was added 5% inulin (previously dried at 100°), then divided into 100-cc. quantities, placed in neutral glass containers of 300 cc. capacity and tyndallized at 60–70°. The sowing was done with culture on 10-day agar glucose. The temperature varied from 22° to 25°. At the end of the period of fermentation (25, 50 or 75 days) the fungus was separated by filtration from the liquid culture, washed a few times with hot water, and the washings added to the filtrate. From aliquot parts there is portioned the acid (indicator phenolphthalein) and the inulin residue. A table showing the data referable to 100 cc. of culture is given. The citric acid was isolated from the liquid in the form of barium citrate and characterized with Dènigés' reagent. There was a better yield with the *Penicillium luteum purpurogenum* than with *Penicillium crustaceum* (L.) Fries.—DINO PINTE. *Giorn. farm. chim.*, 84 (1935), 164. (A. C. DeD.)

Corpus Luteum Hormone—Synthesis of, from Cholesterol. The synthesis from cholesterol is by dehydration to cholestenon (an unsaturated ketone), bromination and oxidation with permanganate, whereby the side chain is broken down. The crystalline material satisfied the Allen-Corner-Hohlweg test for specificity.—N. TAVASTSTYERNA. *Arch. sci. biol., St. Pétersb.*, 40 (1935), 193; through *Physiol. Abstr.*, 21 (1936), 601. (E. V. S.)

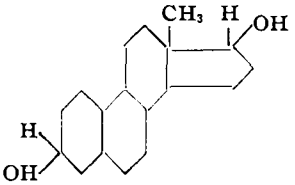
Emulsin—Studies on the Action of. III. Some Sources of Error in the Polarimetric Examination of Enzymic Hydrolysis of β-Glucosides. The following sources of error are described: A difference of 3–4% in the rotation of solutions of glucose and glucosides at p_H 10.5 and 4.4; a decrease in the rotation of solutions of glucose with time when kept at p_H 10.5–10.6; differences in the "standard" salicin solutions used; the use of toluene, which raises the reaction constants of solutions of β-glucosides by 25–35%.—S. VEIBEL and F. ERIKSEN. *Biochem. J.*, 30 (1936), 163; through *Physiol. Abstr.*, 21 (1936), 501. (E. V. S.)

Ethyl Alcohol in Blood—Determination of, Simple Method for. A method is described for estimating the alcohol in 0.05 cc. of blood. It consists in adding blood to potassium bichromate in sulfuric acid and comparing the resultant color change with a series of standards.—J. C. ABELS. *Proc. Soc. Exp. Biol.*, N. Y., 34 (1936), 346; through *Physiol. Abstr.*, 21 (1936), 598. (E. V. S.)

Follicle Hormone and Its Ester—Concentrated Solutions of. Highly concentrated solutions of a follicle hormone and its ester are prepared by dissolving the hormone and a phenol ester

in a volatile organic solvent, mixing the solution with a suitable amount of a vegetable oil and removing the volatile solvent by evaporation.—FRIEDRICH HILDEBRANDT, assignor to SCHERING-KAHLBAUM A. G. U. S. pat. 2,064,114, Dec. 15, 1936. (A. P.-C.)

Follicle Hormones—Method for the Production of Hydrogenation Products of. Hydrogenation products of the follicle hormones, having the general formula $C_{18}H_{30}O_2$ and containing two secondary alcohol groups in their molecule, are produced by causing the reduction products of the follicle hormones, having the general formula $C_{18}H_{24}O_2$ and containing one secondary alcohol and one phenol group in their molecule, to react with activated hydrogen under such conditions that the benzene nucleus in the molecule is hydrogenated while no oxygen is split off from the starting material. The product shows a pronounced effect in the capon comb test and has the following structural formula:



—FRIEDRICH HILDEBRANDT and ERWIN SCHWENK, assignors to SCHERING-KAHLBAUM A. G. U. S. pat. 2,060,312, Nov. 10, 1936. (A. P.-C.)

Hormones—Process for Purifying. A preparation containing corpus luteum hormones is made to react with a reagent that is specific for the keto group; the unreacted portions are separated by means of solvents from the reaction product and the latter is decomposed by hydrolyzing agents to liberate the hormones.—MAX HARTMANN and ALBERT WETTSTEIN, assignors to SOCIETY OF CHEMICAL INDUSTRY IN BASLE. U. S. pat. 2,062,904, Dec. 1, 1936. (A. P.-C.)

Insulin—Action of Various Reagents on. Crystalline insulin was inactivated by a variety of chemical reagents and its amino-N (Van Slyke method) and cystine (Sullivan method) content determined in each case. No quantititative relationship was found between either of these and the degree of inactivation, although with all the reagents used other than acid alcohol and hydriodic acid (anaerobically), both amino-N and cystine decreased with inactivation. The results in general support the view that the hypoglycemic property of insulin is associated with its dithio and some free amino groupings (probably as cystine).—H. JENSEN, E. A. EVANS, JR., W. D. PENNINGTON and E. D. SCHOCK. *J. Biol. Chem.*, 114 (1936), 199; through *Physiol. Abstr.*, 21 (1936), 600. (E. V. S.)

Iron—Metabolism of. A review.—E. NOLTE. *Arch. Pharm.*, 274 (1936), 107. (L. L. M.)

Knoop's Histidine Reaction in Urine. The optimum conditions for the reaction are as follows: to 4 cc. of urine (acidified if necessary to a p_H of 4.5 to 5.5) add 1 cc. of bromine water (1 part saturated bromine water and 2 parts water), heat to boiling for a few sec., add 2 cc. of amyl alcohol and shake. In presence of histidine the alcohol turns violet. The reaction is generally positive in cases of pregnancy; but in such cases it does not seem to be due to the presence of histidine.—P. E. SIMOLA and V. MÄNTYLÄ. *Suom. Kemistil.* (*B*), 9, No. 2 (1936), 4–5; through *Chimie & Industrie*, 36 (1936), 289. (A. P.-C.)

Lecithin—Influence of Narcotics on the Salt-Binding Capacity of. Lecithin binds salts in proportion with time of contact and dispersity of the solution. Ether, chloroform and alcohols decrease the salt-binding capacity. This effect increases with the length of the chain of the alcohols.—MONA SPIEGEL-ADOLF. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 263. (A. E. M.)

Male Sex Hormones. A review.—LEOPOLD RUZICKA. *Drug and Cosmetic Ind.*, 39 (1936), 443, 476, 491. (H. M. B.)

Marine Products—Nutrient Value of. IV. Vitamin A Content of Commercial Pilchard Oil. The oil contains a substance promoting the growth of rats receiving a vitamin-A-deficient diet.—D. B. FINN. *Contr. Canad. Biol. Fish.*, Reprint 13, 6 (1931), 9 pp.; through *J. Soc. Chem. Ind.*, 55 (1936), B., 122. (E. G. V.)

Pernicious Anemia Principle—Studies of, in Liver. III. The Isolation and Properties

of a Substance with Primary Therapeutic Activity. The isolation of a crystalline substance, as a sulfate, from commercial liver extract in a yield of 2 mg. from 100 Gm. of fresh liver is described. This fraction, which is not known to be a definite single compound, shows therapeutic activity in pernicious anemia.—Y. SUBBARON, BERNARD M. JACOBSON and VILMA PROCHOWNICK. *J. Am. Chem. Soc.*, 58 (1936), 2234. (E. B. S.)

Progesterone—Corpus Luteum Hormone. α- and β-Progesterone are polymorphic crystal modifications of one and the same chemical substance. They are identical in solution. No difference could be observed in their action either on infantile rabbits previously treated with follicular hormone or on adults. Mixture of the two forms exhibited no increased activity.—W. HOHLWEG and J. SCHMIDT. *Klin. Wochschr.*, 15 (1936), 265; through *Physiol. Abstr.*, 21 (1936), 573. (E. V. S.)

Salicylates—Rapid Determination of, in Urine. The specimen should contain between one and five mg. of salicylic acid. Heat with one drop of concentrated sodium hydroxide solution for one hour to hydrolyze esters; acidify with 1:4 sulfuric acid and wash into a Van Slyke apparatus; add a sodium bromide solution saturated with bromine and after one minute 0.5 cc. of saturated potassium iodide solution. One cc. of carbon dioxide developed is equivalent to 6.15 mg. salicylic or 8.03 mg. acetylsalicylic acid.—WM. B. BRADLEY. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 1. (A. E. M.)

Schlesinger Urobilin Reaction—Influence of Drugs on. In a sample of urine that otherwise appeared normal, the author obtained the characteristic green fluorescence upon the addition of the alcoholic suspension of zinc acetate and filtering (Schlesinger Reaction). The liquid had a lemon yellow color, whereas the color exhibited by normal urine and urine containing urobilin is more or less brownish yellow. This led to the supposition that the fluorescence might be due to certain drugs, such as acriflavine, which had been taken by the patient. Two questions therefore became evident: when used internally is acriflavine secreted unaltered in the urine and if so, how can the fluoresence due to the acriflavine be distinguished from that due to urobilin, if present? A series of experiments on healthy persons given 6 mg. of acriflavine in the evening resulted in a marked fluorescence when their urine was treated by the Schlesinger reaction the following morning. Several identity tests for acriflavine and related compounds such as typaflavine, euflavine and proflavine were investigated. These included precipitation reactions with sodium salicylate, potassium ferricyanide, potassium dichromate, etc. It was found, however, that after precipitation with these reagents and subsequent filtration there still remained some fluorescence; that sodium hypochlorite and iodine-potassium iodide solutions precipitated the compound leaving a non-fluorescent filtrate; that when a positive Schlesinger reaction is obtained it should be repeated with the addition of a few drops of iodine-potassium iodide solution. If acriflavine is present the fluorescence will disappear, if urobilinogen is present the reaction will be enhanced.—J. J. HOFMAN. *Pharm. Weekblad*, 73 (1936), 1417. (E. H. W.)

Sorbitol—Detection of, in Sweet Wines. Sugar may be precipitated as calcium saccharate and sorbitol detected in the filtrate. Sorbitol is neither appreciably attacked, nor is it produced, if the procedure recommended is adhered to.—C. VON DER HEIDE and W. ZEISSET. *Z. Unters. Lebensm.*, 70 (1935), 383; through *J. Soc. Chem. Ind.*, 55 (1936), B., 167. (E. G. V.)

Sulfur—Determination of, in Biological Fluids. Sulfur is estimated in biological fluids by adding an equal volume of 20% solution of trichloroacetic acid and filtering from the precipitated protein. Thereafter the procedure is as described by Cuthbertson and Tompsett (*Biochem. J.*, 25 (1931), 1237) except that the benzidine sulfate precipitate is washed with an 80% solution of acetone in water without decantation. In the colorimetric part of the determination, the color is developed by adding 1 cc. of 0.1% solution of sodium nitrite to the benzidine sulfate precipitate dissolved in $N/1$ hydrochloric acid, followed by 5 cc. of a solution containing 0.5% of thymol and 10% of sodium hydroxide. It is immaterial whether serum or plasma is used for the determination of inorganic sulfur in blood, as no breakdown of organic sulfur takes place during separation of the serum. The serum inorganic sulfur in non-nephritic patients was found to be between 1 and 4 mg. per 100 cc.; while in chronic interstitial nephritis values up to 35 mg. per 100 cc. were obtained; the whole of this sulfur being ultrafiltrable. In normal ventricular and cerebrospinal fluids the sulfur was about one-quarter to one-third of the serum value, while in tuberculous meningitis the cerebrospinal sulfur tended to rise and approach the serum value.—E. WATCHORN

and R. A. McCance. *Biochem. J.*, 29 (1935), 2291; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 324. (S. W. G.)

Urinary and Plasma Protein and Albumin—Colorimetric Determination of. For total protein in urine, 1 to 10 cc. of the sample is transferred to a 15-cc. centrifuge tube and adjusted to 10 cc. if necessary, 1 cc. of a 50% solution of trichloroacetic acid is added, and the whole mixed. The tube is allowed to stand for ten minutes at room temperature, then for ten minutes in a water-bath at 50° C. and finally centrifuged for ten to thirty minutes. The supernatant liquid is decanted, and the residue washed four times with 4% trichloroacetic acid solution, mixing well each time, and standing in a water-bath before centrifuging as before. The precipitate is dissolved in 1 to 2 drops of 10% sodium hydroxide solution, adjusted to 10 cc. and the nitrogen content of an aliquot part determined by the method of Folin and Wu (*J. Biol. Chem.*, 38 (1919), 81), but heating strongly for the first thirty seconds after fuming commences, and centrifuging the Nesslerized solution to obtain a clear liquid for colorimetric determination. For albumin in urine, 10 to 40 cc. is added to 5 cc. of a buffer solution (p_H 7.0), and 11.02 Gm. of anhydrous neutral sodium sulfate in a 50-cc. flask, and adjusted approximately to the mark. The whole is heated at 45° C. until all the salt is dissolved, cooled and adjusted accurately to 50 cc. After one hour the suspension is filtered through a double filter paper until clear and the determination is continued as for total protein using 5 to 10 cc. of the filtrate. For total protein in plasma, 1 cc. is diluted to 100 cc. and the total nitrogen determined in 2 cc. of this solution; by subtracting non-protein nitrogen from the figure obtained, the total protein nitrogen is given. For albumin in plasma, 1 to 2 cc. is placed in a flask with 2 cc. of a buffer solution (p_H 7.0), sufficient solution of sodium sulfate to make the final concentration 22.05% is added, and the mixture is made up to 50 cc. with water allowed to stand for one hour and filtered until clear. The nitrogen determination as for urine is performed upon 10 cc. of the filtrate, omitting the washings and using 2 cc. of the final protein solution of estimation. The urine proteins may be fractionated by adding 5 cc. of a buffer solution (p_H 7.0) and 10 to 40 cc. of urine to each of five flasks containing, respectively, 5.35, 7.1, 8.9, 11.02 and 12.1 Gm. of anhydrous sodium sulfate, adjusting to 50 cc. and warming to 37° C. for one hour. Each solution is filtered, and the nitrogen in each filtrate determined. From the results obtained and the total protein nitrogen found:

Total nitrogen—nitrogen (fraction 1) = fibrinogen nitrogen.
Nitrogen (fraction 1)—nitrogen (fraction 2) = euglobulin nitrogen.
Nitrogen (fraction 2)—nitrogen (fraction 3) = pseudoglobulin I nitrogen.
Nitrogen (fraction 3)—nitrogen (fraction 4) = pseudoglobulin II nitrogen.
Nitrogen (fraction 4)—nitrogen (fraction 5) = albumin I nitrogen.
Nitrogen (fraction 5) = albumin II nitrogen.

The methods are accurate to within 5%. Details of preparation of the buffer solution (p_H 7.0) and of a stock sodium sulfate solution are also given.—H. Berglund and W. de M. Scriver. *Acta med. scand.*, 86 (1935), 82; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 325. (S. W. G.)

Vitamin A Content—Control of, of Cod Liver Oils. Extremes of 200 and 3,450 have been observed for the A values of different cod liver oils. The determination of the spectral absorption at 3280 Å. only (as in certain commercial apparatus) is not a reliable indication of the A potency, as it does not allow for the possible presence of oxidation products of the vitamin which cause a displacement of the absorption maximum; it is necessary to plot the whole absorption curve. It is also essential to avoid decomposition of the vitamin (*e. g.*, by irradiation) during the assay.—A. Chevallier. *Ann. chim. anal.*, [iii], 18, (1936), 93; through *J. Soc. Chem. Ind.*, 55 (1936), B., 558. (E. G. V.)

Vitamin A Content of Pilchard Oil—Spectroscopic Determination of. Results obtained by calculation from the extinction coefficient of the oil (328 mμ), using the conversion factor for cod liver oil, were much greater than those of biological tests. The discrepancy is not entirely explained by the presence of coloring matter or of saponifiable substances in the oil.—G. M. Shrum and T. G. How. *Canad. J. Res.*, A, 13 (1935), 93; through *J. Soc. Chem. Ind.*, 55 (1936), B., 242. (E. G. V.)

Vitamin A Deficiency—Clinical Test for. The author points out that any degree of vitamin A deficiency has hitherto been measured by biological, colorimetric and spectroscopic tests, none of which is suitable for the clinician. In conjunction with an ophthalmologist, C. Edmund,

the author has devised a test, the details of which he proposes to give in a later publication. In principle it depends upon the determination of the weakest light stimulus which will give rise to an oculomotor reflex. Earlier investigations have shown that hemeralopia due to vitamin A deficiency can be indicated and even measured in school children by their response to certain vision tests, but this system is defective in so far as it depends on the subjective judgment of the children examined. The author's test for hemeralopia and vitamin A deficiency is quite objective, and can be carried out on infants who, when normal, react with remarkable uniformity to a light stimulus of given intensity. In the course of oculomotor reflex tests of many infants the author has found that the existence or non-existence of hemeralopia can be ascertained with remarkable accuracy. His test indicates the degree of latent vitamin A deficiency in which no improvement followed the administration of various preparations rich in vitamin A. It was not till the infant was given human milk that the oculomotor reflex was rapidly restored to normal.—C. FRIDERICHSEN. *Hospitalstidende* (July 7, 1936), 689; through *Brit. Med. J.*, 3953 (1936), 744A. (W. H. H.)

Vitamin A Preparations—Stabilized. Materials such as halibut liver oil, carotene or irradiated ergosterol, are stabilized by adding phospholipins such as soybean lecithin, cephalin, cuorin or sphingomyelin, etc., suitably in a proportion of about 1%.—HARRY N. HOLMES, assignor to PARKE, DAVIS and Co. U. S. pat. 2,051,257, Aug. 18, 1936. (A. P.-C.)

Vitamin A in the Urine. The authors have found no record of excretion of vitamin A in the urine, save in one case of chyluria. Using the Carr-Price test they had positive results in ten patients who had been given vitamin A orally or by intramuscular injection. Of twelve patients with carcinoma or sarcoma five excreted vitamin A in the urine, one previous to and four after its administration. Of thirty patients without malignant disease five gave a positive test after the exhibition of vitamin A.—R. BOLLER and O. BRUNNER. *Klin. Wochschr.* (Aug. 1, 1936), 1106; through *Brit. Med. J.*, 3953 (1936), 744D. (W. H. H.)

Vitamin B_1—Synthesis of. Equations for the synthesis of vitamin B_1 are given. The compound is identified, but details of the procedure are not included.—R. R. WILLIAMS and J. K. CLINE. *J. Am. Chem. Soc.*, 58 (1936), 1504. (E. B. S.)

Vitamin C—Detection of, in the Cell. Szent-Györgyi had shown that the suprarenal cortex macroscopically blackens with silver nitrate and contributed this reducing action to the presence of vitamin C. The authors have found that this reaction can be used histologically to detect vitamin C in the cells of various tissues. The method is not described in detail except that the silver nitrate is acidified and the specificity of the reaction is diminished by heat and light. The reaction results in the formation of blackened granules either about the Golgi bodies or distributed through the cytoplasm. It occurs abundantly in the suprarenal cortex, corpus luteum, interstitial cells of the testes and the glandular part of the hypophysis. When the guinea pig from which tissues are taken has been deprived of vitamin C in its diet, the histological picture gives indication of this deprivation. The silver nitrate reaction occurs only in the presence of active vitamin C.—A. GIROND, C. P. LEBLOND, R. RATSIMANGA and M. RABINOWICZ. *Protoplasma*, 25 (1936), 115; through *Stain. Tech.*, 11 (1936), 169. (E. V. S.)

Vitamin C—Determination of, in Urine. Of the methods reviewed and tried K. finds Tillman's titration using 2,6-dichlorophenol-indophenol satisfactory for light colored samples of urine; for darker samples the modification of Strohecker and Vaubel using nitrobenzene appears to give better results.—HANS KAISER. *Pharm. Monatsh.*, 17 (1936) 214. (H. M. B.)

Vitamin C—Distribution of, in Tissues. Ascorbic acid can be demonstrated in tissues by treatment with silver nitrate in acetic acid at p_H 4. Diphenols, sugars, cysteine, glutathione, creatinine, glycuronic acid and adrenalin do not react with the reagent. Tissues of scorbutic animals do not stain with the reagent. Ascorbic acid normally occurs in large amounts in the suprarenal cortex, the interstitial tissue of the testis, the corpus luteum and the anterior lobe of the pituitary. It may also be found in particular instances in the liver, kidneys and intestine. The authors draw attention to the occurrence of relatively large amounts of carotene in the 4 tissues in which ascorbic acid occurs in large amounts. The article is illustrated.—A. GIROUD and C. P. LEBLOND. *Arch. Anat. micr.*, 31 (1935), 111; through *Physiol. Abstr.*, 21 (1936), 653. (E. V. S.)

Vitamin D_3. By the use of parallel chicken and rat experiments, it has become evident that the antirachitic factor contained in fish liver oils differs from that of irradiated ergosterol and

from crystalline calciferol, "vitamin D_2." The synthetic vitamin has much less effect than the natural oils on the chicken, although both forms are active toward rats. Adequate experimental data are now available to enable the composition of a vitamin prepared from tunny liver (vitamin D_3), which has also been independently produced by irradiating 7-dehydro-cholesterol, to be represented by a structural formula. The side-chain of the formula differs from that of calciferol by possessing one less methyl grouping and no double linkage. A method is described for estimating vitamin D (calciferol or vitamin D_3) by means of antimony chloride. By mixing 0.2 cc. of a chloroform solution containing 0.2 to 0.4 mg. of crystalline vitamin D with 4 cc. of antimony trichloride reagent (saturated), an orange-yellow color develops reaching a convenient intensity in ten minutes to enable its chief absorption band at 500 mμ to be estimated spectrophotometrically.—ANON. *Pharm. J.*, 137 (1936), 277. (W. B. B.)

Vitamin Deficiency—Influence of, on Resistance of Rats to Neoarsphenamine, Mercurochrome, Pernocton and Insulin. The following summary is given: Careful tests on rats of the same litter were made to test the effect of deficiency of vitamins A, B complex and D on the resistance of these animals. In the case of neoarsphenamine, experiments on 300 rats showed that a deficiency of vitamins A and D lowered the resistance most; a difference of 17% was observed between the lethal doses for vitamin-deficient rats and their litter-mate controls. A deficiency of vitamin B complex had rather less effect. A deficiency of any of the vitamins lowered the resistance equally to the toxic action of mercurochrome. The mortality was increased from approximately 60% in normal rats to 90% in avitaminous rats. Toxicity curves for pernocton were determined for rachitic and normal rats. Similar effects were exerted by a deficiency of any of the vitamins in lowering the resistance, the therapeutic index being lowered from approximately 2.0 to 1.6 in each case. Experiments have been carried out on rats of the same litter to determine whether vitamin deficiency influenced their resistance to insulin, as judged by an analysis of the blood sugar curve over 5 hours after the injection of 0.5 unit per Kg. A deficiency of vitamin A or vitamin D did not alter the course of the blood-sugar curve. A deficiency of vitamin D did not affect the speed with which insulin depressed the blood sugar during the first hour after injection. An examination of the fasting blood sugar level in rats deficient in vitamin B complex showed no marked hyperglycemia. Rats deficient in vitamin B complex were more sensitive to insulin as shown by a percentage blood sugar reduction of 32 as compared with 14 for litter-mate controls. This was due to the retardation in the recovery process to the initial blood-sugar level.—R. WIEN. *Quart. J. Pharm. Pharmacol.*, 9 (1936), 268–297. (S. W. G.)

Vitamin E—Presence of, in the Embryo of Cacao. Female rats become sterile when fed a diet lacking in vitamin E. This sterility is prevented by the addition of the embryos of cacao to the diet as well as the addition of an extract of the embryo supposed to contain vitamin E. In order to obtain the curative effect on the rats thus sterilized, the administration of the cacao embryos should be sufficiently prolonged (2–3 months). The administration of the fatty extract of the embryo, presupposed to contain vitamin E, was insufficient in order to obtain the curative action.—HENRI LABBÉ and FRÉDÉRIC HEIM DE BALSAC. *Compt. rend.*, 203 (1936), 587. (G. W. H.)

Vitamins and Their Use in the First Half of 1936. A review with 37 references.—K. KOCH. *Apoth. Ztg.*, 51 (1936), 1681–1686. (H. M. B.)

Vitamizing Foods. An ester of 2-keto-*l*-gluconic acid is added to a food product to maintain its vitamin C potency.—FRANZ ELGER, assignor to HOFFMANN-LAROCHE INC. U. S. pat. 2,058,220, Oct. 20, 1936. (A. P.-C.)

ANALYTICAL

Acetone—Presence and Determinaton of, in Alcohol from Wine. The presence of appreciable amounts of acetone is due to the use of denatured alcohol. *Determination.*—To the sample add an excess of Nessler's reagent, filter, wash the precipitate 3 or 4 times with distilled water. Transfer the precipitate to a flask, add 100 cc. of hydrochloric acid (15 cc. conc. HCl in 100 cc. of solution), distil and collect 25 cc. of distillate. Dilute to 50 cc. with distilled water and filter through a double paper. Place 2 cc. of sodium hydroxide solution in a flask, add an aliquot portion of the filtrate, an excess of $N/10$ iodine and allow to stand for 10 minutes. Acidify with 2 cc. of sulfuric acid (1:2) and titrate the liberated iodine with $N/10$ sodium thiosulfate, using starch

as indicator.—CHELLE, DUBAQUIE and VITTE. *Bull soc. pharm. Bordeaux*, 74 (1936), 112–126. (S. W. G.)

Alcohol—Determination of, in Pharmaceutical Liquids. Reference is made to a previous paper dealing with the U. S. P. X and U. S. P. XI methods. The present method uses commercial heptane. Alcohol, water and heptane are distilled together and give uniformly accurate and reproducible results. Procedure is given in detail and results of experimental work are tabulated, giving correct alcoholic content, percentage by U. S. P. XI and by the new method. Contaminants used were oils for aromatic fluidextract of cascara with chloroform, oils for aromatic elixir also with chloroform, soap and oil of rosemary, oils for aromatic spirit of ammonia and lastly the petroleum benzin shakeout as if a contaminant were present.—KARL BAMBACH and J. H. RIDER. *J. Am. Pharm. Assoc.*, 25 (1936), 982. (Z. M. C.)

Australian Ti-Tree Oil. The oil distilled from *Melaleuca alternifolia*, a species of Australian Ti-tree which grows only in the north coast district of New South Wales, is pale lemon in color and has a nutmeg odor. Its characteristics are: specific gravity, 0.8958–0.8961, optical rotation 6.8–7.4°, refractive index 1.4782–1.4790, ester no. 4–7, ester no. after acetylation 80–84. Its principle constituents are *d*-pinene, α- and γ-terpinene, cymene, terpinenol-4, sesquiterpenes, etc., several being uncommon in Australian essential oils. It has high germicidal efficiency combined with absence of toxicity and irritation. A further characteristic is its power of penetrating injected tissue without irritation of healthy tissue and a number of cases of its successful use in the treatment of septic wounds, abscesses and skin diseases have been reported.—ANON. *Mfg. Chemist*, 7 (1936), 332. (C. R. A.)

Barbituric Acid Derivatives—Alkametric Titration of. The salts of the derivatives of the weak barbituric acid are highly dissociated in aqueous solution, and therefore react alkaline to all indicators. Therefore the barbiturates cannot be determined by the customary methods of alkametric titration. They can, however, be determined if they are dissolved in acetone and titrated with a methylalcoholic solution of potassium hydroxide using thymol blue (1–1,000 in strong alcohol) as an indicator. A quantity of the material equivalent to about 0.2 Gm. of the acid is dissolved in 30 cc. of neutralized acetone, and after the addition of 4 to 5 drops of the indicator solution is titrated to light blue with $N/10$ methylalcoholic potassium hydroxide. Control determinations gave very good results. Phenolphthalein may also be used as indicator but the result is much less sharp.—CH. MORIN. *J. pharm. chim.*, 22 (1935), 59; through *Pharm. Weekblad*, 73 (1936), 455. (E. H. W.)

Barbituric Acid Derivatives—Quantitative Determination of, in the Tissues. A quantitative method to determine the amount of veronal, curral and phanodorm in the brain tissues is discussed. The extraction method used was the same for these three compounds. The determination for veronal was done colorimetrically, for curral and phanodorm the manganometric system was used. During the short experiment it was observed that the fibrous part of the brain contained less of the sleeping compound than the rest of the brain. Dial and phanodorm react immediately while veronal not after 2–5 hours. The narcosis of the three soporific compounds is inversely proportional to the pharmacological power of these compounds. The reaction in the brains was in proportion to the amount of the compound taken. In the liver and kidneys the amount of veronal found was either the same or a little higher than that found in the brains.—W. VOGHT. *Chem. Zentralb.*, 107 (1936), 801. (G. B.)

Bicarbonate—Rapid Determination of, in Carbonates and Bicarbonates. Dissolve 5 Gm. of carbonate or 2.5 Gm. of bicarbonate in hot water in a 500-cc. volumetric flask, add 50 cc. carbon dioxide-free N alkali, shake well and add 75–100 cc. N barium chloride and fill to the mark with carbon dioxide-free water. Titrate a filtered aliquot part with N sulfuric acid.—SIDERSKY. *Monitor Farm.* (1936), 121; through *Pharm. Zentralh.*, 77 (1936), 619. (E. V. S.)

Borax as a Primary Standard for Acidimetry. It has been shown by Menzel that borax $Na_2B_4O_7 \cdot 10H_2O$, may dehydrate in dry air in either of two ways. One is a reversible chain of reactions:

$$Na_2B_4O_7 \cdot 10H_2O \rightleftarrows Na_2B_4O_7 \cdot 5H_2O + 5H_2O$$

(Theoretically this reaction may occur if the vapor pressure of water in the air is less than 10 mm. at about 20° C.) The second reaction:

$$Na_2B_4O_7 \cdot 5H_2O \rightleftarrows Na_2B_4O_7 \cdot 2H_2O + 3H_2O$$

may occur if the vapor pressure is less than 10 mm. at 88° C. Actually the above decomposition occurs if the material is heated to about 50° C. More usually an irreversible decomposition occurs:

$$Na_2B_4O_7 \cdot 10H_2O \rightarrow Na_2B_4O_7 \cdot 2H_2O + 8H_2O$$

(For this reaction the critical vapor pressure is only 1.6 mm. at 20° C.) If pure borax is to be a reliable primary standard in acidimetry or for making buffer solutions, it must be kept under conditions which will maintain it in fully hydrated form. Experiments are described to determine what solution may be placed in a desiccator below the borax to maintain an atmosphere with the proper vapor pressure. A saturated solution of sodium chloride and sucrose is found to have a sufficient vapor pressure. Its vapor pressure curve lies above that of the curve of the reaction of conversion from deca- to penta-hydrate. In experiments keeping borax above such a solution for six months, it is found that specimens low in water regain it, so that after six months' standing all the specimens are found to have titration factors lying between 0.9983 and 0.9992; average 0.9987 ± 0.0002. The low specimens regained their water in three weeks. The following procedure is recommended: Recrystallize the borax from warm water. Care should be taken that crystallization is not begun until the solution is below 50° C., so that nuclei of the pentahydrate do not form. The recrystallized, pure borax is now dried to constant weight in a desiccator over a saturated solution of sodium chloride and sucrose and stored above such a solution. The advantage of borax as a standard is that the molecular weight is fairly high so that quite dilute solutions (in terms of normality) may be weighed out with high accuracy.—G. KILDE. *Dansk Tids. Farm.*, 10 (1936), 273. (C. S. L.)

Boric Acid—Organic Adulterants of. Variable amounts of organic adulterants were determined in a number of samples of boric acid. The determinations were run by the use of 0.1 *N* potassium permanganate of which 0.14 to 2.55 cc. were necessary. The presence of more than traces of organic matter makes the boric acid unfit for surgical use. The limit should be placed at 0.1 cc. per Gm. A solution of 3% phenolphthalein and 0.2% methylene blue is better than phenolphthalein for the alkametric titration of boric acid in that the end point is much sharper; three parts of glycerin are added to 1 part of boric acid. The samples with considerable organic matter (2.40 to 2.55 cc.) contained 97.15 to 97.70% boric acid and those with smaller quantities (0.14 to 0.2 cc.) 98.22 to 98.39% acid.—E. PERCS. *Ber. der Ungar. Pharmaz. Gesellsch.* (1936), 339; through (V. I.) *Pharm. Weekblad*, 73 (1936), 1503. (E. H. W.)

Bromate—Qualitative reaction for. The author demonstrates the presence of bromate by its property of decolorizing acid methyl orange solutions. If 1 cc. of 3 to 4*N* hydrochloric acid and 1 to 2 drops of a 0.015% methyl orange solution are added to 2 cc. of the solution under investigation the red color rapidly disappears. Iodates, chlorates and persulfates react poorly in the presence of concentrated hydrochloric acid; with diluted acid decolorization takes place only after several minutes. The reaction is recommended for the demonstration of traces of bromate in potassium chlorate; when the latter is used for the preparation of explosives, it should contain no bromate. The presence of ClO_3' catalytically accelerates the action of the BrO_3' and the sensitivity of the reaction may be increased by the intentional addition of ClO_3'. Only nitrites disturb the reaction and then only when they are in excess (more than 15 times the quantity of bromates). Bichromate and ferricyanide give a somewhat similar reaction. After the addition of the acid methyl orange solution in the respective cases an orange-colored liquid results with the first and a brownish colored liquid with the second. Both turn to yellow upon the addition of a trace of bromate.—I. M. KOREMAN. *Z. anal. Chem.*, 103 (1935), 269; through *Pharm. Weekblad*, 73 (1936), 1033. (E. H. W.)

Bromides—Benzidine Acetate in the Determination of, by Silver. The method of determining iodine by titration with silver ions, using copper nitrate plus benzidine acetate as absorption indicator, is applicable to the determination of bromine. The method is accurate in fiftieth normal solutions of bromine, but is not applicable to the determination of chlorine.—F. BURRIEL. *Anales soc. española fís. quím.*, 33 (1935), 692–695, through *Chimie & Industrie*, 36 (1936), 281. (A. P.-C.)

Bromides—Determination of, in the Presence of Other Halides. The authors have worked out the details of a method by which bromides may be oxidized with acid and some oxidizing agent without interference by chloride or iodide. They present results of much experimentation to show the accuracy of their method. The general method for use when only bromide (about 0.010 Gm. to 0.100 Gm. of bromide) and chloride (up to about 1.000 Gm.) are present is substantially as follows. The mixture of halides in solution is added to a distilling flask through a thistle funnel and rinsed down with enough water to bring the total bulk to about 43 cc. A $N/1$ solution of potassium permanganate (2 cc.) is then added through the funnel, followed by 5 cc. of dilute phosphoric acid, (1 part acid sp. gr. 1.75 in 4 of water, by volume) and the distilling flask is at once connected with two absorption vessels, each containing about 150 cc. of 1% potassium iodide solution and connected with a filter-pump. A steady current of air is then drawn through the whole apparatus for a half-hour, passing through the absorption vessels at the rate of three or four bubbles a second. At the end of this period the absorption cylinders are disconnected, the tube and sides are rinsed with water and the liberated iodine is titrated with $N/50$ sodium thiosulfate solution. If iodides are present a modified procedure is necessary which is as follows. "After the introduction of the mixture of halides, together with sufficient water, into the distilling flask, an excess of permanganate solution (9 cc. of N solution were required for 0.100 Gm. of potassium iodide) is added, followed by 5 cc. of dilute phosphoric acid, and the whole is well mixed and allowed to stand for ten minutes, while the distilling flask is kept attached to the absorption vessels. Aspiration is started after ten minutes. The reaction mixture should be definitely of a deep purple color, indicating an *excess of permanganate*. After a half-hour's aspiration the process is completed as before." Results reported by the authors are highly satisfactory.—F. W. EDWARDS and E. B. PARKES. *Analyst*, 61 (1936), 743–749. (A. H. C.)

Calcium, Potassium and Chlorides—Determination of, in Organic Liquids. Standard cerium sulfate solutions can advantageously replace potassium permanganate as they are absolutely stable and their strength does not change with time or temperature. Blood serum potassium is precipitated in known manner as sodium potassium cobaltinitrite and the latter treated with 5 cc. of $0.01N$ cerium sulfate solution; the solution is heated for 1 or 2 min. on the water-bath, cooled, potassium iodide and starch indicator added, and titrated with $0.01N$ sodium thiosulfate. A blank is run and the corrected titration is multiplied by 71 to obtain the mg. of potassium per 100 cc. of serum. Calcium is determined in a similar manner: the precipitated calcium oxalate is centrifuged, washed and dissolved in boiling water containing 2 cc. of $2N$ sulfuric acid; 2 cc. of $0.02N$ cerium sulfate is added, and the solution is titrated with $0.02N$ sodium thiosulfate as above. The number of cc., multiplied by 10, gives the mg. of calcium per 100 cc. To determine chlorine in blood, 1 cc. of water, 0.1 cc. of blood and 1 cc. of cerium-silver reagent are heated 10 min. in a boiling water-bath, the excess of cerium ammonium nitrate reduced with glucose, cooled and titrated with ammonium thiocyanate to a pink color.—D. CALTABIANO. *Diagnost. Tecnica Labor.*, 6 (1935), 865–869; through *Chimie & Industrie*, 36 (1936), 38. (A. P.-C.)

Camphor and Hexetone in Pharmaceutical Mixtures—Titrimetric Determination of. The material is boiled with alcoholic hydroxyamine hydrochloride (I) solution with sodium bicarbonate, being kept neutral to bromophenol-blue by progressive addition of alcoholic sodium hydroxide, and is finally exactly neutralized. Phenolphthalein and tropaeolin are added as mixed indicator and the solution titrated with $0.1N$ sodium hydroxide. An equal volume of the (I) solution is titrated similarly and the camphor calculated from the difference in titer.—E. SCHULEK and R. WOLSTADT. *Z. anal. Chem.*, 104 (1935), 183; through *J. Soc. Chem. Ind.*, 55 (1936), B., 475. (E. G. V.)

Carbon and Nitrogen—Determination of, by the Action of Chromic Acid under Reduced Pressure. The substance under investigation is heated with chromic oxide solution and sulfuric acid under reduced pressure in the apparatus described and the resulting carbon dioxide is trapped in tubes containing "sofnolite" and calcium chloride. Nitrogen is estimated in the digested residue from the estimation of carbon. The method is applicable to soils, plant materials and organic compounds. A method for the estimation of small amounts of nitrate in the presence of large quantities of chromic and sulfuric acids is given.—C. N. ACHARYA. *Biochem. J.*, 30 (1936), 241; through *Physiol. Abstr.*, 21 (1936), 489. (E. V. S.)

Chlorbutanol—Determination of. Chlorbutanol was determined using one method by

refluxing over steam a sample equivalent to about 0.2 Gm. of chlorbutanol with 25 cc. of alcoholic potash (0.5*N*) for 30 minutes. The solution is cooled, transferred to a 200-cc. volumetric flask, made acid with concentrated nitric acid + 5 cc. excess and 50 cc. of 0.1*N* silver nitrate added. After making up to volume with water and agitating, a 100-cc. aliquot is titrated with 0.1*N* potassium thiocyanate solution (1 cc. of 0.1*N* silver nitrate = 0.005915 Gm. of chlorbutanol). Correction is made for chlorides in the blank. A second method used was: a sample equivalent to about 0.3 Gm. of chlorbutanol is dissolved in water and made up to 100 cc. A 30-cc. aliquot is put in a glass-stoppered flask and, in order, there is added 25 cc. of sodium hydroxide solution (4.3 Gm. to 100 cc.) and 50 cc. of 0.1*N* iodine solution with constant shaking and allowed to stand 15 minutes. After acidification with 16 cc. of 10% hydrochloric acid, the residual iodine is titrated with 0.1*N* sodium thiosulfate. Each cc. of iodine consumed = 0.00296 Gm. of chlorbutanol. A blank should be run on the reagents. Collaborative study of these two methods indicated the first to be more convenient. Slight variation of procedure in the second method leads to considerable discrepancies in results. It was recommended that further study be made of both methods.—F. C. SINTON. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 535. (G. S. W.)

Cholesteril—Estimation of. The following colorimetric method using the Hellige colorimeter is proposed: Prepare a standard solution by dissolving 1 Gm. β-naphthol green B in 1 liter of water. Dilute 1 cc. of this solution with 16 cc. water and use as the color standard. Weigh out exactly 150 mg. of lanolin, mix with 10–20 Gm. plaster of paris, dry in an oven at 105° C. for $^1/_2$–$^3/_4$ hours and cool. Transfer the mass to an extraction thimble and extract $^1/_2$ hour in a continuous extraction apparatus using anhydrous chloroform, cool the extract and transfer to a 200-cc. volumetric flask and make to volume. Place exactly 5 cc. of this solution in a 10-cc. graduated cylinder, add 2 cc. acetic anhydride and quickly 0.1 cc. sulfuric acid, shake thoroughly, place the cylinder in a dark place to allow the color to develop. Compare in the colorimeter. The method does not distinguish between cholesterol in the free state or its esters but measures the total content.—MARY IMOGENE SHEPHERD. *Drug and Cosmetic Ind.*, 39 (1936), 453–454. (H. M. B.)

Citric Acid—New Reaction for. According to the reaction of Kunz and Stahre (*Pharm. Weekblad* (1926), 1455) pentabromacetone ($CHBr_2.CO.CBr_3$) is formed when citric acid is treated with sulfuric acid, permanganate and bromine. Upon hydrolysis an unstable acid (CHO.CO.COOH) results which upon treatment with sulfuric acid is transformed into glyoxal (CHO.CHO). When a few drops of citric acid solution (2% or stronger) are warmed and 1 drop of saturated bromine solution (or bromine alkali), 2 to 3 drops of sulfuric acid and 1 drop of saturated permanganate solution added, a precipitate results. If this is dissolved in a few cc. of sulfuric acid by heating, a solution results in which the glyoxal gives the typical color reactions with codeine or with a phenol (resorcin, thymol or β-naphthol).—PESEZ. *J. pharm. chim.*, 22 (1935), 160; through *Pharm. Weekblad*, 73 (1936), 738. (E. H. W.)

Clove Tree—Studies on, and Its Products. The Estimation of Essential Oil in Cloves, etc. The laboratory apparatus for the estimation of essential oils in cloves and other plant materials, by distillation on boiling with water or by low-pressure steam, with or without cohobation, is described. Examples are given to illustrate the method, which gives results in good agreement with factory yields. The use of a comparatively large sample lessens the sampling error and the yield of oil is adequate for complete characterization.—L. W. RAYMOND. *Perfumery Essent. Oil Record*, 27 (1936), 393. (A. C. DeD.)

Colorimetry and Photometry as a Microchemical Procedure. At one time colorimetry was superior in accuracy and sensitivity to the corresponding gravimetric methods. However, at present it is not considered sufficiently sensitive and is being replaced by photometry. The intensity of light passing through a known layer of liquid is measured by a photoelectric cell and a galvanometer. To be sure, absolute cleanliness of the apparatus is essential and a correction is applied for the effect of the solvent. Several set-ups are illustrated. Satisfactory determinations cannot be made if the absorption is 10% or less. Various precautions in the use of the apparatus are mentioned. In determining colored solutions one should use that wave length of light for which the solution shows the maximum absorption. The most efficient range of absorption lies between 10 and 70%, and in this range the accuracy is ±2%. The method is superior to the visual methods.—P. KRUMHOLZ. *Scientia Pharm.*, 7 (1936), 103. (M. F. W. D.)

Cresols—Colorimetric Determination of. The method is based on the reaction of cresols

with Millon's reagent. To 10 cc. of solution add 0.2 cc. of reagent and 3 cc. of concentrated nitric acid, immerse in a boiling water-bath for 3 to 5 min., cool to room temperature and compare the color in a Duboscq colorimeter with those of standard solutions. Optimum results are obtained at the following concentrations: 37.5 to 75 mg. per L. for *p*-cresol, 37.5 to 150 mg. per L. for *o*- and *m*-cresol.—E. V. ALEXÉIEVSKI and K. G. TARASSOVA. *J. Prikl. Khim.*, 8 (1935), 1313–1318; through *Chimie & Industrie*, 36 (1936), 285. (A. P.-C.)

Diethylphthalate—Detection of, in Whiskies and Other Alcoholic Products. Attention is directed to the fact that the U. S. P. X text for diethylphthalate in Spiritus Frumenti was unreliable and that it has been deleted. The test would give fluorescent reactions that might last for a week or more. A test is still needed and one is offered in which results can be read in fifteen minutes. Information about details in procedure is also given for a number of preparations.—ISRAEL SCHWARTZ. *J. Am. Pharm. Assoc.*, 25 (1936), 749. (Z. M. C.)

Ergot—Estimation of, by Different Methods. A critical discussion of spectrographic and colorimetric methods of evaluation following upon the earlier investigations of Schlemmer and Schmitt, van Urk, Freudweiler and others. The more recently isolated alkaloids, ergotinine, ergoclavine and sensibamine are included in the present study. The results of colorimetric, spectrographic and chemical analytical methods are shown in graphic and tabular form.—F. SCHLEMMER, P. H. A. WIRTH and H. PETERS. *Arch. Pharm.*, 274 (1936), 16. (L. L. M.)

Essential Oils—Rotatory Dispersion of. The ratio of the rotatory powers of many essential oils for λ5461 and 5780 Å. is 1.12–1.18. On using more widely spaced lines (4358–6560 Å.) the rotatory dispersion becomes a distinctive property by which fraudulent essences, *e. g.*, fractionated geranium oil, can be detected, even when the admixture cannot be demonstrated by the usual methods.—B. ANGAL. *Ann. Chim. Anal.* [iii], 17 (1935), 341; through *J. Soc. Chem. Ind.*, 55 (1936), B., 171. (E. G. V.)

Fat Analyses—Interpretation of. A discussion of the difficulty of interpreting analytical results of the examination of natural fats and similar materials due to the somewhat wide range of permissible values of the various "constants" involved (saponification values, iodine values, etc.).—A. BEYTHIEN. *Petroleum*, 32, No. 13 (1936), 6; through *J. Soc. Chem. Ind.*, 55 (1936), B., 557. (E. G. V.)

Hypophosphites—Determination of, Report on. A study of an iodometric method for determination of hypophosphites in the presence of phosphates (*J. pharm. chim.* (8),18 (1933), 5) showed a recovery of only 80% of the hypophosphite present was obtainable. Modification of the method produced a maximum yield of 92%. The referee does not consider the method practical.—H. S. BOND. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 516. (G. S. W.)

Ichthyol—Analysis of. A method is given for the establishing of the total amount of sulfur, of S in the sulfate form and of S° in the thiophene fraction in ichthyol. For the total amount of sulfur the following method was used: 0.5 Gm. of ichthyol, 4 Gm. of sodium carbonate and 3 cc. of chloroform were stirred in a crucible, 1 Gm. potassium nitrate added and then incinerated. The ash was dissolved in water, hydrochloric acid added and barium chloride used to precipitate the sulfur. *For the Sulfate Form.*—2 Gm. of ichthyol is treated with 100 cc. of water and 80 cc. of a saturated solution of sodium chloride; 100 cc. of the filtrate and 1 cc. of hydrochloric acid is heated and barium chloride added. *For the Thiophene Reaction.*—5 Gm. of ichthyol is treated with 30 cc. of a saturated solution of sodium chloride in 20% sulfuric acid, shaken for a few minutes and then extracted with ether. The ethereal layer is washed with a solution of sodium chloride, then with *N*/1 sodium hydroxide solution, then again with the sodium chloride solution. The ethereal extract is now extracted with petroleum ether and the extract weighed. This Russian "ichthyol" was found to contain the following amounts of sulfur: 11.84–11.96% of S°; 1.87–2.05% of sulfate S and 12.37–12.72% of thiophene fraction S°. Further identity tests of ichthyol were also established: Heating 1 Gm. of ichthyol with 10 cc. of sodium hydroxide solution an odor of ammonia was liberated; a 10-cc. solution of ichthyol 1:20 gives a colorless filtrate on the addition of a solution of 2.5 cc. barium nitrate; which on adding a solution of ferric chloride, a slightly yellow solution occurs; 10 cc. of ichthyol treated with 2 cc. of hydrochloric acid yields a dark resinous material, while the filtrate is colorless.—S. M. BOLOTNIKOW. *Chem. Zentralb.*, 107 (1936), 1264. (G. B.)

Iodinated Peptones. Results of the analyses of a number of commercial preparations are

given. A central control laboratory for pharmacy is suggested.—ERNEST LEFEBURE. *J. pharm. Belg.*, 18 (1936), 401, 419. (S. W. G.)

Iodine Determination—Report on. Collaborative work on the determination of iodine in ointments (*J. Assoc. Off. Agr. Chem.*, 18 (1935), 546) indicated the method to be reliable.—W. F. REINDOLLAR. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 520. (G. S. W.)

Iron in Mercury Salts—Detection of Traces of. 0.7–1.6 Gm. of ammonium thiocyanate is added to the solution of mercury salt (0.1-0.3 Gm. of mercury), followed by 0.3 Gm. of zinc sulfate, when iron (not less than 10^{-6} Gm.) is indicated by a pink precipitate.—L. KULBERG. *J. Appl. Chem. Russ.*, 8 (1935), 1090; through *J. Soc. Chem. Ind.*, 55 (1936), B., 59. (E. G. V.)

Lignin and Vanillin—New Reaction for. The authors find that fabrics containing lignin are colored red with a solution of benzidine in acetic acid. Crystals of vanillin are also colored red with this reagent but the color quickly fades to yellow. To obtain a more permanent reaction the vanillin crystal may be covered with a layer of liquid paraffin after which a few drops of benzidine acetate solution are added. After shaking the red color will appear and remain permanently as the crystals are not soluble in the oil.—P. FOURMENT and H. ROQUES. *Bull. sci. pharmacol.* (1935), 449; through *Pharm. Weekblad*, 73 (1936), 738. (E. H. W.)

Liquid Paraffiin—Sulfuric Acid Test on. The authors discuss this test as it appears in the British Pharmacopœia and point out two factors that must be borne in mind in applying the test. The first is the concentration of the sulfuric acid used and the second, the meaning of the "pale brown" color as the limit of color permitted. They point out that sulfuric acid of sp. gr. 1.841 at 15.5° C. may be either 99.5 or 94.5% H_2SO_4. This variation in acid strength has a marked influence on the production of color. The use of a Lovibond tintometer, the value suggested in the past and the U. S. P. XI Standard Color Method are criticized. In the latter case an acid of lower percentage strength than they have found useful is permitted and therefore the degree of refinement in the test is considerably lower than the B. P. one. They suggest a standard technic as follows: To 4 cc. of sulfuric acid, add 4 cc. of sample in a stoppered cylinder, shake and place in a boiling water-bath. At intervals of 30 seconds the tube is shaken vigorously during 5 seconds. After 10 minutes the contents are transferred to a small, dry, clean, separating funnel and allowed to stand for 10 minutes. The separated acid layer is run into a 1 cm. cell of the Lovibond instrument and the color matched in the usual manner. The authors give tables and graphs showing results obtained by their method and from these results they are of the opinion that sulfuric acid of 97% by weight gives a more satisfactory indication of complete refinement than one of 96%. With the weaker acid the development of color is delayed for 10 minutes whereas with the 97% acid it is progressive in reaction. Hence they stipulate a time limit of 10 minutes in a boiling water-bath and a tintometer reading of not more than 10 yellow and 4 red with a 97% acid.—C. EDWARD SAGE and SIDNEY G. E. STEVENS. *Analyst*, 61 (1936), 323–328. (A. H. C.)

Mercury—Colorimetric Method for the Determination of Minute Amounts of, in Organic Matter. The authors present a very interesting paper on this subject. While it was devised primarily for the determination of mercury in samples of grain such as oats, wheat and barley it is possible that the method might be useful in certain pharmaceutical products. The reagent for the colorimetric determination is *p*-dimethylamino-benzal-rhodanine 0.04 Gm. in 200 cc. alcohol. Standards are prepared by adding to suitable amounts of mercuric nitrate in 100 cc. Nessler cylinders 1 cc. of 0.04 molar copper nitrate solution and 5 cc. of *N* nitric acid and 3 cc. of the colorimetric reagent. Data is given to show the accuracy of the method. For full details the paper must be consulted.—N. STRAFFORD and P. F. WYATT. *Analyst*, 61 (1936), 528–535. (A. H. C.)

Methylatropine Bromide Solutions—Stability of, and the Determination of Methylatropine. Methylatropine bromide solutions or solutions of the nitrate ("Eumydrine") are not seriously hydrolyzed by sterilization or by 6 months' aging, provided they are not buffered. The small quantity of tropic acid first formed lowers the p_H and prevents further hydrolysis. If hydrochloric acid is added, making the solution 0.001 to 0.0001*N* with respect to the acid, the solution may be autoclaved at 120° C. for 20 min. and then kept unaltered for 6 months. If excess of sodium hydroxide is added to a solution of methylatropine bromide, complete hydrolysis occurs in a few minutes. Two methods based on this hydrolysis are established for the analysis for methylatropine. The first is applicable where the alkaloid must be shaken out, for example from acid solutions. *Extraction Method.*—0.1–0.2 Gm. of methylatropine bromide are dissolved in 10 cc. of water (if necessary weaker solutions are evaporated). Two cc. of sodium hydroxide solution are

added and the mixture allowed to stand in a separatory funnel for 15 min. A drop of methyl red indicator solution is added and dilute acid to the color change. Ten drops more are added and the solution extracted three times with, each time, 20 cc. of a chloroform-isopropanol mixture (3 + 1). The extracts are filtered through a small, firm, cotton filter and washed with a few cc. of solvent. The filtrate is evaporated on a water bath. The residue is dissolved in 5–10 cc. of water by warming on the bath and on cooling, titrated with 0.1*N* alkali (using phenolphthalein indicator) (1 cc. is equivalent to 0.03841 Gm. of methylatropine bromide). If the alkaloid is in pure solution a simple titration may be made. *Direct Assay Method.*—0.2 Gm. of methylatropine bromide is dissolved in 5 cc. of water, 10 cc. of 0.1*N* alkali added, then set aside for 30–60 min. and the excess alkali determined by titration with 0.1*N* acid.—F. REIMERS. *Dansk Tids. Farm.*, 9 (1935), 215. (C. S. L.)

Moisture Content—Determination of, by Distillation with Liquids Immiscible with Water. The authors of this paper present a critical review of the methods and apparatus heretofore employed and from this survey they conclude that the most satisfactory types of apparatus appear to be those of Friedrichs and Bidwell and Sterling. In practice, however, they found Friedrichs' apparatus to be far from satisfactory. They discuss fully the objections that they found to this method. In a similar way they found objections to the Bidwell and Sterling apparatus and again point out their objections to it. The method which they have developed is claimed to be more simple in operation; the apparatus is easy to construct and to clean; it may be used for prolonged distillation; and the water collected can readily be removed for examination. The apparatus is constructed throughout of pyrex glass because it appears to permit a better drainage of water than soda-glass. The essential features of the apparatus are: 1. Ground-glass joints at A and B. 2. The condenser tube, C, projects only a short distance into the cell below but the projection should not be entirely eliminated. The shoulder at D is brought out squarely from the condenser-seating. 3. The internal member of the ground joint, B, does not project into the distillation flask. 4. The internal diameter of the graduated collecting tube should be 5 mm. Readings correct to 0.01 cc. can be easily taken while with a narrower tube water drops tend to cling to the upper parts without falling to the bottom. 5. The uppermost calibration mark on the collecting tube should be as close as possible to the cell above. In this connection it is desirable to weigh an amount of material which will give the maximum quantity of water that can be measured. 6. The condenser should have a smooth internal surface. Certain details of manipulation are given, such as thorough cleansing of the apparatus; weighing of a suitable quantity of material; the use of silica beads to prevent bumping; the use of a trace of vaseline on the ground-joints; the heating bath should be at the lowest possible temperature; the use of an oil bath in place of sand or asbestos to prevent overheating; gentle distillation; the use of a spray of entraining liquid to remove adhering drops of water from the condenser; and the use of a camel's hair brush moistened with the entraining liquid to remove adhering water drops from the walls of the cell if necessary. The authors discuss the choice of entraining liquids to be used and favor the use of paraffins because they give clean distillates from which the water collects in the graduated tube with the least difficulty. Commercial heptane was found to be very suitable for general use. The authors caution against the comparison of results obtained by their method with standard oven-drying as it has been found that in some instances decomposition can take place under a liquid boiling at a temperature at

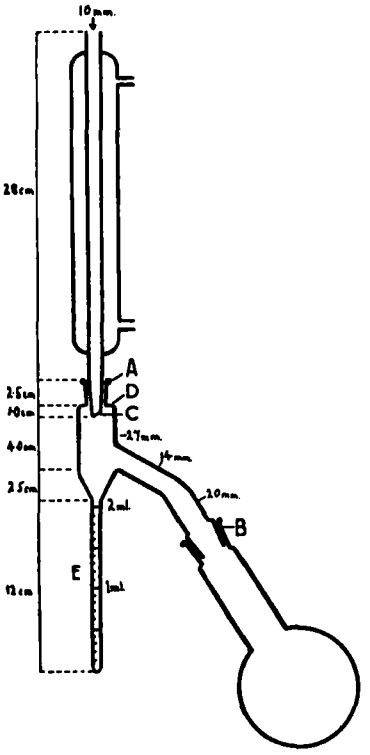


Fig. 1.

which the substance is stable in air. Experimental results are given with a number of entrainers with and without anti-bumping agents such as sand and silica and over periods of one-quarter, one-half and two and one-half hour distillations. One hour with either sand or silica as an anti-bumping agent and heptane gives excellent results. The accuracy of the method was tried on a variety of substances such as yeast, artificial silk yarn, cocoa products, dried milk powder, lactose hydrate, copper sulfate pentahydrate, magnesium sulfate heptahydrate and numerous interesting observations made in connection with these various substances. A point of special interest is that "evidence was obtained for the formation of $CuSO_4.H_2O$; $MgSO_4.3H_2O$; $MgSO_4.2H_2O$; and $MgSO_4.H_2O$ during dehydration under boiling organic liquids. This is the only satisfactory indication of the existence of magnesium sulfate trihydrate."—F. G. H. TATE and L. A. WARREN. *Analyst*, 61 (1936), 367–380. (A. H. C.)

Monoethanolamine—Assay of, in the Presence of Theophylline. Experimental work is reported to show that monoethanolamine may be determined in the presence of theophylline and starch by titration with standard hydrochloric acid using methyl orange as indicator.—ASA N. STEVENS. *J. Am. Pharm. Assoc.*, 25 (1936), 973. (Z. M. C.)

Morphine Content of Opium—Importance of the Correction to Be Used in the Determination of the, in Applying the Procedure of the B. P. 1932. Sources of error are discussed. To the result for morphine, 0.66 Gm. per 100 Gm. of dry opium should be added.—J. N. RAKSHIT. *Ann. chim. anal.* [iii], 17 (1935), 315; through *J. Soc. Chem. Ind.*, 55 (1936), B., 44. (E. G. V.)

Morphine—Quantitative Determination of, in Opium by the Lime Method. The article is the report of a commission appointed to study a suitable method for the analysis of opium for morphine content. The Swiss pharmacopœial method is slightly modified, very rigid adherence to details of procedure being specified. The complete assay consists of 3 parts: (*a*) determination of moisture by drying at 103° to 105°, (*b*) determination of the amount of extractive soluble in water in the presence of calcium hydroxide and (*c*) determination of morphine. After a complete description of the assay procedure, the authors discuss rather thoroughly the manipulations necessary and the limits of accuracy of the method. The tables and the experiments carried out indicate that the method still has several defects, the most serious of which are: (*a*) it is not certain that the morphine is quantitatively extracted by the method employed and (*b*) the correction applied is indefinite and represents an estimate.—H. BAGGESGAARD-RASMUSSEN, K. A. JACKEROTT and J. C. JESPERSEN. *Pharm. Acta Helv.*, 11 (1936), 307. (M. F. W. D.)

Norwegian Cod Liver Oil—Arsenic Content of Samples of. The oil is heated with fuming nitric acid, concentrated sulfuric acid and copper sulfate in arsenic-free flasks until clear and the arsenic in the solution determined by Marsh's test by comparison with a standard mirror. The average value is 0.4 mg. per 100 cc. of oil. Its dietary significance is discussed.—N. LUZANSKI. *Tids. Kjemi.*, 16 (1936), 56; through *J. Soc. Chem. Ind.*, 55 (1936), B., 558. (E. G. V.)

Oil of Peppermint—Analysis of, Report on. A collaborative study of the U. S. P. method of analysis of oil of peppermint indicated that: samples should be analyzed very soon after they are collected or stored in full bottles in a refrigerator in the dark; that if samples became highly colored during analysis 30–40 drops of phenolphthalein T.S. be used as indicator instead of 10 drops.—E. K. NELSON. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 531. (G. S. W.)

Oil of Scyllium Stellare CBp. The liver of a specimen of *Scyllium stellare* CBp. (large-spotted dog-fish) yielded by extraction with ether 44% of oil having: specific gravity (15° C.) 0.9291, oleorefractometer reading (29° C.) 46, refractive index (29° C.) 1.4815, clouding point 19° C., molecular weight (cryoscopically in benzene) 934, fluorescence under ultraviolet light golden yellow, acidity as oleic 0.5%, iodine number (Hanus) 178, saponification number 185, acetyl number 47.6, hydroxyl number 49.3, soluble volatile fatty acids 1.53, insoluble volatile fatty acids 1.83, unsaponifiable matter 0.90%. The unsaponifiable consisted of approximately 0.40% cholesterol, 0.20% isocholesterol and 0.40% of an unidentified liquid constituent. The fatty acids consisted of approximately 68% liquid and 32% solid acids. The liquid acids had a specific gravity (21° C.) of 0.9170, refractive index (21° C.) 1.4827, iodine number (Hanus) 182, neutralization number 181, molecular weight 309; they contained clupanodonic acid and unidentified constituents. Dorosomic acid ($C_{17}H_{34}O$) was identified in the solid acids.—HENRI MARCELET. *Bull. Inst. Océanographique*, No. 704 (1936), 11 pp. (A. P.-C.)

Olive Oil—Detection of Tea Seed Oil in, Colorimetric Method for. Tea seed oil very

closely resembles olive oil in chemical and physical properties so that its detection is very difficult. The addition of a mixture of acetic anhydride, chloroform and sulfuric acid to the tea seed oil produces a deep fluorescent color, green by reflected light and brown by transmitted light. The addition of anhydrous ether at this stage produces an intense red color which slowly fades to light brown. This test was found to be specific for tea seed oil and in mixtures of tea seed and olive oils the color is proportional to the amount of tea seed oil present.—J. FITELSON. *J. Assoc. Official Agr. Chem.*, 19 (1936), 493; through *Scient. Abstr.*, 7 (1936), 148. (E. V. S.)

p_H—Determination of, by the Glass Electrode. The merits, disadvantages and limitations of the glass electrode and the principal types of glass electrodes are briefly discussed and described.—M. DÉRIBÉRÉ. *Tiba*, 14 (1936), 681, 683. (A. P.-C.)

p_H of Water—Determination of the. The importance of the p_H of water in its relation to water analysis and purification is stressed. The determination of p_H by the colorimetric method, using indicators, is described. The limits of accuracy of this method are given and certain difficulties in the method are stated. These latter are overcome by measuring p_H potentiometrically. The method (with suitable apparatus) is described and discussed.—E. and K. NAUMANN. *Gas- u. Wasserfach*, 78 (1935), 901; through *J. Soc. Chem. Ind.*, 55 (1936), B., 78. (E. G. V.)

Psyllium—Determination of Swelling. Collaborative study of a method for determination of the swelling factor of psyllium (*J. Assoc. Off. Agr. Chem.*, 19 (1936), 104) indicated that the method was reliable.—H. M. BURLAGE. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 532. (G. S. W.)

Rape or Mustard Seed Oils—New Method for the Estimation of. The author of this paper takes advantage of the fact that erucic acid can be separated in the form of its lead salt from these oils and subsequently the iodine absorption of the erucic acid determined. This iodine absorption is given a "value" and is expressed as the percentage of iodine absorbed in terms of erucic acid. The value of the method depends upon the fact that for certain rape seed and mustard seed oils this value is around 45 while for arachis, linseed, sesame, niger-seed, cottonseed and castor oils the figure is in the neighborhood of 2. This wide difference affords a means of identifying mustard seed oil and also in estimating the percentages of other oils present in it as adulterants. Considerable experimental data is given to show the accuracy of the results obtained by the method.—SUKUMAR NEOGI. *Analyst*, 61 (1936), 597–601. (A. H. C.)

Rotenone-Containing Plants—Evaluation of. I. Derris Elliptica and D. Malaccensis. Comparative analyses of 7 samples are given. Insecticidal tests made with pairs of samples of material from different species were not paralleled by determinations of rotenone (by current methods) of ether extractives. Tests of pairs of samples from the same species were more closely related to chemical analyses. Determinations of dehydro-compounds alone or with rotenone were a more satisfactory measure of insecticidal value whether samples of the same or of different species were compared.—F. TATTERSFIELD and J. T. MARTIN. *Ann. Appl. Biol.*, 22 (1935), 578; through *J. Soc. Chem. Ind.*, 55 (1936), B., 341. (E. G. V.)

Santonin—Determination of, in Santonica, Report on. Collaborative study of a proposed method for determination of santonin in santonica (*J. Assoc. Off. Agr. Chem.*, 19 (1936), 517) showed the method to be satisfactory.—H. J. FISHER. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 517. (G. S. W.)

Silicomolybdic Acid—Salts of, with Organic Bases. The Gravimetric Determination of Small Amounts of Silica as Pyramidon Silicomolybdate. In dilute acid solution one part of silica (SiO_2) combines with 12 parts of molybdate (MoO_3) to form a stable complex, silicomolybdic acid. This acid forms insoluble compounds with organic bases such as coniine, pyridine, pyramidon and others. From the analysis of pyramidon silicomolybdate, obtained by adding pyramidon to a solution of silicomolybdic acid, it appears that three molecules of pyramidon are associated with one of silicomolybdic acid and 6 molecules of water in crystallizing. Results show that 1 part of silica gives about 44 parts of the silicomolybdate. From experiment it appeared that a silicomolybdic acid solution containing 0.25*N* sulfuric acid gave the best precipitation of the pyramidon salt. The following determination of silica in animal tissues is typical: A weighed sample (about 100 mg.) of the dried and powdered tissue is fused in a platinum crucible with $^1/_4$ Gm. of sodium carbonate. The destruction of organic matter takes place smoothly and rapidly in the molten mass. The melt is cooled, dissolved in water and neutralized with sulfuric acid (using methyl orange as outside indicator). Phosphate is removed by the basic ferric acetate method by the addition of 10 cc. each of 1% ferric chloride in 0.02*N* hydrochloric acid and 1.5% of sodium

acetate in 0.028*N* sodium hydroxide, and then sufficient water to make 100 cc. Pour into a 500-cc. conical flask, bring rapidly to a boil with agitation and filter. To the filtrate is added 5 cc. of ammonium molybdate (5%) and 2.5 cc. of 10*N* sulfuric acid, heat for 5 minutes on a hot water-bath and precipitate the silicomolybdic acid by the addition of 3 cc. of 0.1*N* pyramidon, then filter, dry at 60–70° and weigh. This amount of pyramidon is sufficient to combine with 6 mg. of silica.—E. J. KING and J. L. WATSON. *Mikrochem.*, 20 (1936), 49. (E. V. S.)

S. N. P. Photodensimeter. The photodensimeter is an instrument which measures directly the optical density in cm. of liquids by means of a photoelectric cell, the e. m f. of which is balanced by means of a potentiometer. The liquid is placed in the instrument in a suitable cell and the potentiometer is adjusted to bring the galvanometer needle to zero; the liquid is replaced by water and a photometric wedge is used to bring the galvanometer reading back to zero; the optical density of the solution can then be read directly on a drum connected to the wedge. The construction, operation and conditions of use of the instrument are described. Among possible applications are indicated the determination of the concentration of methylene blue solutions, determination of lead by dithiazone, and determination of tannin in red and in white wines (the procedure for this determination is briefly outlined).—A. FAURE and PALLU. *Ann. Fals.*, 29 (1936), 393–401. (A. P.-C.)

Sodium—Volumetric Determination of. The author obtained an antimony-potassium salt with the composition K_2HSBO_4 by fusing Sb_2O_3 or Sb_2O_5 and KNO_3 in definite quantities, which exhibited greater reactive properties toward the Na-ion than the customarily used potassium pyroantimonate. To a concentrated, neutral or weakly alkaline solution containing about 0.1 Gm. of a sodium salt are added 80 cc. of a solution of the above-named salt (4 in 1,000, prepared by warming at 85° to 90°) and after an hour 40 cc. of strong alcohol. The mixture is kept below 12°. After two hours filter and wash the precipitate once with 25% alcohol and three times with 50% alcohol, in order to remove K_2HSbO_4. The precipitate is transferred with warm water to a flask ($^1/_2$ to 1 liter), add 40 cc. of strong hydrochloric acid and water to make 250 cc. The antimony is pentavalent and is reduced to the trivalent form with sodium sulfite (1 Gm.) and the SO_2 removed by boiling. After the addition of methyl orange and warming the solution is titrated with $KBrO_3$ solution (1 cc. bromate solution is equivalent to 0.00046 Gm. Na).—A. B. LEWIN. *Z. anal. Chem.* (1936), 406; through *Pharm. Weekblad*, 73 (1936), 1474. (E. H. W.)

Strychnine—Quantitative Determination of, in the Human Organism. A method for determining the amount of strychnine in the brains and all the other parts of the organism is discussed. To isolate the strychnine from these parts a special method of isolation was used. The exactness of this method depends on the distribution of the alkaloids in the central nervous system. The kidneys and liver contain a greater amount of alkaloid than the brain. The blood seems to have the same concentration as that of the brain; however the concentration here is not harmful to the blood cells.—F. VEIT. *Chem. Zentralb.*, 107 (1936), 801. (G. B.)

Sugar—Determination of, in Foods Containing Dextrinized Starch. The usual way of determining sugar in such preparations consists of precipitating the starch with alcohol. The authors use a saturated solution of barium hydroxide in place of alcohol. Seven to eight grams of the preparation are dissolved in a little water (15 to 20 cc.) in a 200-cc. volumetric flask, 20–30 cc. of baryta water added, the flask filled to the mark with water, shaken and the contents filtered. A few drops of the filtrate is tested for starch with iodine. Fifty cc. of the filtrate are treated with hydrochloric acid and after inversion the invert sugar is determined. By this method a determination can be completed in two hours.—E. WOLKOW, W. RUSCH and I. DWINJANINOWA. *Z. Untersuch. Lebensm.*, 71 (1936), 263; through *Pharm. Weekblad*, 73 (1936), 1397. (E. H. W.)

Theobromine—Determination of, in Theobromine Calcium. A method was suggested for the determination of theobromine in the calcium salt. 0.2 Gm. of dried, powdered sample is placed in a 50-cc. Erlenmeyer flask with 2 cc. of glacial acetic acid, the mixture boiled, 10 cc. of boiling water added and transferred to a 100-cc. volumetric flask with the addition of 10 cc. more of boiling water. When cool, 50 cc. of 0.1*N* iodine solution and 20 cc. of saturated salt containing 2 cc. of hydrochloric acid are added and the mixture made up to volume. After shaking and allowing to stand over night, the solution is filtered and a 50-cc. aliquot titrated with 0.1*N* sodium thiosulfate solution. The number of cc. of iodine consumed × 0.0045 = Gm. of theobromine in one-half the sample taken. Collaborative study indicated the method to be reliable.—E. O. EATON. *J. Assoc. Off. Agr. Chem.*, 19 (1936), 534. (G. S. W.)

Theobromine and Theophylline—Determination of, Report on. Collaborative study of microchemical methods for determination of theobromine and theophylline (*J. Assoc. Off. Agr. Chem.*, 19 (1936), 102) indicated the tests to be reliable.—C. K. GLYCART. *J. Assoc. Off. Agr., Chem.*, 19 (1936), 512. (G. S. W.)

Titration of Substances Which Modify the Surface Tension of Water. Curves are given showing the variation in surface tension of solutions of *m*- and *p*-cresols during progressive neutralization with sodium, potassium, ammonium and barium hydroxides, respectively. The *o*-, *m*- and *p*-toluidines were similarly studied in solutions of hydrochloric, acetic, propionic and butyric acids. Curves for cresol in strong alkalis show sharp points of inversion marking the end of neutralization, but they do not coincide exactly with the end point of neutralization. The curves for acids and toluidines are analytically correct providing a strong acid (hydrochloric) is used.—E. ANGELESCU and N. MAZILU. *Bul. Soc. Chim. Romania*, 17 (1935), 151–176; through *Chimie & Industrie*, 36 (1936), 286. (A. P.-C.)

Wheat-Germ Oil. Analytical data are given for the phosphatides, fatty acids, sterols, etc., fractionated from the oil by ethyl alcohol, ether and dimethyl ketone.—G. BALBONI. *Ann. chim. applicata*, 26 (1936), 49; through *J. Soc. Chem. Ind.*, 55 (1936), B., 557. (E. G. V.)

Yohimbine Compresses, Swiss Pharmacopœia V—Remarks on the Assay of. The method as given in the Swiss Pharmacopœia V is difficult to carry out and gives varying results. The author suggests the following: The number of tablets necessary are shaken in a 150-cc. flask with 6 cc. of water, 2 cc. of sodium carbonate solution added and then 50 Gm. of ether after which the flask is shaken for 15 minutes. Then 2 Gm. of powdered tragacanth is added and the flask shaken till the ether clears. An aliquot of 40 Gm. of ether extract representing $^4/_5$ of the sample taken is then filtered off through cotton into a tared Erlenmeyer flask, the ether distilled off and the residue dissolved in 5 cc. of 0.1*N* acid and the excess acid titrated with 0.1*N* alkali from a microburette using 1 drop of methyl red as indicator. This method gives good results and eliminates some of the errors of the pharmacopœial method.—H. MÜHLEMANN. *Pharm. Acta Helv.*, 11 (1936), 332. (M. F. W. D.)

Zinc—Determination of, in Foods. While this paper deals with the determination of zinc in foods it is unique in some respects and has some possible applications in pharmaceutical chemistry. For complete details the original paper should be consulted but the following summarizes their work: (1) A method of extracting zinc from the ash of food by means of diphenylthiocarbazone is described, the metal being effectively separated from most of the other common metals. (2) A micromethod of titration of the separated zinc with potassium ferrocyanide solution is described, the titration being effected in acetic acid solution with diphenylbenzidine and potassium ferricyanide as internal indicators. In the absence of cadmium and of amounts of bismuth greater than 0.002 Gm. this method is suitable for the determination of zinc in amounts of the order of 0.0002 to 0.001 Gm. (3) Another micromethod of titration of the separated zinc is described in which the iodine liberated from potassium iodide in the presence of potassium ferricyanide is titrated with sodium thiosulfate solution. The method is specific for zinc and is recommended for amounts up to 0.0003 Gm. (4) By the second method of titration for the final determination of the zinc, accurate recovery of 1 p. p. m. is obtained on a 50 Gm. sample of food. The method is suitable for the determination of the small amounts of zinc naturally present in foods. (5) The normal zinc-content of a number of samples of food materials is recorded.—N. D. SYLVESTER and E. B. HUGHES. *Analyst*, 61 (1936), 735–742. (A. H. C.)

PHARMACOGNOSY

VEGETABLE DRUGS

Agar-Agar—Change in Properties of, under the Influence of Freezing. Part of the water is expressed from the gels during thawing after freezing at −10°; the mineral and nitrogen contents of the residual gels are less than and their cohesive strength is greater than, those of the original gels.—P. N. PAVLOV and R. VOLSKA. *Ukrain. Chem. J.*, 10 (1935), 485; through *J. Soc. Chem. Ind.*, 55 (1936), B., 429. (E. G. V.)

Capsicum Annum L.—Seeds of, Chemical Examination of. The following results were obtained: average weight of seeds 0.0056 Gm., volatile constituents 8.65%; ether-soluble fat 18.53%; alcohol-soluble substances 4.67%; ash 7.65%; alkalinity of ash 22.47 cc. 0.1*N* acid;

P_2O_5 1.4%; pentoses 9.5–12.5%; capsanthin 0.125%; glutathione 0.5 mg. p. c.; vitamin C 58 mg. p. c.—L. BLAS. *Monitor Farm.* (1936), 98; through *Pharm. Zentralh.*, 77 (1936), 620. (E. V. S.)

Citrus Species—Colorimetric Tests for. Comparative tests by colorimetric methods are recorded. The value and limitations of the tests are discussed.—R. H. MARLOTH. *J. Pomology*, 14 (1936), 1; through *J. Soc. Chem. Ind.*, 55 (1936), B., 563. (E. G. V.)

Frangulas—Distinction between Freshly Dried and Stored. The following rapid methods are proposed: (1) Place 0.05 Gm. of the cortex in a cylinder, add about 5 cc. ammonium hydroxide (5%) and shake until the liquid is distinctly colored lasting for 1–2 minutes. The extracts fluoresces a strong bright green color under the quartz lamp if the bark is freshly dried (A) and if the stored or aged bark (B) a dull brown-violet color appears. The Richaud-Bidot Test for chlorophyll (*J. pharm. chim.* (27), (1908), 278) may be applied. (2) Moisten about 0.02 Gm. of frangula with a few drops of alcohol, place in a cylinder, add water and shake for 1–2 minutes. Decant the resulting extract into another cylinder and dilute until colorless. Upon the addition of a few drops of 5% ammonia a yellow-green ring is obtained with (A); a red-brown ring with (B).—PAUL ERNST and GERTRUDE WEINER. *Pharm. Monatsh.*, 17 (1936), 183. (H. M. B.)

Herb Mixtures—Pharmacognostical Investigation of. The author has begun a manual for the pharmacognostical investigation of mixtures of herbs. In three German works on herbs he found 420 different formulas for herb teas and in these 270 different kinds of herbs were used. Other literature was searched for simples and it appears that there are about 300 used in Germany in the preparation of such mixtures. Of these there are more than 100 mentioned only once and about 100 which occur less than five times. To these two groups belong a number of drugs possessing very active constituents and therefore are not found in the trade or in the formulas of the layman. A third group is arbitrarily divided into: drugs which occur more than 5 and less than 20 times and a final group including those that occur more than 20 times. To the last group belong 20 simples. The most prescribed drugs are: peppermint (70 times), chamomile (53 times), milfoil herb (42 times), fennel, melissa leaves and valerian (each 40 times), senna (35 times), equisetum herb and anise (each 31 times) and betula leaves (23 times). In order to investigate herb mixtures systematically, the characteristic properties of the most frequently used drugs are studied first after which those of the lesser used are investigated. This can be done with carefully prepared illustrations and short descriptions, with which it is then possible to study the mixtures and recognize their ingredients. The author has made a beginning by handling the following drugs in this manner: juglans leaves, betula leaves, malva, melissa leaves, frangula, oak bark, equisetum herb and adonis. He intends to proceed along these lines and prepare an atlas for herb investigation. From photographs so far published the work promises to be a valuable one.—F. SCHLEMMER. *Süddeutsche Apotheker-Zeitung* (1936), 495; through *Pharm. Weekblad*, 73 (1936), 1460. (E. H. W.)

Kola Nut Cultivated in Brazil. The fresh nut contains water 40%, caffeine 1.41%, theobromine traces and minerals 1.96%.—V. VARGAS. *Bol. assoc. brasil pharm.*, 15 (1934), 250; through *J. Soc. Chem. Ind.*, 55 (1936), B., 219. (E. G. V.)

Paloondo—A Mexican Plant Used for Rheumatism. The authors offer a study of a drug highly prized by the Mexican Indians for rheumatism. They give a description of the morphological, histological and histochemical properties of paloondo which is identified as *Neoschrœtera tridentata* Briquet. It contains about 20% of resin which is secreted almost entirely in the secondary leaves. The resin is composed chiefly of acid components and does not give a blue color with oxidizing agents as does guaiac resin. Another active constituent is identified as a saponin.—B. SAIKO and M. HAHN. *Scientia Pharm.*, 7 (1936), 129. (M. F. W. D.)

Senna Leaves—History of. The article is an abstract of a dissertation written up by the Pharmacognosy Institute of the University of Vienna. The use of the drug as recorded in available records is traced to the present time. The nomenclature of senna is taken up giving the derivation of the name along with the synonyms that have been used. The varieties of senna that have been classified are enumerated. The commerce or trade in senna and the uses of senna in folk medicine are reviewed. A large list of references accompanies the article.—O. ZEKERT and J. HÄFLIGER. *Scientia Pharm.*, 7 (1936), 97, 113. (M. F. W. D.)

Soy Bean. The soy bean, established for many centuries in the Orient, is now rapidly coming into prominence as a farm crop in this country. Nearly 40,000,000 bushels of soy beans

were grown in the United States in 1935. The soy bean grain is by far the richest in protein and oil of any of our common crops. Besides furnishing excellent feed and fodder on the farm, the soy bean is finding a wide use in the industries. Various edible products of high nutritive value are becoming available on the market. Besides its use in the paint industry, the oil has a prominent place in the fabrication of a long list of important commercial commodities.—W. L. BURLISON. *Ind. Eng. Chem.*, 28 (1936), 772. (E. G. V.)

Star Anise—Genuine and Poisonous. The author states that distinguishing between the genuine (*Illicium verum*) and the poisonous (*Illicium religiosum*) star anises is really among the more difficult pharmacognostical problems. He reviews the history of both of these fruits and describes pharmacognostical means for their differentiation. The more important of these are as follows: (I) The structure of the astrosclerides which are found at the top of the fruit stalk, (columella): In *I. verum* they are more or less fantastically formed and have the shape of idioblasts; in *I. religiosum* they are round and do not exhibit a peculiar form. It is recommended that polarized light be used for the investigation. (II) The coloration of the powder with strong hydrochloric acid and β-naphthol: In *I. verum* the stone-cell complex becomes grass green and the remainder of the lignified tissue blue, blue-green or bluish red; in *I. religiosum* the stone-cell complexes become brownish red and the remaining lignified elements a permanganate color. (III) This color reaction applied to the whole seeds show after half an hour various tints; *I. verum*, green and *I. religiosum*, brown. (IV) The structure of the cell layer lying directly next to the stone-cell layer of the seed coat is in *I. verum* very thin, unpigmented, the cells wavy and papillose with intercellular spaces, while in *I. religiosum* the cells are rounded, thick-walled and contain a brown cell content. The cells are clearly visible without intercellular spaces. (V) If this layer is colored by boiling fragments of the contrused seed coat with a 20% ferric chloride solution, the following differences are noted: In *I. verum* the wavy cell wall becomes clearly visible, the thin cell wall containing very little tannic acid-iron, the typical intercellular spaces become very prominent, especially with higher magnification; in *I. religiosum* a thick cell wall the pore canals of which are strongly pigmented with tannic acid-iron is formed (magnification 150×). (VI) This phenomenon is also observed by coloring the aforementioned tissues with a solution of an aniline color in water (1/4% methylene blue malachite green, fuchsin, etc.). (VII) The difference in color obtained when the alcohol or acetone extract is in contact with sulfuric acid in which a crystal of phloroglucin or orcin is suspended. *I. verum* produces a red color which increases in intensity, with *I. religiosum* a weak yellowish color is formed which entirely disappears. (VIII) The difference observed when the powder is extracted with alcohol or acetone and the liquid evaporated on a watch glass. *I. verum* yields a pleasant-smelling thick liquid which does not crystallize; with *I. religiosum*, a finely crystalline residue possessing the odor of safrol or cardamomis obtained.—M. WAGENAAR. *Pharm. Weekblad*, 73 (1936), 1490. (E. H. W.)

PHARMACY

GALENICAL

Calcium Silicate Preparations for Use in Medicine. Over twenty commercial specimens of calcium silicate from various European suppliers are examined. The CaO content varies from 12.1–34.9%, SiO_2 from 31.4–63.5%. The impurities include Cl, up to 5.5%; Na, 0.32–4.0%; CO_2, 2.4–24.5%; and traces of iron in all preparations. No large amount of free base was found. Chlorine was usually present as $CaCl_2$, occasionally as NaCl. Free silica was sometimes present. Up to about 8% of the calcium silicate was in an unreactive state, not soluble in warm normal hydrochloric acid. Calcium silicate readily takes up carbon dioxide from the air and the rate of uptake depends on the quantity already bound and the moisture present.—V. LARSEN, J. HALD and F. ERIKSEN. *Dansk Tids. Farm.*, 10 (1936), 249. (C. S. L.)

Dakin's Solution—Preparation and Stability of. The content of calcium hydroxide and of calcium ions in solutions of calcium hypochlorite is studied. The stability of a solution of sodium hypochlorite containing an excess of sodium carbonate is examined and also the stability of Dakin's solutions buffered with sodium carbonate-bicarbonate mixtures. A simple method of preparation of Dakin's solution from calcium hypochloride is outlined. The product is stabilized for preservation on the stock shelves and is rendered unstable by raising to a convenient p_H just before dispensing to the patient. *Method:* Mix 200 Gm. of concentrated solution of calcium

hypochlorite (containing 2.4–2.6% active chlorine) with a solution of 30 Gm. of sodium carbonate in 170 Gm. of water. Stir till the precipitate crystallizes, filter, wash the filter and precipitate with sufficient water to make the total weight of filtrate 500 Gm. (Solution I). Add 10 Gm. of sodium bicarbonate dissolved in 490 Gm. of water (Solution II). One cannot preserve the mixed solution, but solution I may be kept cold, in the dark. This solution should contain from 0.88 to 1.04% of active chlorine. The finished preparation should contain about 0.5% of active chlorine. The loss in titer of Dakin's solution with time is graphically reported.—S. A. SCHOU. *Dansk Tids. Farm.*, 9 (1935), 205. (C. S. L.)

Digitalis Potency—Stability of, as Drug. A supply of the 1929 Michigan grown digitalis was stored under varying conditions after thorough preliminary tests by the official frog method using oubain as the standard. Method of storage is given, results of tests, originally, after four months, eight months, one year, two years and six years. Moisture content was determined at the end of six years. A sample ten or more years old was found to have an activity of 200% of U. S. P. X standard. Experiments were carried out to determine loss of activity in drying. Results indicate that properly dried crude drug is very stable over a period of six years. Air-tight and light-tight storage appears unnecessary. There is some indication that defatting improves stability. About 25% of original activity apparently was lost during commercial drying.—L. W. ROWE and H. W. PFEIFLE. *J. Am. Pharm. Assoc.*, 25 (1936), 855. (Z. M. C.)

Emulsions—Stability of. The principal factors determining stability of emulsions are: (1) surface tension; (2) density; (3) viscosity. The greater the density of the two phases, the smaller the gravitational force—tending to cause separation. Additional theories of Bancroft, Donnen and Harkens are reviewed, as well as methods of determining the amount of oil in an emulsion.—A. BOUTARIC. *L. Apothecaire Therap.*, 262 (1935), 806; through *Am. Perfumer*, 33 (1936), No. 4, 58. (G. W. F.)

Ergot—Toxicity of, Influence of Different Factors on. The alkaloid content of ergot remained the same when it was stored in a dry, dark room for a period of one year. However, the ergot can be stored only when the fatlike substances are completely removed and the powder dried, otherwise large quantities of free acids are liberated due to the influence of the lipases in the saponification of the fat and in which case, the alkaloids are destroyed. It is also advisable not to dry the powder at too high a temperature, when it may lose from 40 to 60% of the total alkaloids.—G. J. TROPP. *Chem. Zentralb.*, 107 (1936), 805. (G. B.)

Halibut Liver Oil—Emulsion of. An emulsion of halibut liver oil may be made on the same lines as a cod liver oil emulsion. The formula would depend on the dose it is desired to give. If the dose of the emulsion is to be kept as low as possible, a 50% emulsion could be made with acacia and tragacanth on the same lines as the formula for Emuls. Ol. Morrh. in the National Formulary, and the dose would then be from 10 to 40 minims. If a larger dose is preferred, the oil could be diluted with another oil, such as almond or peach kernel, so as to give a dose of from $^1/_2$ to 2 teaspoonfuls. In order to produce a stable emulsion in a mortar while avoiding excess of gums, it is not advisable to reduce the proportion of oil below 30%. If an Irish moss emulsion is preferred, the following is suggested: halibut liver oil $3^1/_2$ fl. oz., peach kernel oil $2^1/_2$ fl. oz., acacia $1^1/_2$ oz., Irish moss mucilage (1 in 40) 10 fl. oz., chloroform 20 minims, elixir of saccharin 20 minims, flavor *q. s.*, water to 20 fl. oz.—ANON. *Pharm. J.*, 137 (1936), 424. (W. B. B.)

Insulin, Powdered—Efficacy of. In an investigation carried out in Malaya by J. A. Chelliah, a biological assay was done on samples of powdered insulin after four, five and six months of storage at room temperature, protected from light. A specimen of liquid insulin, kept in cold storage, was used for purposes of comparison. Each package of dry insulin was said to contain 100 units. The insulin was packed in a separate tube suspended over 5 cc. of solvent in a glass container. By pushing the tube into the solvent an opalescent solution, said to contain 20 units per cc. was obtained. The rabbits employed for standardization were of local breed, white and black and white in color, but all weighing about 1,250 Gm. A specimen of blood was taken prior to the injection of insulin and again at intervals of three and five hours. The dosage was at the rate of half a unit per Kg. weight, the insulin being diluted $^1/_{10}$ before injection. Twenty rabbits were used. In addition to the tests after three, four and five months' storage, a fourth test was undertaken with a solution of the insulin that had been prepared three months earlier and kept on ice. The results are given below:

	Reduction in Blood Sugar Percentage	
	Dry Insulin	Insulin Solution of Different Manufacture
4th month of storage	56% reduction	47% reduction
5th " " "	38 " "	32 " "
6th " " "	57 " "	45 " "
After storing solution of the insulin for 3 months	55 " "	56 " "

The sample of dry insulin appears to have a somewhat more prolonged effect on glucose metabolism than the control insulin, and it would seem that this dry form may be stored at room temperature in the tropics for six months without appreciable loss of potency.—FEDERATED MALAY STATES. *Ann. Rep. Inst. Med. Res.*, (1935), 62; through *Pharm. J.*, 137 (1936), 322. (W. B. B.)

Sulfur Preparations. Solutions of sulfurated potassa were tested after various periods. After 3 months, loss of hydrogen sulfide was slight. After nearly 9 months the 6% solution lost 34%, 12% solution lost 4%, 24% solution lost 75%, 50% solution lost 50%. Another sample lost 82% in 8 months. Commercial samples varied with the source and date. Larger lumps contained more hydrogen sulfide than smaller ones. An aqueous solution of hydrogen sulfide deteriorated rapidly losing 50% in two weeks, 75% in one month, 90% in 3 months, after 9 months, absent. Lotio alba and "solid" lotio alba deteriorate on aging, the latter losing 50% in 12 days, stored in a wooden box; in glass jars the loss was only 10%.—F. GUSTAFSON. *Am. Perfumer*, 33 (1936), No. 5, 71–73. (G. W. F.)

Syrup Tolu. It has often been reported that an unpleasant smell (like that of coal-gas or benzene) has developed in syrup of tolu. This is caused by a fungus which acts on cinnamic acid and produces cinnamene, the substance responsible for the odor. *Aspergillus niger* and *Penicillium glaucum* will bring this about and so may other related molds.—ANON. *Pharm. J.*, 137 (1936), 424. (W. B. B.)

NON-OFFICIAL FORMULÆ

Dentifrice. A soluble salt of a sulfuric acid ester of a higher alcohol such as sodium lauryl sulfate is used in dentifrices (suitably with carragheen mucilage and glycerin) and serves as a cleansing agent.—EBERHARD ELBEL, assignor to INTERNATIONAL SCIENTIFIC PRODUCTS CO. U. S. pat. 2,054,742, Sept. 15, 1936. (A. P.-C.)

Depilatory. The product consists of 5 lb. of rosin, 1.25 lb. of beeswax and 15.5 gr. of a synthetic amber composed of approximately equal parts of musk, ambrette and labdanum resin.—HENRIETTA A. FISCHER. U. S. pat. 2,062,411, Dec. 1, 1936. (A. P.-C.)

Effervescent Tablets. Three methods of manufacture are discussed: (1) use of anhydrous materials and the granulation of the same together, (2) granulating the components separately and (3) fusion. The following formulas are offered: *Triple Bromides:* Potassium bromide 80 Gm., sodium bromide 80, ammonium bromide 40, sodium bicarbonate 1,000, citric acid 450, tartaric acid 375, confectioners' sugar 175, terpeneless lemon oil 25 cc. *Phenacetin and Aspirin:* Aspirin 50 Gm., phenacetin 50, sodium bicarbonate 460, citric acid 415, sugar 175, terpeneless lemon oil 5 cc. Use 3% boric acid as a lubricant.—FRANCIS CHILSON. *Drug and Cosmetic Ind.*, 39 (1936), 738–740. (H. M. B.)

Hair Waving Composition. Water and gelatin are used with a gelatin preservative such as sodium benzoate and a solvent for the gelatin such as water containing acetic acid adapted to prevent precipitation of the gelatin from solution in the presence of preservatives.—EDWARD A. BUTLER, assignor to LA FAIN, INC. U. S. pat. 2,056,135, Sept. 29, 1936. (A. P.-C.)

Hair Waving Composition. The hair is made moldable when cold by applying a softening agent consisting of a 2 to 20% aqueous solution of a weak acid salt such as the carbonate or benzoate of lithium, sodium, potassium, rubidium or cesium, together with 5 to 30% of a highly soluble neutral salt such as sodium chloride and a small amount of a proteolytic enzyme such as trypsin. The softening agent is subsequently removed to restore the natural elastic properties of the hair while retaining the waves. Alkali metal hydroxides also may be used.—JULIAN Y. MALONE, assignor to PERWAV CO. U. S. pat. 2,056,358, Oct. 6, 1936. (A. P.-C.)

Hormones and Vitamins. The following formulas are given for hormone creams:

Ingredient	Prophylactic Day Cream	Prophylactic Night Cream	Preparative Day	Preparative Night
Semi-fatty or dry stearate cream	91.5%	87.0%	87.0%	83.3%
Female hormonal material	4.0%	6.0%	6.0%	8.0%
Male hormonal material	1.0%	1.5%	1.5%	2.0%
Anhydrous lanolin	3.0%	5.0%	5.0%	5.0%
Cholesterin	0.5%	0.5%	0.5%	1.0%
Lecithin	.....	.....	.....	0.2%

A summary of vitamin characteristics is also included. Vitamins A and B appear to be beneficial even when applied externally.—FRED WINTER. *Am. Perfumer*, 33 (1936), No. 4, 49–51. (G. W. F.)

Ichthyol as a Rheumatic Remedy. Rheumatic ichthyol contains besides 20% of leukichtol, small quantities of salicylic acid, an iodine compound and menthol. Leukichtol is prepared in avoiding or removing the resinous matter by sulfonating ichthyol; the compound obtained in this manner is lighter in color and has a more pleasant odor. Rubbing this compound into the skin brings immediate relief from rheumatic pains.—E. v. BALDEN. *Chem. Zentralb.*, 107 (1936), 802. (G. B.)

Insecticidal Composition. One of the active ingredients is a salt of "Reinecke's acid."—MORRIS S. KHARASCH, assignor to E. I. DU PONT DE NEMOURS AND CO. U. S. pat. 2,062,911, Dec. 1, 1936. (A. P.-C.)

Liquid Powders and Wet Whites. The following formulas are given for liquid powders:

	Standard Type	With Chalk	Quick Drying	Extra Smooth
Starch, rice or corn	...	...	5	5
Colloidal kaolin	10	10	10	15
Precipitated chalk	...	5	5	...
Zinc oxide	16	10	...	...
Titanium dioxide	...	...	5	5
Glycerin	8	5	10	7
Alcohol	10	7	9	10
Perfume compound	1	1	1	1
Tincture benzoin	...	...	5	...
Quince seed mucilage	...	...	...	3
Distilled water	105	112	100	104

Grayness is often due to reduced zinc oxide yielding free zinc. *Wet White* may be made by adding 4 oz. zinc oxide to 6 oz. glycerin and rose water, adding a tint if desired. Solutions of antipyrine (20–30%) were forerunners of liquid powders.—HENRY LEE-CHARLTON. *Am. Perfumer.*, 33 (1936), No. 5, 61–62. (G. W. F.)

MacLean's Powder. There is no set formula for MacLean's Powder, but the formula most used follows: Bismuth carbonate, 1; heavy magnesium carbonate, 4; sodium bicarbonate, 4; prepared chalk, 4. MacLean's Powder should not be confused with "Maclean Brand" stomach powder, which is a proprietary preparation.—ANON. *Pharm. J.*, 137 (1936), 404. (W. B. B.)

Massages for the Human Skin. Ethyl alcohol, propyl alcohol or isopropyl alcohol is used with a gel-forming material such as sodium stearate and a normally solid wax such as beeswax to form a composition of semi-solid character which is readily liquefiable by gentle rubbing.—WILLIAM C. MOORE, assignor to U. S. INDUSTRIAL ALCOHOL CO. U. S. pat. 2,054,989, Sept. 22 1936. (A. P.-C.)

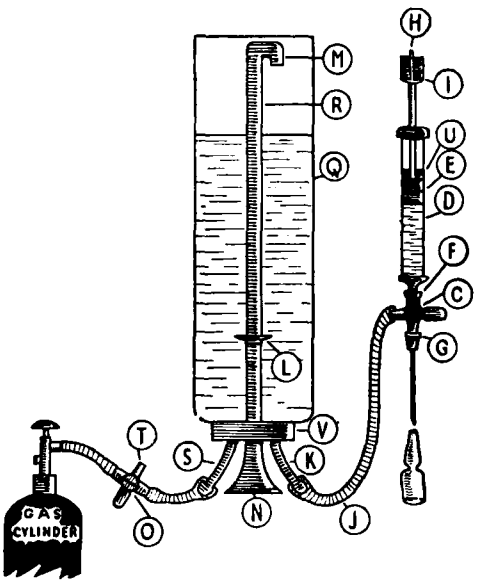
Vanishing Creams. The components of a good vanishing cream are discussed (including foundation and hand creams, etc.). The following tested formulas are offered: (1) Stearic acid 15, cetyl alcohol 0.5, glycerin 5, potassium hydroxide 1, water 78.5. This formula produces a soft cream with a high luster, spreading evenly and smoothly on the skin; (2) stearic acid 25, cetyl alcohol 0.5, cocoa butter 1, glycerin 8, potassium hydroxide 0.5, water 65. Less soft than (1); a good white cream, (3) glyceryl monostearate 10, cetyl alcohol 1, peanut oil 2, stearic acid 2, potassium hydroxide 0.1, glycerin 3, water 81.9. A fairly soft white translucent cream, fine ap-

pearance without pearliness. The acid and alkali may be omitted. (4) Stearic acid 14, cocoa butter 2, glycerin 3, triethanolamine 1.5, water 79.5. A soft white cream of about same consistency as (1), less pearly. (5) Stearic acid 25, cetyl alcohol 0.5, cocoa butter 1, glycerin 10, triethanolamine 1, water 62.5. Very fine white cream, more consistent than (4). (6) Diglycol stearate 11, lanolin 3, peanut oil 3, glycerin 3, water 80. Fine medium soft cream. The following general procedure is used: Melt the stearic acid along with the emollients and heat the water containing the alkali and the glycerin to the same temperature. Strain the melted fats into the hot water solution and stir vigorously avoiding as much as possible the incorporation of air. A temperature of 60–70° C. is recommended. Stir more slowly until the mixture is cold. Perfume is added either alone or dissolved in alcohol when the temperature of the batch has dropped to avoid evaporation loss. Mix again to assure complete dispersion of the perfume.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 39 (1936), 593–595. (H. M. B.)

DISPENSING

Ammonium Mandelate—Effervescent. The presence of sodium bicarbonate in effervescent ammonium mandelate preparations obviously increases the difficulty of obtaining the right degree of acidity in the urine and generally necessitates the simultaneous administration of ammonium chloride, while the dosage of the granules by teaspoonful is regarded by some medical men as likely to lead to variation in the amount given. Both these objections may be overcome, and the cost much reduced, by the use of ammonium bicarbonate in effervescence with mandelic acid: Mixture "A" contains 36 Gm. of mandelic acid dissolved in enough water to make 12 ounces. Mixture "B" contains 18 Gm. of ammonium bicarbonate and one dram of elixir of saccharin, B. P. C., also made up to 12 ounces. Two tablespoonfuls of each, mixed and taken during effervescence, provides the usual dose (3 Gm.) of mandelic acid and is readily taken by the patient.—W. A. KNIGHT. *Pharm. J.*, 137 (1936), 408. (W. B. B.)

Ampul-Filler—An Expeditious. An apparatus intended for quantities of approximately 1-cc. ampuls. It can also be used for larger quantities by refilling the reservoir when necessary and for larger ampuls by employing a larger syringe. The advantages of this apparatus are: (1) It is simple and can be rigged up without much trouble and expense. (2) It works automatically, requiring one hand to work the tap and one hand to feed with ampuls, and so fills a large number of ampuls with minimum time and trouble. (3) It fills each ampul with the same amount of solution, which can be adjusted according to requirements. To use the apparatus, the inlet tube **S**, which connects with **R**, is joined by means of a rubber tubing with a cylinder of compressed gas. Midway between the cylinder and the tube **S** is inserted a two-way tap at **O** to connect with the atmosphere at **T**. When the gas has trickled through at the minimum of pressure, the tap at **O** is turned, closing the circuit and enabling pressure to be maintained at the surface of the liquid in the Junker bottle. This pressure forces the solution through the aperture at **L**, through **K**, and is led by a connection of rubber tubing **J** through a two-way tap at **C** into a 1-cc. record syringe. When the solution has filled the syringe the two-way tap **C** is turned and the weight of the piston and the lead weights **I** force the liquid out into the ampul. Metal discs may be attached to the piston-rod at **U**. Lead weights are attached by means of a metal peg **H**. The piston ring **E** is removed and discarded, enabling the piston to work easier. To operate the apparatus, fill the reservoir (the Junker bottle unscrews at **V**), adjust the gas pressure, turn the tap **C** when the syringe will fill. The tap is further



turned and the solution empties into the ampul. Next, turn the tap back again to its first position and the syringe automatically fills again.—E. T. GRIFFITHS. *Pharm. J.*, 137 (1936), 319. (W. B. B.)

Barbiturate Vehicles. The administration of barbiturates is discussed and several formulas given. Barbital and phenobarbital are best given in capsule or tablet but where liquid dosage is desired, glycerin makes the best vehicle. Its disguising effect is good and can be largely diluted.—BERNARD FANTUS and H. A. DYNIEWICZ. *J. Am. Pharm. Assoc.*, 25 (1936), 993. (Z. M. C.)

Castor Oil—Hydrogenated, as an Ointment Base. The great viscosity of castor oil and its miscibility with alcohol being valuable properties, hydrogenated castor oil was chosen as an ointment base. Hydrogenated oils are less susceptible to rancidity than lard and may be obtained at almost any desired melting point. Experiments were tried with two types: soft hydrogenated castor oil, melting point 40° C., iodine value, 70.8, miscible with alcohol at 50° C.; hard hydrogenated castor oil, melting point 82° C., iodine value 16.6. A test to determine amount of water absorbed showed the following: soft hydrogenated castor oil, 5%; hard hydrogenated castor oil, 8.5%; white petrolatum, 1.7%; lard 5.7%. Satisfactory ointments were prepared using soft hydrogenated oil in place of petrolatum or wool fat and hard hydrogenated oil for wax. Some formulas are given.—GEORGE W. FIERO. *J. Am. Pharm. Assoc.*, 25 (1936), 862. (Z. M. C.)

Ephedrine Sprays—Preparation of Stable. To make ephedrine sprays that will remain stable for months or years, use a liquid petrolatum that meets the peroxide test and an ephedrine that is dry and free from ammoniacal odors (preferably an unopened original package of the alkaloid); package the sprays in small amber glass containers and keep them out of direct sunlight. The results of the investigation are charted, using nine different liquid petrolatums in amber and flint bottles.—E. N. GATHERCOAL, E. G. KING and R. E. TERRY. *Am. Drug.*, 94, No. 6 (1936), 44. (E. V. S.)

Fluidextract of Celery Fruit, N. F. VI. Report is made of experimental work on fluidextract of celery fruit made by type processes A and C. Experiments with different strengths of alcohol showed a difference in end product. With pure alcohol no gelatinous residue or precipitation occurs. Nine parts of alcohol to one of water by process A always gives a gelatinous mass. This menstruum gives satisfactory results only with type C. If this menstruum is to be used the two types of processes should not be optional.—P. L. BURRIN and F. E. BIBBINS. *J. Am. Pharm. Assoc.*, 25 (1936), 995. (Z. M. C.)

Fluidextracts by Fractionated Lixiviation. The fractionated lixiviation as described, *e. g.*, in the Italian pharmacopœa, gives extracts of inferior content in extractive material than obtained by the standard method of percolation.—JUAN E. MACHADO and JACQUES SONOL. *Rev. farm.* (*Buenos Aires*), 78 (1936), 390. (A. E. M.)

Gland Products—Notes on Compressing, into Tablets. Formulas and procedures are given for making tablets of desiccated heart substance, liver and pancreas. In general it was found that large amounts of moistening agents were necessary to get proper dampness for granulation. It was not found necessary to add lactate, phosphate or glycerophosphate of calcium and alkaline bases or salts.—F. D. STOLL and C. O. LEE. *J. Am. Pharm. Assoc.*, 25 (1936), 996. (Z. M. C.)

Liniments Containing Aspirin. Aspirin is used with a substantially anhydrous and nonhygroscopic solvent such as glycol oleate and a rubefacient such as an essential oil mixture which is a solvent for aspirin.—EARL B. PUTT. U. S. pat. 2,056,208, Oct. 6, 1936. (A. P.-C.)

Percolation Procedure—Theoretical and Practical Studies of. The study of displacement and rate of percolation (Series V) is considered under the following headings: (*a*) early views, (*b*) a discussion of the theory of displacement, (*c*) extraction during the displacement, (*d*) the rate of percolation and (*e*) the calculation of the rate of percolation. The series of experiments shows that the displacement of the percolate from the percolator by added menstruum is not quantitative. The interface of the two layers mixes considerably. The additional menstruum produces some further extraction of the drug and takes up the undisplaced extractive. The most efficient rate of percolation for the economical percolation of 500 Gm. of cinchona bark is found to be 30 drops per minute. The calculation of the rate of percolation of large amounts of cinchona bark by the formula developed gives different values from that obtained with the formula of Herzog. The formula developed is: $a = \frac{c_x \cdot V_p}{h}$ where a = rate of flow in cc., c_x = the fall in level of the

menstruum in unit time, V_p = the volume of the pores in the drug when loosely packed, and h = the height of the column of drug. The constants c_x and V_p must be determined for the various drug forms as leaves, flowers, seeds, etc. The draining of the marc (Series VI) is taken up under the following headings: (*a*) review of early literature and (*b*) present work. In this work, displacement of the menstruum by water was tried. The column of water did not exert a pressure sufficient to affect the rate of outflow. It is shown that the complete and undisturbed draining out of the drug without mixing is not possible in the percolation procedure. The authors feel that the results obtained with cinchona bark may well be applied to the percolation of other drugs. With drugs that contain substances precipitated by water, the process is not feasible. In cinchona, the water may precipitate cinchona alkaloid-tannin compounds from the extractive.—J. BÜCHI and K. FEINSTEIN. *Pharm. Acta Helv.*, 11 (1936), 279. (M. F. W. D.)

Percolation Procedure—Theoretical and Practical Study of. The authors give a general review and criticism of the work carried out and present several tables of composite results. The data accumulated indicates the following to be the best percolation procedure:

Sample of 500 Gm. Powdered Cinchona Bark

Percolator form	The American type
Moistening	100 Gm. of liquid
Pass through sieve	
Time for swelling	2 hours
Pass through sieve	
Packing in percolator	Without pressure, by loose shaking
Addition of menstruum	100 drops per minute
Maceration period	6 hours
Rate of percolation	30 drops per minute

The entire procedure consumes about 51 hours. The authors compare the results of percolations by their method with those carried out according to the Swiss Pharm. V. They also report experiments using the special processes of repercolation, diakolation and evakolation. These variations of the percolation procedure that have been suggested did not produce the results claimed. Repercolation (according to the U. S. P. X) is complicated and gives no better results than the usual procedure. Diakolation (Breddin) offers no advantage and requires expensive apparatus. Evakolation (Kessler) requires less expensive apparatus and seems to be the best of the special procedures for practical use. The authors' work has shown that the form of the percolator plays a far smaller rôle than at first assumed. The most important result of the work lies in the determination of the influence of the factor time on the percolation and in the success in obtaining a considerable increase in the yield by a practical percolation procedure.—J. BÜCHI and K. FEINSTEIN. *Pharm. Acta Helv.*, 11 (1936), 334. (M. F. W. D.)

Pills—Coating with Cocoa and Varnishing. Methods of coating pills with cocoa are studied. Fifteen grams of cocoa powder will cover 500 pills if a moistening fluid is used consisting of one part gum arabic mucilage and two parts sugar syrup. One to two grams of this fluid are used in two portions. Seven varnish formulas are compared. Good results were obtained with balsam of tolu 20 Gm., ether 10 Gm., absolute alcohol 30 Gm.; gum benzoin 15 Gm., ether 22 Gm., absolute alcohol 68 Gm.; or gum benzoin 15 Gm. and concentrated spirit 90 Gm. The pills are shined by moistening with 2 or 3 drops of mineral oil on a metal plate and polishing with a dry cloth.—A. T. DALSGAARD. *Dansk Tids. Farm.*, 10 (1936), 264. (C. S. L.)

Sodium N-Methyl-C,C-allylisopropylbarbiturate—Process for the Manufacture of, in a Stable, Dry State Readily Soluble in Water. Concentrated alcoholic solutions of sodium N-methyl-C,C-allylisopropylbarbiturate are filled into ampuls. The solution is evaporated to a syrupy consistency under reduced pressure at ordinary temperature, and is then quickly heated to remove the remaining alcohol, whereby the contents of the ampuls crystallize as a voluminous, inflated, solid mass.—OTTO SCHNIDER, assignor to HOFFMANN-LAROCHE, INC. U. S. pat. 2,056,892, Oct. 6, 1936. (A. P.-C.)

Sodium Phosphate—Preparation of Pharmaceutical. It is suggested that sodium phosphate may be prepared in a pure state by boiling a solution of sodium carbonate with $CaHPO_4$, which is decomposed to give the soluble $Ca(H_2PO_4)_2$.—V. PAOLINI. *Gazzetta*, 65 (1935), 628; through *J. Soc. Chem. Ind.*, 55 (1936), B., 43. (E. G. V.)

Solids and Liquids—Extraction of. A complete graphical solution of problems involving the multiple and continuous countercurrent extraction of solids with liquids is presented including the case of extraction with varying entrainment. The latter condition has not been discussed in the literature heretofore. The solution of a practical problem of this type is also presented.—E. A. RAVENSCROFT. *Ind. Eng. Chem.*, 28 (1936), 851. (E. G. V.)

Tablet Formulas. The conditions are discussed for the preparation of tablets conforming to the Swedish Phar. X with respect to excipients, binders, etc., which possess desirable properties as regards low fragility, yet a good decomposition rate in solution. According to tests which are defined, the fragility and decomposition time are established for a series of about 73 formulas, cited in full.—H. ALBERTUS. *Farm Revy*, 35 (1936), 565, 577, 589, 605, 621, 637, 653, 673. (C. S. L.)

Tablets in the "Defektur." Directions for the preparation of 39 types of tablets are offered. Thirteen references are included.—JOHANNES ARENDS and WALTER PEIPPELMANN. *Apoth. Ztg.*, 51 (1936), 1713–1717. (H. M. B.)

Toilet Powder Process. A method of manufacturing face powder and similar toilet preparations consisting of or including powder of vegetable origin by which the granules are burst and treated with wax, fat or like water repellent is given.—J. F. KAPP. British pat. 452,115. *Perfumery Essent. Oil Record*, 27 (1936), 430. (A. C. DeD.)

PHARMACEUTICAL HISTORY

Alexander Tschirch—80th Birthday of. Biographical sketch.—ANON. *Pharm. Monatsh.*, 17 (1936), 181–183. (H. M. B.)

Christian Gottlob Weinlig. Historical sketch of the life of the founder of the Elefanten Apothecary in Berlin.—CARL KLEIN. *Apoth. Ztg.*, 51 (1936), 1585–1588. (H. M. B.)

Chuck Wagon Therapy. "Personal recollections of the pharmaceutical medical and dental aspects of cattle-trailing days in Texas and the great southwest."—WALTER H. COUSINS. *J. Am. Pharm. Assoc.*, 25 (1936), 877. (Z. M. C.)

Essential Oils in the Middle Ages. Historical notes on methods of production of essential oils up to the end of the seventeenth century.—RÉGINALD DE WARREN. *Parfums de France*, 14 (1936), 216–222 (in French and English). (A. P.-C.)

Jons Jacob Berzelius. The author gives a brief chronology and a summary of the achievements of Berzelius.—LOUIS H. RODDIS. *J. Am. Pharm. Assoc.*, 25 (1936), 874. (Z. M. C.)

Medicine Chest—An Interesting Old. The author, who is the Assistant Curator, Division of Medicine, United States National Museum at Washington, describes a recent addition to the pharmacy collection. The medicine chest was made in 1804 and was presented by William C. Baur of Norwalk, Conn. A booklet gave directions for use of the medicines and the author quotes some of these. The article is illustrated.—CHARLES WHITEBREAD. *J. Am. Pharm. Assoc.*, 25 (1936), 1,005. (Z. M. C.)

Pharmacy—Early, in New Braunfels and San Antonio, Texas. The author sketches the early history of these localities, mentioning a number of pharmacists and doctors who were then active.—HENRY F. HEIN. *J. Am. Pharm. Assoc.*, 25 (1936), 1,003. (Z. M. C.)

PHARMACEUTICAL EDUCATION

History—Discovering Pharmacy through. The author emphasizes the need for becoming professionally minded and the importance of courses on the history of pharmacy in our colleges.—C. O. LEE. *J. Am. Pharm. Assoc.*, 25 (1936), 872. (Z. M. C.)

PHARMACEUTICAL LEGISLATION

Prescription—What Type of, and How Many to Be Given at Board of Pharmacy Practical Examination. Attention is directed to some of the requirements of the New York Board of Pharmacy.—J. LEON LASCOFF. *J. Am. Pharm. Assoc.*, 25 (1936), 870. (Z. M. C.)

MISCELLANEOUS

Alcohol—Table for the Dilution of, by Weight or by Volume. A table is given showing the weight or volume of water to be added to a given weight or volume of alcohol of definite con-

centration to obtain 100 L. of a lower concentraction alcohol.—P. LAZZARI. *Ann. Soc. Brasseurs*, 45 (1936), 83, 103, 119, 145. (A. P.-C.)

Anesthetic Combinations Containing a Local Anesthetic Agent and a Vasoconstricting Agent. 3,4-Dihydroxyphenyl-α-ethanolamine is used as a vasoconstricting agent in conjunction with a local anesthetic.—MAX BOCKMÜHL, OTTO SCHAUMANN, GUSTAV EHRHART and LEONHARD STEIN, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,055,064, Sept. 22, 1936. (A. P.-C.)

Animal Odors. A survey of the odors of animal origin is discussed including the butter aroma, indoles, castor, civet, natural animal musks, synthetic musks, ketone and ambrette musks. Several tables are given showing the composition of perspiration and the synthetic musks including the nature and position of the substituents.—G. MALCOLM DYSON. *Perfumery Essent. Oil Record*, Annual Special Number (1936), 3. (A. C. DeD.)

Animal Scent—Phenomena of. A zoölogical study of different varieties of animal scent glands is discussed. Illustrations of the glands of the musk deer, civet, beaver, musquash, goat, crocodile and pig are given.—C. A. OLDFIELD. *Perfumery Essent. Oil Record*, Annual Special Number (1936), 13. (A. C. DeD.)

Bandage—Antiseptic. A self-adhesive, moldable, unvulcanized rubber bandage has mixed therein through the body of the material solid oxyquinoline, which is gradually vaporized in use by the heat of the body.—EDWARD FETTER, assignor to HENRY V. LUCAS. U. S. pat. 2,064,-898, Dec. 22, 1936. (A. P.-C.)

Colors in Cosmetics. A discussion of the theory color, coal tar dyes, acid and basic colors, spirit and oil soluble dyes. The properties and uses of amaranth, ponceau SX, erythrosine, sunset yellow FCF, tartrazine, naphthol yellow S, orange I, fast green FCF, Guinea Green B, light green SF yellowish, brilliant blue FCF, indigo sodium disulfonate and oil OB and AB are given. Structural formulas for the synthesis of amaranth are included. Fading of food colors is due to strong sunlight, excessive heating, oxidation, reduction, hydrolysis or micro-organisms. Coal tar dyes should be dissolved in water not over 150°. Azo dyes are readily faded by tin; triphenylmethane dyes are less susceptible. Azo dyes are easily faded by sulfurous acid and sulfites.—R. P. COLE and M. B. DE NAVARRE. *Am. Perfumer*, 55 (1936), No. 2, 50–53. (G. W. F.)

Colors in Cosmetics. Pigments are of three types: (1) color lakes, (2) chemical and (3) earths. Each is discussed and numerous specific examples are described. Nineteen vegetable colors are described.—R. P. COLE and M. G. DE NAVARRE. *Am. Perfumer*, 33 (1936), No. 3, 62–64. (G. W. F.)

Colors in Cosmetics. A brief discussion of types of dyes, followed by a dictionary of colors describing 48 coloring materials. R. P. COLE and M. G. DE NAVARRE. *Am. Perfumer*, 33 (1936), No. 4, 56–58. (G. W. F.)

Consistency. "Consistency is a term often used to define properties of a fluid, but that this term is scientifically lacking in meaning, and furthermore is a mixture of a range of properties." The viscosity coefficient is defined. Plasticity, and a graph explaining it, are given. Irish moss slime, bentonite, tragacanth—all have the property of thixatropy—in a case of tragacanth it is quite rapidly evident. Anomalous viscosity, or "variable viscosity" is necessary to keep the actual phases of an emulsion from separating. Soaps, gelatin, starch, tragacanth, acacia, agar and nitrocellulose have this property. Both anomalous viscosity and thixatropy are utilized in pharmaceutical emulsions. If Irish moss is used in place of tragacanth, the emulsion will jell when standing, and becomes mobile on shaking.—G. MIDDLETON. *Industrial Chemist* (Pharm. Supplement) (Jan. 1936), 11, through *Am. Perfumer*, 33 (1936), No. 5, 81. (G. W. F.)

Cosmetics of the Swedish Pharmacopœia. Unguentum cosmeticum of the Swedish Phar. X may be improved in the light of modern technic. Five formulas are cited, three of these are from *Drug and Cosmetic Industry*. Notes on preparation and use of emulsification agents and perfumes are given.—I. TUFVESSON. *Farm. Revy.*, 35 (1936), 697. (C. S. L.)

Derris Insecticides. III. Aphicidal Properties of Derris and Cubé. IV. Derris Root Residues Extracted with Different Solvents. The toxicity of derris root to aphids is not always dependent upon its rotenone content, especially when this is high. Derris and cubé roots having similar rotenone content show similar toxicity. The rate of killing by dusts was less than that by wet sprays. Use of lead arsenate, calcium hydroxide or sulfur with derris reduces its toxicity unless effective wetting agents are included. Loss of toxicity of derris due to admixture with lime-sulfur is not fully corrected by wetting agents. Among solvents examined only ethyl alcohol ex-

tracted practically all insecticidal matter from the roots. In general water-soluble solvents extracted more total solids than did water insoluble materials. Insecticidal values of extracts are not dependent upon the total solid content.—J. M. GINSBURG and P. GRANETT. New Jersey Agric. Expt. Sta. *Bull.*, Nos. 581 and 582 (1935); through *J. Soc. Chem. Ind.*, 55 (1936), B., 293. (E. G. V.)

Disinfectant Soaps—Manufacture of. Difficultly soluble compounds of silver, such as silver hypochloride or hypobromide, also silver rhodamide, all of which have very marked disinfectant and bactericidal properties, can be readily incorporated in the soaps in the plodder or otherwise. Active oxygen preparations such as sodium pyrophosphate, peroxide or perborate, may be included.—Ger. pat. 632,825. *Perfumery Essent. Oil Record*, 27 (1936), 416. (A. C. DeD.)

Dispensary—Hospital, Notes on a New. A detailed description of a new hospital dispensary in a British provincial general hospital. A feature of the new dispensary is the abundance of window space. Several minor labor saving devices are mentioned and a description of the sterilization apparatus is given.—R. J. STRATTON. *Pharm. J.*, 137 (1936), 433. (W. B. B.)

Dressing—Antiseptic or Medicated. Dry sodium borofluoride is added to the dressing in quantity sufficient to render it sterile and lethal and inhibitory to the growth of micro-organisms therein.—LEON ZISSERMAN and EDWARD SHORE. U. S. pat. 2,063,218, Dec. 8, 1936. (A. P.-C.)

Emulsifiers in the Pharmaceutical and Cosmetic Industry. A review. The importance of a knowledge of the physiological action of emulsions is stressed.—F. HESEMANN. *Angew. Chem.*, 48 (1935), 773; through *J. Soc. Chem. Ind.*, 55 (1936), B., 170. (E. G. V.)

Emulsifying and Wetting Agents. Sapamines, Invadines, Ultravons. The wetting agents, as sapamines, invadines and ultravons, although prepared for use in the textile industry, are finding a use in the pharmaceutical and cosmetic industries. The sapamines are excellent wetting and penetrating agents, have strong foaming properties and are suitable for emulsifying fats and oils. All brands of sapamine in dilutions of 5 oz. to 40 oz. per 100 gallons of water may be used as wetting agents in the presence of magnesium sulfate, aluminum salts or salts of the heavy metals. Sapamine CH foams up to a dilution of 1 to 2 parts per million of water. Invadine N is an efficient wetting agent and emulsifying agent; soluble in three times its weight of hot water and five times its weight of cold water; a good emulsifier of fats, oils and fatty acids, 30 parts of oleic acid can be emulsified with 70 parts of a 1% solution. Invadine C is extremely soluble in cold water; stock solutions of any strength can be prepared, are perfectly neutral and are emulsifiers for fat and oil solvents, *e. g.*, benzol. Invadine B dissolves readily on stirring into warm water, 2 lb. per gallon. The solutions are resistant to water containing lime, and can be used in the presence of sodium hypochlorite and bleaching powders. The ultravons are cleansing and scouring agents. Ultravon W is supplied in the form of a thick paste or powder. Ultravon K, in addition to its cleansing properties, will prevent the formation of lime soaps in the presence of hard water as it is stable in lime, magnesium or similar metallic salt solutions.—ANON. *Pharm. J.*, 137 (1936), 296. (W. B. B.)

Eye Cosmetics. Preparations for making up and beautifying the eyes, such as mascara, eye shadow, eyebrow pencil, eye cream, cosmetic eye lotions, are discussed.—S. P. JANNAWAY. *Perfumery Essent. Oil Record*, 27 (1936), 438. (A. C. DeD.)

Fats, Oils and Waxes—Colorimetric Measurements in the Field of. Types of colorimeter and photometer are described and their theory and application are briefly discussed.—L. IVANOVSKY. *Petroleum*, 32 (1936), suppl.; through *J. Soc. Chem. Ind.*, 55 (1936), B., 557. (E. G. V.)

Fish and Pharmacy. It is not until the introduction of cod liver oil that we find any extensive use of a fish product in medicine. The origin of the use of cod liver oil appears to have been in the Scandinavian countries, from which it spread to Germany. The steaming process for the preparation of cod liver oil is a very simple one. The livers are thrown into a large vessel with water, the temperature is raised to about 90° C. The liver tissue breaks up very rapidly and the oil rises to the surface, when it is skimmed off. Various refinements have been proposed from time to time, but this simple process is probably better than any other. Vitamins are not so easily destroyed as was at one time thought and there is no serious loss during this process. Nearly all medicinal oil is freed from solid "stearin" by cooling and filtering. This is actually a wasteful process since the separated stearin is just as valuable medicinally as the oily fraction. The

methods which are ordinarily applied to oils for deodorization cannot be applied to cod liver oils as they destroy the vitamins. The quality of an oil depends much more on the livers used and on the care taken during its extraction than on anything that can be done to it afterward. One method of refining which is commonly used is filtration through Fuller's earth which removes some of the taste. The intimate association of the vitamin A with the coloring matter makes it inadvisable to attempt to remove the color from cod liver oil. Halibut liver oil contains more vitamins A and D than any other oil that can be made on the commercial scale. The vitamin A content of halibut liver oil is about 100 times that of cod liver oil. While there has been as yet no indication that more than one vitamin exists in fish liver oils, the position with regard to D is somewhat more complicated.—N. EVERS. *Pharm. J.*, 137 (1936), 459. (W. B. B.)

Hair Waving Preparations. Wave sets consist essentially of a gum mucilage, perfume, water and preservative; additional ingredients that may also be incorporated include alcohol, glycerin, coloring materials, usually pink, green or amber and sometimes a mild alkali. The more commonly employed gums are tragacanth, karaya and acacia gum, quince seed, Irish moss, dextrin, agar-agar, pectin and psyllium seed. The two most popular alkalis are potassium carbonate and borax. Alcohol facilitates drying, acts as a solvent for the perfume used in the lotion, helps to exert a preserving action and in the case of powdered gums, acts as a distributing agent for the gum and the consequent avoiding of lumps in the product. Waving fluids and setting lotions made with quince seed are not sticky and dry rapidly, leaving no visible residue on the hair. The best method of preparation for quince seed mucilage is to make up a concentrated stock material and dilute as required. Several formulas are given. The permanent waving lotions are of two types, the ammonia and the non-ammonia type. In the ammonia type the ammonia can be employed either as ammonium hydroxide or as one of the ammonium salts; glycerin is sometimes added to the solution. Of the non-ammonia types, the most useful types of solutions are composed of alkalis, such as potassium or sodium carbonate or sodium pyrophosphate.—H. WENTWORTH AVIS. *Perfumery Essent. Oil Record*, 27 (1936), 480. (A. C. DeD.)

Inhalants. Inhalants are used for (1) local action on the mucous membrane of the respiratory passages and (2) for systemic action. Those in class (1) may be gaseous, vapor, smoke or spray and are discussed fully with examples.—A. RICHARD BLISS, JR. *Drug and Cosmetic Ind.*, 39 (1936), 726–728. (H. M. B.)

Insecticidal Petroleum Emulsions—Characteristics of. A summary of theory and practice.—H. SILMAN. *Oil and Soap*, 13 (1936), 101; through *J. Soc. Chem. Ind.*, 55 (1936), B., 563. (E. G. V.)

Intramuscular or Subcutaneous Injection—Pharmaceutical Preparations for. Numerous examples are given of preparations which can be prepared by incorporating a pharmaceutically active substance with an aqueous emulsion of a lipin and a substance exerting a stabilizing effect on said emulsion, whereby a system, called "depot," is formed capable of holding any desired doses of the pharmaceutically active substance or medicament but releasing it over any desired time only gradually, so that large doses may be administered without detriment to the organism. The lipins used consist of fatty, non-drying oils such as olive, almond, cod liver, cottonseed, soy bean, sesame, arachis, train, sunflower, coconut, etc. Similarly, synthetic equivalents of these oils, *i. e.*, glycerol esters of long-chain fatty acids, may be used. Lipins suitable for the manufacture of the depots also comprise phosphatides, obtainable, for example, from yolk or brain. Lecithin acts simultaneously as a stabilizer and as an oily substance; the same is true with cephalin. Purified wool fat and several of its preparations, such as eucerin, also answer this purpose. Stabilizers comprise alkali salts of long-chain, saturated and unsaturated fatty and resinic acids, containing at least ten carbon atoms which may be hydrolyzated. The alkali constituent of said stabilizers may be, for example, ammonia, an alkali metal, such as sodium, potassium, lithium or strontium, or an amine such as mono-, di- or tri-methyl, ethyl, butyl- or isobutylamino, mono-, di- or tri-ethanolamine, dimethylethanolamine, ethyldiethanolamine, choline, ethylenediamine, etc. The acid component of said stabilizers may be chosen from palmitic, stearic, oleic, linoleic, ricinoleic, margaric, lauric, myristic, arachidic, behenic, melissic or like fatty acids, or from resinic acids such as abietic, pimelic or pimaric acids, or by saponifying any desired resin of natural origin, such as rosin, shellac, amber, copal, damar, etc. Use of various auxiliary ingredients is described.—GUSTAV KLEIN and ARNO GROSSE, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,055,083, Sept. 22, 1936. (A. P.-C.)

Java Cananga Oil. A report on Bantam cananga oil, which is distilled in the area of northwest Java, is given, including the collecting of the blossoms and the method of distillation.—ANON. *Perfumery Essent. Oil Record*, 27 (1936), 385. (A. C. DeD.)

Liatrix and Melilot—Coumarin Producing Plants. A review of the preparation and composition of oils of liatrix and melilot and of their merits in perfumery.—G. IGOLEN. *Parfums de France*, 14 (1936), 222–226 (in French and English). (A. P.-C.)

Litmus—Substitution of, in Pharmacy. The authors claim that litmus can be substituted by a synthetic product obtained in the following manner: resorcin (100), sodium nitrite (5) and water (5) is carefully mixed in a flask and slowly heated to 110°. When the reaction is complete the heat is removed. The color of this mixture slowly darkens and finally develops a red-carmine color. It is then heated to 115–120° when ammonia is liberated and the color changes to red-violet to blue. The mixture is dissolved in alcohol, filtered and the filtrate evaporated at 30–40°. The p_H is 4.45–6.34.—S. M. BOLOTNIKOWA and M. S. SCHRAIBER. *Chem. Zentralb.*, 107 (1936), 807. (G. B.)

Mascara. The choice of materials for making this cosmetic preparation in its 3 forms—liquid, cream and cake—are discussed.—MYRA G. AST. *Drug and Cosmetic Ind.*, 39 (1936), 730–731, 744. (H. M. B.)

Medicinal Baths. Application of Disperse Gases. Apparatus and technic for obtaining dispersions of gases, such as carbon dioxide or oxygen, in water containing a stabilizer (*e. g.*, soap) are described.—M. BOTZKES. *Kolloid-Z.*, 75, (1936), 79; through *J. Soc. Chem. Ind.*, 55 (1936), B., 523. (E. G. V.)

Nasal Sprays. Use of sprays is discussed; 16 formulas are offered.—A. RICHARD BLISS, JR. *Drug and Cosmetic Ind.*, 39 (1936), 588–90, 595. (H. M. B.)

Odor—Mystery of. A historical review of the work done on odors by such people as Ramsay, Emil Fischer, Robert Boyle, Linnaeus and more recently Ruzicka, is given.—WM. MCCARTNEY. *Perfumery Essent. Oil Record*, Annual Special Number (1936), 18. (A. C. DeD.)

Package for Preserving Local Anesthetic Solutions. The package is constructed to prevent sufficient ingress of air to cause deterioration of the material.—SAMUEL D. GOLDBERG, assignor to NOVOCOL CHEMICAL MANUFACTURING CO. U. S. pat. 2,051,349, Aug. 18, 1936. (A. P.-C.)

Perfumery—Progress of, in 1936. Some of the outstanding contributions which have appeared in the *Perfumery Essent. Oil Record* during the year 1936 are classified. Mention of the new products, color problems, cosmetic emulsions, uses of new emulsifiers, new patents and other miscellaneous contributions is made.—ANON. *Perfumery Essent. Oil Record*, 27 (1936), 462. (A. C. DeD.)

Pharmacy and Medicine—Contributions of Chemistry to, during the Twentieth Century. An inaugural address at the opening of a British School of Pharmacy, discussing contributions of chemistry to pharmacy and medicine. Among the contributions discussed were: vegetable alkaloids, especially emetine and ergometrine; hormones, such as insulin and the extracts of liver; vitamins, such as vitamin A and the vitamin B complex; synthetic chemicals; chemotherapy, including spirochæticides.—F. L. PYMAN. *Pharm. J.*, 136 (1936), 379. (W. B. B.)

Pharmacy—New Practicalities in. Attention is directed to the uses for an electric mixer and a hand homogenizer in pharmacy.—O. U. SISSON. *J. Am. Pharm. Assoc.*, 25 (1936), 863. (Z. M. C.)

Phytopharmacy—Review of. Recent developments in the use of copper compounds, oils and various substitutes for arsenicals in parasiticides are discussed.—M. RAUCOURT. *Ann. Agron.*, 5 (1935), 385; through *J. Soc. Chem. Ind.*, 55 (1936), B., 71. (E. G. V.)

Resin and Terpene Derivatives—Use of, in the Preparation of Insecticides. Preparations containing derris are described.—J. FEYTAUD and P. DE LAPPARENT. *Bull. Inst. Pin*, (1935), 241; through *J. Soc. Chem. Ind.*, 55 (1936), B., 293. (E. G. V.)

Scent Gradations. The valuable gradations of scents can be obtained by hydrogenating the ketones or ketone mixtures with breaking up of the double linkage which results from the condensation of the cyclic ketones with the aliphatic aldehydes.—British pat. 449,211. *Perfumery Essent. Oil Record*, 27 (1936), 406. (A. C. DeD.)

Shampoos—Ancient and Modern. The ancient type shampoos as alternatives to plain water were of three forms: (1) the use of crude alkali, usually obtained from wood ashes; (2) the use of various oils; (3) the use of dry absorbent powders. The modern shampoos may be

divided into two categories: shampoos based on soap and shampoos based on soap substitutes, the so-called soapless shampoos. The soap shampoos fall into two main classes—powdered shampoos to be dissolved in water, the more popular for home use, and the various liquid shampoos used in the hairdressing profession. The main difference lies in the type of soap used, sodium soap being suitable for powder shampoos and potassium soaps for liquid shampoos, including the "dry" shampoos. Each individual type of soap shampoo is discussed. In a later article the author discussed the different types of soapless shampoos.—M. LOVAT HEWITT. *Perfumery Essent. Oil Record*, 27 (1936), 386, 431. (A. C. DeD.)

Soap—Prevention of Oxidation. (1) Soap should be made by the boiled process to ensure complete saponification and elimination of glycerin, which has a hygroscopic effect. (2) Oils and fats of saturated series should be used as much as possible. (3) Incorporate an antioxidant. (4) Essential oils should be selected with the least pro-oxidant effect. (5) Wherever permissible, alkaline fillers should be employed. The following aromatic materials are mentioned as being good in soap: citronellol, coumarin, cymene, eucalyptol, iso-eugenol, metaldehyde, mesityl oxide, thymene, phenyl propyl alcohol, safrol and isosafrol.—BENJAMIN LEVITT. *Indian Soap J.* (Mar. 1936), 211; through *Am. Perfumer*, 33 (1936), No. 5, 81. (G. W. F.)

Specialty List. An alphabetical list of special-named perfumery prime materials and their sources of supply is given.—ANON. *Perfumery Essent. Oil Record*, Annual Special Number (1936), 25. (A. C. DeD.)

Stabilizer for Pyrophosphatic Peroxide Baths. High efficient stabilizers for peroxide or persalt bleaching baths may be obtained by mixing salts of pyrophosphoric acid with sulfonic or carboxyl acids of amines of the aromatic series.—Ger. pat. 631,162. *Perfumery Essent. Oil Record*, 27 (1936), 416. (A. C. DeD.)

Suppository—Medicated. Glycerin and glycol esters of stearic, palmitic and lauric acids are used.—JOHN C. BIRD, assignor to HOFFMANN-LAROCHE, INC. U. S. pat. 2,055,063, Sept. 22, 1936. (A. P.-C.)

Toilet Soaps—Spotting in. Perfumes, super-fatting agents, metals, etc., may cause spotting. A small amount of free alkali and preservatives may help to prevent spotting, but pure ingredients and proper packaging are important.—PAUL I. SMITH. *Am. Perfumer*, 33 (1936), No. 5, 69–70. (G. W. F.)

Toxins—Extraction of, from Roots for the Manufacture of Insecticides. Broken rotenone-containing roots are digested in common alcohol containing C.P. sulfuric acid and the mixture is filtered.—HAROLD G. WARD. U. S. pat. 2,056,438, Oct. 6, 1936. (A. P.-C.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY

Acetylsalicylic Acid—Effect of, on the General Condition and Blood Cells of Rats. Feeding of acetylsalicylic acid to rats at high doses for 29 weeks did not produce any change in the blood picture. Withdrawal of the drug produced a leucocytosis.—CHARLES J. ROBINSON, M. ELLIS and DOUGLAS WARNER. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 172. (A. E. M.)

Acetylsalicylic Acid—Influence of, on Urinary Excretion of Ascorbic Acid. Acetylsalicylic acid increases the urinary excretion of vitamin C.—AMY L. DANIELS and GLADYS J. EVERSON. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 20. (A. E. M.)

Antipyrine—Contribution to Drug Allergy. Injection of a compound prepared by diazotizing antipyrine and coupling with protein, given to guinea pigs rendered the animals sensitive to this compound. Antipyrine removed the sensitiveness of organs from these animals to the compound. It acts as the haptene group of the antigen.—MICHAEL G. MULINOS and EDWARD SCHLESINGER. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 305. (A. E. M.)

Aphrodisiacs—Bioassay of, in Fish. A fish test for aphrodisiacs has previously been described (Glaeser and Hempel, *Pflügers Arch.* (1931), 2291). For quantitative evaluation of a fish unit by this test, 0.1 Gm. of the coarsely powdered drug to be tested (for example, yohimbehe bark) is boiled for one-half hour with water, the mixture evaporated to 13 Gm., filtered into a small dish (the residue washed twice), the combined filtrates made to exactly 13 Gm. and kept in a glass-stoppered vessel. Each of four castrated male bitterlings is injected with a dose (for example, 0.1 cc. of the yohimbehe decoction). The fish puts on his mating dress (color change, etc.)

and this must last for 6–7 hours in at least three fish. The dose giving this result permits the calculation of the number of fish units per gram of drug. Yohimbehe bark (1) gives 13,000 fish units per gram, (2) cantharides 333 units, (3) damiana leaves 500 units, (4) muira puama wood 333 units, (5) ginseng root 333 units, (6) mandrake root 143 units, (7) hyoscyamus leaves 143 unit, (8) celery tuber 17 units. Muira puama wood has a M. L. D. lying near the fish unit. Commercial fluidextracts of damiana and of muira puama (70% alcoholic extracts) contain only $^1/_8$ to $^1/_5$ of the active substances of the drugs. Combinations of aphrodisiacs show more than additive effects in many cases. Yohimbehe bark with 3, 4, 5 or 6, or with both 4 and 5, shows superadditive effects. The combinations 3 and 4 or 5 and 6 show merely additive effects. Camphor and lupulin, so-called antiaphrodisiacs, do not affect the action of the aphrodisiacs, although they do decrease the action of the sexual hormone. It is suggested that they would be better termed "sexual sedatives." Yohimbehe potentiates the action of sexual hormone (Testosan) by 9 to 10 times, hence the commercial practice of adding yohimbine to sexual hormone preparations is held justified.—GLAESER and KONYA. *Arch. Expt. Path. u. Pharmakol.*, 182 (1936), 239. (C. S. L.)

Cardiac Glucosides—Frog Assay of, Errors in. From data on 8,500 frogs used in assays by the Houghton-Straub timeless method, comparisons are made of the mean error of assay with different standard cardiac drugs. Comparing at different times and against different standard substances (*g*-strophanthin, *k*-strophanthin, convallatoxin, digitoxin and total glucosides preparations from digitalis and adonis) the mean error is found to be ±10%, and maximum errors 25–33%. When *g*-strophanthin is compared against *k*-strophanthin the mean error is ±6.5%, maximum error under 20%. When convallatoxin is compared against *k*-strophanthin the mean error sinks to ±5.6%, maximum error 10%. The constancy of the Trevan "characteristic" curve is confirmed (% mortality plotted against dose). However, the curve is not the same for all the glucosides. On the same frog material the curve for one substance may be flatter and for another steeper than the Trevan curve. Use of the curve in such cases introduces errors which cannot be minimized by increasing the number of animals used or by comparing with a standard. In dosing healthy frogs by weight the large animals are slightly more sensitive than small animals. The errors thus introduced are less than the errors which would arise if the animals were not dosed by weight. The highest accuracy is obtained if the standard and unknown are dosed in groups of frogs of the same weight.—K. FROMHERZ. *Arch. Exp. Path. u. Pharmakol.*, 182 (1936), 55. (C. S. L.)

Furocumarine and Related Compounds—Action of, Occurring in the Umbelliferæ. The 3 lactones, peucedanin (A), pimpinellin (B) and ostruthin (C) occurring in the Umbelliferæ, are practically insoluble in water, in solution or in fine powder are strongly bitter or bitter and irritating, with no action on blood corpuscles, have no chloretic action on rats and turtles and no diuretic action on mice. (C) administered orally to mice is a mild purgative; dilute solutions of (A) and (B) by perfusion of frog dissections produce a slight contraction of the vascular system. Subcutaneous injection of the 3 lactones in mice in large doses causes toxic effects; the greatest with (A) and the least with (B). Intravenous injections in rabbits produces in small doses slight rise in blood pressure and an increased depth in breathing; in larger doses a complete lowering of blood pressure and death. Simultaneous administration of (A) and (B) with magnesium sulfate to mice leads to a resorption increase of the bitter salt so that with suitable doses narcosis and eventually death occurs while without the lactones only a mild purgative action is observed.—RICHARD WASICKY. *Pharm. Monatsh.*, 17 (1936), 165. (H. M. B.)

Heroin—Chemical Composition and Pharmacological Action of Commercial Solutions of. The toxicity of heroin solutions falls on keeping, owing to the removal of the acetyl group by hydrolysis. Whereas heroin is hydrolyzed rapidly to α-acetylmorphine, this latter undergoes little hydrolysis.—G. RIZZOTTI. *Boll. Soc. ital. biol. sperm.*, 10 (1935), 259; through *J. Soc. Chem. Ind.*, 55 (1936), B., 170. (E. G. V.)

Isoartemisin—Effect of, on the Circulatory System. Perfusion with a 0.008% solution of isoartemisin has no influence on the heart. The vessels of the frog leg were dilated.—WILLIAM ELLSWORTH EVANS, JR. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 237. (A. E. M.)

Liver Extracts—Bioassay for Evaluation of. In prior work (*Ibid.*, 180 (1936), 354; 181 (1936), 317) the author has shown that collargol with saponin injected in rabbits creates an anemia resembling pernicious anemia. This is used for evaluating commercial liver extracts by comparison bioassay against a standard extract. For each animal a dose-erythrocyte response curve

is obtained for the standard preparation and this is compared to the curves elicited by various dose levels of the specimen to be tested. The animals may be used again. The assay period is about 8 to 10 days.—P. GOTTLEBE. *Arch. Exp. Path. u. Pharmakol.*, 182 (1936), 91. (C. S. L.)

Magnesium Ion—Action of, upon the Glycemia of the Rabbit. The hyperglycemia provoked by the raised doses of magnesium chloride upon the rabbit is of sympathetic origin but essentially, if not exclusively, extrasuprarenal magnesium ion combat. It is by this alone that the magnesium ion combats, in a very feeble measure, the effects of insulin.—R. HAZARD and C. VAILLE. *Arch. Inter. Pharmacody. et Therap.*, 54 (1936), 211. (W. H. H.)

Nembutal Anesthesia—Factors Influencing. The anesthesia causes a drop in blood sugar. While there is no direct relationship between blood sugar level and anesthesia, animals with low initial blood sugar remain longer in anesthesia than normal animals.—M. CAROLINE HRUBETZ, S. N. BLACKBERG and LOUIS B. DOTTI. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 303. (A. E. M.)

Papaverine—Reaction of, in the Intestine of Rabbits. Small quantities of papaverine when injected in rabbits reduces the tone of the intestines and slows the peristaltic movement. This change lasts only a short time. Larger doses of papaverine react on the parasympathetic nerve and still larger doses react on the sympathetic nervous system. Because of this the tonicity of the intestines is further lowered and parallel to this the peristaltic movement is also weakened. These disturbances arrest the normal elimination of the fecal matter. Papaverine seems to vary at first from morphine in its reaction on the intestine, however it resembles morphine when the reaction is prolonged. In intensity it does not compare with morphine.—M. SATO. *Chem. Zentralb.*, 107 (1936), 802. (G. B.)

Pharmacology for Pharmacists. The 17th of a series of articles dealing with agents for the urinary tract including (1) diuretics as caffeine, theobromine, theophylline, juniper, parsley, mercury compounds, potassium salts and urea and (2) antidiuretics.—H. FÜHNER. *Apoth. Ztg.*, 51 (1936), 1459–1462. (H. M. B.)

Pinacolone—Contribution to the Pharmacology of. Report is made of a study of the pharmacology of pinacolone. It was found to be without hypnotic properties.—JOHN C. KRANTZ, JR., C. JELLEFF CARR, RUTH MUSSER and FRANCES F. BECK. *J. Am. Pharm. Assoc.*, 25 (1936), 851. (Z. M. C.)

Sorbitol as a Diuretic. Sorbitol given intravenously produced in dogs a far stronger diuresis than was obtained with sucrose.—EDWARD S. WEST and GEORGE E. BURGET. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 105. (A. E. M.)

Supervitaminosis C in Tuberculosis. Supervitaminosis C maintained for a period of 5 months does not protect guinea pigs against subcutaneous injections of 300,000 virulent human tubercle bacilli.—FRED H. HEISE and GUSTAV J. MARTIN. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 337. (A. E. M.)

Vitamin C Deficiency in Addison's Disease. Three patients with Addison's disease have been shown, by means of the test described by Harris and Ray, to suffer from vitamin C subnutrition. The degree of subnutrition parallels the severity of the illness. The possible significance of the finding and the relationship of vitamin C to pathological pigmentation is discussed.—J. F. WILKINSON and C. A. ASHFORD. *Lancet*, 231 (1936), 967. (W. H. H.)

Vitamin C—Effect of, Administration on Vitamin C of Milk and Urine of Lactating Mothers. Milk reaches slowly a saturation level of about 0.08 mg. per cc. which is kept up for about 10 days after discontinuation of the additional supply of C. The urinary output increased slowly, remained constant at about 60% of the intake and dropped abruptly on discontinuation of the medication.—FU-TANG CHU and CHIEH SUNG. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 171. (A. E. M.)

Vitamin C—Effect of Crystalline, on Tolerance to Tuberculin. Daily injections of crystalline vitamin C increased the tolerance of tuberculous guinea pigs to repeated large doses of tuberculin.—M. MAXIM STEINBACH and SIDNEY J. KLEIN. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 151. (A. E. M.)

TOXICOLOGY

Amidopyrine and Agranulocytosis. The ingestion of amidopyrine and of its close allies containing a benzene and a substituted pyrazolone ring is capable in sensitive subjects of giving

rise to agranulocytosis. These drugs exert their peculiar action only on subjects, either male or female, who have passed the "change of life." Susceptibility to this action is probably associated with an alteration in the nature or balance of the sex hormones.—S. C. DYKE. *Brit. Med. J.*, 3957 (1936), 911. (W. H. H.)

Anesthetic Ether—Effect of Some Impurities on. Peroxides. The authors review the situation regarding the presence of peroxides in ether for anesthesia. The various phases are briefly summarized such as the advantages of an initially pure ether to prevent autoxidation; causes of the initial change such as contact with gases, light, etc.; the progressive oxidation due to acetaldehyde; the use of copper-lined cans to control oxidation; the variability of absolutely pure ether in its rate of deterioration and the known methods of preventing the deterioration. The fact that peroxides can almost quantitatively be removed from ether by fractionation prompted the question. Since either is administered as vapor and the peroxides do not vaporize, can certain ill effects of ether when used as an anesthetic be due entirely to peroxides? After all, the patient is of primary importance when ether is used as an anesthetic. Experiments were conducted based more upon the degree of contamination of the vapors which the patient receives than on the purity of the ether used and the work under review is intended to be a study of the extent to which peroxides pass into the vapor of ether under various conditions including those of actual use in the operating room. A specially designed apparatus was used for the experiments and as a test for peroxides the ferrous thiocyanate method of Middleton and Hymas employed. The intensity of color was measured in a Lovibond tintometer and the red values used to show a quantitative relationship. The red value of an ether containing just enough peroxide to exceed the limit of the B. P. is given as 2.4. Results obtained in four series of experiments are tabulated. Another set of experiments were conducted under conditions approaching as near as possible those of the actual anesthesia by ether. The amount of peroxide present in the original ether was noted, the amount in the residue on the inhalation mask and in the condensate noted and the results tabulated. Attempts to oxidize the vapors of ether with a mixture of nitrous oxide and oxygen were made. The mixed gases were passed through ether in direct sunlight at a temperature of 22° C. until the volume was reduced to about 50%. The results of these experiments are given in a third table. From all the results obtained they conclude that "although it is unquestionable that ether should be as pure as possible for anesthesia, peroxides *themselves* are not the cause of the after-effects which may be produced by impure ether."—J. H. COSTE and D. C. GARRATT. *Analyst*, 61 (1936), 459–464. (A. H. C.)

Arsenotherapy—Toxic Symptoms in. Treatment and Prevention. Adrenalin and calcium chloride injections are recommended for both prophylaxis and treatment of symptoms. Glucose also presents a means of prevention, sodium thiosulfate is useful in cutaneous reactions.—ADOLFO H. MUSCHIETTI and ANTONIO A. FERNÁNDEZ. *Semana méd. (Bŭenos Aires)*, 43, 2 (1936), 810. (A. E. M.)

Derris and Cubé—Toxicity of. When extracts from derris or cubé root powders are fed to rats in olive oil solution, the toxicity is greater than would be expected on the basis of the rotenone content, indicating that there may be present substances, other than rotenone, which are physiologically active. The relations between the toxicity of extracts and rotenone content vary with the solvent used and with the sample of derris from which they are prepared. Acetone and ether extracts are about equally toxic, and these solvents appear to remove completely the active substances. Carbon tetrachloride likewise appears to remove completely the toxic agents but with partial loss of physiological activity. Olive oil fails to remove completely the principle from the powders but does markedly accentuate the toxic properties if the reagents are extracted by acetone or ether and subsequently fed in oil solution. Rotenone content is not a measure of toxicity of derris when administered orally to warm-blooded animals. The possible presence of still other substances that may be injurious is discussed.—J. A. MATHEWS and H. D. LIGHTBODY. *Ind. Eng. Chem.*, 28 (1936), 812. (E. G. V.)

Derris—Toxicological Study of. Experimental results obtained in a study of the acute oral toxicity of several samples of derris containing varying percentages of rotenone, together with the determination of the toxicity of extracts of derris for mammals. The data show that the rotenone content of derris is no reliable index of its toxicity, since, as a stomach poison, derris is more toxic than rotenone. Studies on the toxicity of derris by inhalation for various laboratory animals indicate that it is extremely more toxic than when administered orally, suggesting a possible

health hazard to those engaged in milling, grinding and diluting derris without the use of suitable protective measures. Pharmacological studies are presented, showing that the probable site of action of derris and water extracts of derris is upon the respiratory center, regardless of the mode of administration.—A. M. AMBROSE and H. B. HAAG. *Ind. Eng. Chem.*, 28 (1936), 815. (E. G. V.)

Dinitrophenol Cataract. A report of two cases of cataract in relatively young persons with negative family histories, who have taken dinitrophenol for weight reduction.—DAND G. COGAN and FRANCES C. COGAN. *J. Am. Med. Assoc.*, 105 (1935), 793. (M. R. T.)

Dinitrophenol—Cataracts Following. A report of a case of a woman obese since childhood, developing cataracts in both eyes after the use of dinitrophenol for weight reduction. Her case differs from others in that her cataracts developed late in pregnancy and that she had previously given birth to a child with cataracts.—PAUL W. KINSKERN. *J. Am. Med. Assoc.*, 105 (1935), 794. (M. R. T.)

Dinitrophenol—Cataracts Following Use of. A report of three patients, normally too young for cataracts, developed after medication with dinitrophenol for weight reduction. The effect on the lens may be toxic, metabolic or dietary. Until further study on its secondary systemic effects, the use of dinitrophenol should be discontinued.—WARREN D. HORNER, *et al.* *J. Am. Med. Assoc.*, 105 (1935), 108. (M. R. T.)

Dinitrophenol—Use of, Followed by Cataract. A report of a case of cataract in a patient who had previously taken sodium dinitrophenol as an adjunct in treatment of obesity. The lens changes were similar to those noted in other cases of cataract following this drug.—N. K. LAZAR. *J. Am. Med. Assoc.*, 105 (1935), 794. (M. R. T.)

Thorotrast—Experimental Production of Sarcoma with. The author found that the observation of Roussy, Oberling and Guerin, that thorotrast is carcinogenic was correct. A much smaller dose than that used by the French workers can produce tumors in rats. Thorotrast should never be introduced into the human body, because of the danger of inducing tumor formation.—F. R. SELBIE. *Lancet*, 231 (1936), 847. (W. H. H.)

Toxicity—Comparative, of Some Powerful Drugs to the Cat. Tests of toxicity give widely variable results. It is necessary to state in every case the species of animal employed, the concentration of the drug, the channel and the speed of application.—DAVID I. MACHT. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 316. (A. E. M.)

Toxicology—Industrial, of To-day. In order to protect the worker in industry against the effects of toxic substances, it is necessary to study their mode of entry into the body. Substances which were little more than chemical curiosities twenty years ago have found extensive use in modern industry. They include coal-tar derivatives, chlorinated hydrocarbons and ketones. Toxic effects produced by various chemicals used in industry are discussed. The chemicals included in the discussion are as follows: Lead, arsenic, mercury, organic compounds such as benzene, mononitrobenzene, dinitrobenzene, aniline, phenylenediamine, trinitrotoluene, methyl chloride, carbon tetrachloride, tetrachlorethane, trichlorethylene, toxic gases such as carbon monoxide, carbon dioxide, sulfuretted hydrogen, chlorine, phosgene, ammonia, carbon disulfide.—D. HUNTER. *Pharm. J.*, 137 (1936), 514, 539. (W. B. B.)

THERAPEUTICS

Adrenalin—Treatment of Asthmatic Attacks by Inhalation of. In 40 asthmatic patients more than 400 attacks of asthma have been treated with inhalation of 10% solution of adrenalin, nebulized in the triplex or asthminhal spray. In every case there was quick and excellent effect from the treatment. Changes in sensibility to the treatment has not been observed and the treatment has not caused inconveniences of any kind. The favorable result is considered to be due to a local effect of adrenalin.—N. A. NIELSEN. *Lancet*, 231 (1936), 848. (W. H. H.)

Alcohol—Injection of Intraspinal (Subarachnoid). Severe and continuous pain suffered by women with carcinoma of cervix may be relieved by (1) opium derivatives, (2) surgical methods or by (3) blocking nerves that conduct pain sensation. The first is expensive, and patient may develop tolerance to morphine, or have an idiosyncrasy for it. The second is serious and does not always relieve. The third is best, and of the liquids used, alcohol is most common. The subarachnoid area is chosen for injection because it is the most central for attacking nerve roots. Absolute alcohol is selected because of its known action on nerve tissue, because it has no toxic effects

and because the specific gravity is lower than that of the spinal fluid. Alcohol is injected drop by drop with a tuberculin syringe so that it will not mix with the spinal fluid and so that it can be measured accurately. 0.5 cc. is given in one injection. Relief of pain is obtained in 85% of cases. No permanent complications were noted.—J. P. GREENHILL and HERBERT E. SCHMITZ. *J. Am. Med. Assoc.*, 105 (1935), 406. (M. R. T.)

Cod Liver Oil for External Eye Affections. The author has been experimenting with cod liver oil as a local application, basing his work on the beneficial results obtained in cases of burns elsewhere on the body by Dr. Steel. Stimulated by the rapid healing of an external burn of the lid caused by the frequent application of a pad soaked in the oil, the author next tried the treatment in a case of burning of the conjunctiva. A case in which caustic dropped into the eye responded as readily. Since then the treatment has been tried in corneal abrasions, dendritic ulcer, relapsing keratitis, chronic degeneration from mustard gas and hypopyon ulcers. In the last it is best not to use the oil till the active septic process has subsided. The applications are made three times a day, and atropine is used as well if the disease would normally require it. The treatment appears to reduce the number of necessary attendances. Chevasse has also been using the oil with very satisfactory results, especially in blepharitis and general soreness of the lids. The treatment is harmless and can be used in conjunction with other remedies. The best type of drop-bottle has a vulcanite cap below the rubber, which prevents contact between the oil and the rubber.—E. STEVENSON. *Brit. J. Ophthalmol.* (July 1936), 416; through *Brit. Med. J.*, 3953 (1936), 744C. (W. H. H.)

Estrin in Toxic Goitre. As there is experimental evidence that estrin inhibits the activity of the thyroid, and the action or production of the thyrotropic hormone of the anterior pituitary, a trial was made of its value in the treatment of six women with toxic goitre. After a preliminary rest period, four received daily intramuscular injections of 50,000 I. U. of dihydroxyestrin (dimenformon); these were given for 12 days in two cases and for 21 days in two cases. Two other patients received 250,000 I. U. ketohydroxyestrin (menformon) daily by mouth for 21 days. There was little or no improvement in the clinical condition or fall in the basal metabolic rate as a result of this therapy.—A. W. SPENCE. *Lancet*, 231 (1936), 970. (W. H. H.)

Evipan Sodium in Obstetrics. The author strongly recommends evipan sodium anesthesia for the short operations of obstetrics after an experience of about 150 cases comprising forceps delivery, internal version, suture of the perineum, Cæsarean section, etc. His dosage has never exceeded 10 cc., and for full anesthesia is as a rule twice the amount needed to produce relaxation of the jaw. The advantages claimed are the peaceful and pleasant induction, ease and rapidity of administration, single-handed if necessary, wide margin of safety, rapid recovery and absence of ill effects on mother or child. He has had no difficulties or accidents, and considers the only contraindications to be advanced pulmonary or hepatic disease.—VAN BOVEN. *Bruxelles-Medical* (July 12, 1936), 1391; through *Brit. Med. J.*, 3949 (1936), 572C. (W. H. H.)

Eye Injuries—Treatment of. The following solutions are suggested: *For general purposes*, normal saline containing 2% boric acid in solution. The solution should be boiled after preparation; *for acid splashes*, a 1% solution of sodium bicarbonate; *for alkali splashes*, a 3% solution of magnesium sulfate or a 1% solution of citric acid. The required solution, placed in an ordinary laboratory type wash bottle, is used to irrigate the eye. In the case of acid or alkali splashes, the irrigation must be continuous for at least twenty minutes; very often double this time will be necessary.—I. C. I. MAGAZINE; through *Quart. Safety Summary*, 7 (1936), 19; through *Pharm. J.*, 137 (1936), 417. (W. B. B.)

Folliculin Treatment. The author, in hormone treatment by folliculin, prefers to use the benzoate of dihydro-folliculin. Given in amounts of 30 mg. or less for fifteen to thirty days in divided doses at three to four days' intervals, it has led to disappearance of basomotor climacteric symptoms, as well as reappearance of menstruation, in those subjected to bilateral ovariectomy and subtotal hysterectomy, similar treatment cured the artificial menopausal symptoms and led to the healing of a cervical ulceration; a second biopsy showed in the formerly atrophic cervix hypertrophy of the glands and numerous mitoses in the basal epithelial layer. In a case of hirsutism with secondary amenorrhœa larger doses of folliculin had to be given before metrostaxis occurred; 95 mg. of the benzoate and 5 mg. of folliculin ($C_{18}H_{28}O_2$) in fourteen weeks. As suggested in 1934 by Brown (*J. A. M. A.*, 102, 1293) folliculin has been tried in the treatment of gonococcal vulvovaginitis. Using it in two cases in children the author found, together with cure

or improvement of the infection, hypertrophy of the breast, projection of the nipple, areolar pigmentation with formation of tubercles of Montgomery and the appearance of a line of dark pigmentation between the pubic symphysis and the umbilicus.—R. MORICARD. *Bull. Soc. d'Obstet. et de Gynecol. de Paris* (June 1936), 426, 432; through *Brit. Med. J.*, 3954 (1936), 792D.

(W. H. H.)

Formol Toxoid—Treatment of Staphylococcal Skin Infections by. The author, who records twenty-eight illustrative cases in patients aged from three to fifty-four years, maintains that the use of formol toxoid (Ramon's "anatoxine") constitutes an undoubted advance in the treatment of staphylococcal infections of the skin. The best results were obtained in furunculosis, while in pyrodermia the results were less satisfactory, and were more inconstant still in hidradenitis, obstinate acne and sycosis. Even in the most favorable cases the results were not constant or always permanent, as out of twenty-eight cases which were cured or much improved six had recurrences. The complications of this treatment are usually mild, and their incidence can be reduced by not giving a higher dose unless the previous one has been well borne. It is a better plan to give an interdermal dose of $^1/_{40}$ cc. before the first subcutaneous injection of formol toxoid, and, according as the reaction is well marked, moderate, or *nil* the next day, treatment is begun by $^1/_{10}$, $^1/_4$ or $^1/_2$ cc. Severe reactions are very uncommon, as only three examples have been seen out of thousands treated. Experimentally the antibody content of the blood of patients can be determined, and it will be found that the antibody content is much higher in those treated than in controls. The antibodies in controls are not much more abundant in patients who have recently been cured or who have suffered from the infection for a long time than in patients who are free from any staphylococcal infection.—J. C. R. LESIEUR. *Thesé de Paris* (1936), No. 321; through *Brit. Med. J.*, 3950 (1936), 610B. (W. H. H.)

Gonorrhea—Vaccine Therapy of. The author relates the result of treatment by vaccine of 100 cases of gonorrhea. He used vaccines of *Bact. gonococcicum* and of *Bact. gonococcicum mixtum*. The latter contained besided gonococci, *Staph. aureus* and *albus*, streptococci, enterococci and *Streptothrix urethritidis*. The mixed vaccine was used mainly in cases where the bacteriological examination revealed the presence of a mixed infection. It proved particularly useful in women. The vaccine injections were given under the skin. It always gave rise to a more or less pronounced reaction, with fever up to 38° C. and sometimes also to a focal reaction. The curative effect of the vaccine was most pronounced when the local reaction was intense. The treatment usually began with doses of 160 millions per cc. and increased by 80 to 160 millions each time up to 1,000 to 1,200 millions per cc. All treated cases benefited by the vaccine, but the author advises not to neglect the local treatment at the same time.—F. DUFKE. *Derm. Woch.*, (Sept. 19, 1936), 1278; through *Brit. Med. J.*, 3960 (1936), 1124B. (W. H. H.)

Hog's Stomach in Pernicious Anemia. The author has conducted clinical investigations based on the researches of Wilkinson and Klein, who found an anti-anemic factor in the juices pressed out of the pig's stomach. At the Rigs hospital in Copenhagen the author treated eight patients suffering from pernicious anemia with a yellow powder (hemopoietin or intricula) obtained by the alcohol precipitation of these juices. This treatment alone seemed able to restore to the patients the normal composition of their blood, the number of erythrocytes being raised to between five and six millions and the percentage of hemoglobin to over 100. The amount of hemopoietin or intricula required to keep the blood normal varied greatly, one patient needing as little as 1.25 grams per day and another as much as 15 grams. It would seem that, though there is no great difference between the therapeutic dose and the protective dose of this preparation, the requirements of the individual cannot be ascertained within narrow limits without the personal testing of each case. There is little to be gained by giving more than 5 grams of hemopoietin three times a day in a new case of pernicious anemia.—C. N. J. GRAM. *Ugeskrift für Laeger* (July 16, 1936), 655; through *Brit. Med. J.*, 3954 (1936), 792A. (W. H. H.)

Insulin Therapy in Drug Addiction. The author discusses the value of insulin in treating the symptoms caused by the withdrawal of morphine and heroin. Ten cases are reported. He found that patients using heroin and those addicted to taking larger doses of morphine responded less well to this treatment than did the other patients. Generally, however, the author was satisfied regardless of the type or quantity of the drug used and considers it an advance on previous therapeutic practices. In addition to the relief from physical discomfort it maintained or reestablished an adequate state of nutrition. He does not consider the factor of suggestion im-

portant in obtaining a favorable response to the action of insulin. He remarks that the majority of addicts to the use of morphine and heroin apparently comprise a non-diabetic group who tolerate unusually large quantities of insulin without the development of significant hypoglycemic reactions. The excellent empirical results obtained by this treatment strongly suggest that a direct or indirect relationship exists between addiction to morphine and carbohydrate metabolism. The author suggests that investigation of the sympathetic nerve system and endocrine activity will probably throw some light on this important possibility.—P. PIKER. *Arch. Neurol. and Psychiatry* (July 1936), 162; through *Brit. Med. J.*, 3951 (1936), 656C. (W. H. H.)

Iron Therapy—Principles of, and the Value of Iron Preparations. The author comments upon the theories of the absorption and action of iron expressed throughout the course of several centuries. The consensus of modern opinion based on experimental pharmacology and clinical studies indicates that ferrous iron is the form in which iron is absorbed, that ferric iron must first be reduced in the body to ferrous iron, that only a few of the more than 600 preparations of iron are of value and that a physician need use at the most two preparations of iron. A formula for a stable solution of ferrous iron is suggested: ferrous chloride (1 H_2O), 4.0; sucrose, 60.0; hydrochloric acid, 0.05–0.1; distilled water to 100.0. A sample was kept for more than 2 years without showing any ferric iron. The author points out the necessity of separating the active preparations from the inactive and of using only the desirable ones.—E. STARKENSTEIN. *Scientia Pharm.*, 7 (1936), 119. (M. F. W. D.)

Lactoflavin—Growth-Promoting Activity of, Administered Orally and Parenterally. The growth promoting effect of lactoflavin or of lactoflavin-5-phosphoric acid is independent of the way in which it is administered. There is no difference between both substances. The phosphorylation of lactoflavin is not only an intestinal but also a general tissue reaction.—PAUL GYÖRGY. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 207. (A. E. M.)

Lipiodol in Sciatica—Epidural. According to the authors this treatment, introduced in 1924, has recently been reported to have induced speedy improvement in 70% of a series of 1,500 cases of sciatica. The lipiodol is injected into the connective tissue below the dural sac, through the posterior inferior obturating membrane. The authors clearly point out the anatomical location of this area. Injected in sufficient amount (20 cc. is stated to be essential), the lipiodol passes up extradurally as high as the second lumbar vertebra and sends prolongations along the nerve roots. These are bathed in lipiodol, in the case of the sacral plexus, for 10 cm. Injection, otherwise very painful, should be preceded by local anesthesia of the skin (2 cc. of 2% scurocaine) and the injection of the tract by 20 cc. of 0.5% solution, a wait of fifteen minutes now precedes the slow injection of lipiodol, which, like the anesthetic solution, is given through a screw syringe, such as that of Lafay, with a needle not longer than 5 cm. (Longer needles may cause an involuntary lumbar puncture.) Finally the authors describe in minute detail the manner of injection.—G. CARRIERE and A. VERHAEGHE. *Echo Med. du Nord* (July 26, 1936), 186; through *Brit. Med. J.*, 3953 (1936), 744B. (W. H. H.)

Mandelic Acid in Urinary Infections. A series of eighty-eight cases of various types of urinary infection has been treated with mandelic acid. Ammonium mandelate has been shown to be the most satisfactory and pleasant method of giving mandelic acid. Urinary stasis due to the presence of an obstructive lesion is the commonest cause of failure of the treatment. "Relapses" are often due to failure to cure, but urinary stasis and persistent inflammation of mucous membrane predispose to true reinfection. The main contraindication to mandelic acid (or ketogenic) therapy is a raised blood-urea. In cases of urinary infection with acute fever the remedy should be reserved for the later stages of the illness. It can be used for all ages.—M. L. ROSENHEIM. *Lancet*, 231 (1936), 1083. (W. H. H.)

Methylene Blue—Treatment of Psoriasis with. A 2% solution was given intravenously three times weekly at a dose of 10 cc. A diet low in protein and fat and rich in fresh vegetables was given simultaneously. The following salve was used locally: Chrysophanic, salicylic and pyrogallic acid āā 1 Gm.; ichthyol, tar and lanolin āā 10 Gm.; petrolatum 30 Gm. Excellent results were obtained with this combined treatment.—MIGUEL D'AGOSTINO and ERIMBERTO TORRES. *Semana méd. (Buenos Aires)*, 43 (1936), 1080. (A. E. M.)

Mutton Bird Oil for Tuberculosis. A report by the medical superintendent of the Heatherton Sanatorium, Victoria, regarding the use of mutton bird emulsion in the treatment of pul-

monary tuberculosis states that the result of a small scale clinical test was so promising in a few selected cases that a more extensive trial will be given. He feels convinced that the emulsion seems to bear out clinically the claim that it was rich in vitamin contents and certainly that it was a reliable adjunct in the sanatorium's treatment of the disease.—ANON. *Australas. J. Pharm.*, 17 (1936), 1005. (E. V. S.)

Pituitary Extract Anterior Treatment—Effect of, in Myasthemia Gravis. A rare disease characterized by excessive fatigability of muscles, the onset is gradual and progressive over a period of years when death results from strangulation, inanition and dehydration. Treatment is by rest, employment of strychnine, arsenic, thyroid extract, calcium, roentgen exposure, etc., but with indifferent results. Some favorable effects occur from the ingestion of aminoacetic acid combined with ephedrine. This is not entirely satisfactory in all cases. Cases are reported in which subcutaneous injections of 1 cc. of anterior pituitary, daily, show surprisingly good results, with a resumption of normal activity within four months. This report is preliminary due to the small number of cases observed. Plans are being made to test oral administration of the extract for relative merits of the two methods of administration.—HAROLD E. SIMON. *J. Am. Med. Assoc.*, 104 (1935), 2065. (M. R. T.)

Poisoning—Treatment for. A complete course prepared for the druggist and subdivided into six essential steps: (1) determine the poison, (2) the amount taken, (3) remove poison promptly, (4) stop the action, (5) support the victim, (6) repair after-effects.—VICTOR LEWITUS. *Am. Drug.*, 95, No. 1 (1937), 60. (E. V. S.)

Radium and the Radioactive Elements. A discussion of the discoveries and preparation of the elements, of radioactivity and therapeutic applications of the compounds and rays.—W. KNELL. *Australas. J. Pharm.*, 17 (1936), 1009. (E. V. S.)

Sodium Thiosulfate in Scabies. The authors describe a method of treatment of scabies by the precipitation of colloidal sulfur on the skin by the interaction of sodium thiosulfate and an acid and compare the results in fifty cases with those in fifty patients treated with sulfur ointment. The patient takes a soap and water-bath and after drying, a 40 % aqueous solution of sodium thiosulfate is applied over the whole body, except the head and face. Fifteen minutes later 4% hydrochloric acid is applied in a similar manner and one hour later the applications are repeated. The procedure is repeated the next day and on the third day the patient bathes and changes his clothes. These are then sterilized to prevent reinfection. Four ounces of each solution is required for the treatment. Of the fifty cases treated in this way examination showed that all were cured. One patient who, contrary to instructions, applied the treatment eight times suffered from mild sulfur dermatitis. Of the fifty cases treated with ointment fifteen required further treatment to effect a cure and ten cases of sulfur dermatitis occurred.—G. V. KULCHAR and W. M. MEININGER. *Arch. Derm. and Syph.* (Aug. 1936), 219; through *Brit. Med. J.*, 3959 (1936), 1066B. (W. H. H.)

Tuberculosis—Diagnosis of. An ointment is used for the diagnosis of tuberculosis with very good results. Tuberculin lanolin and salicylic acid with the addition of glass wool is prepared in the following manner: 15 parts of glass wool is rubbed with one part of salicylic acid, then 23 parts of lanolin added; when the ointment is homogeneous, the tuberculin is added. This ointment is ready for clinical use.—E. W. SCHMIDT. *Chem. Zentralb.*, 107 (1936), 1265. (G. B.)

Vaccine Therapy in Incipient Mastoiditis. The author who records eighteen illustrative cases in patients aged from 6 to 75 years, states that in cases of acute suppurative otitis media with incipient mastoiditis it is advisable to carry out autovaccine treatment as soon as possible, as in a large proportion of cases it causes the suppurative process to subside and renders a mastoid operation unnecessary. Even in those cases in which an operation is required the treatment will be of value, as it contributes to recovery. In the present series Fornari started with small doses of the autovaccine (50 million organisms and sometimes less), which were gradually increased in the subsequent injections, of which from eight to twenty were required.—G. B. FORNARI. *Rif. Med.* (May 16, 1936), 676; through *Brit. Med. J.*, 3947 (1936), 448D. (W. H. H.)

Yellow Fever—Diagnosis of, by Intracerebral Inoculation of the White Rat. White rats can be used successfully for the diagnosis of yellow fever by the intracerebral inoculation with the blood of the diseased. Previously the baboon, *Macacus rheusus*, has been used, but white rats appear to be more satisfactory.—MAURICE MATHIS. *Compt. rend.*, 203 (1936), 547. (G. W. H.)

NEW REMEDIES

SYNTHETICS

Codelum Tablets (Wander G. m. b. H., Vienna, 21st dist.) contain 0.01 or 0.02 Gm. codeine phenylethylbarbiturate in each. They are sold in packages of 12 of either strength.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Eldoral Tablets (Heyden A. G., Dresden) contain 0.25 Gm. ethylpentamethyluramil; packages of 10.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Gerulein Ampuls (Sanabo-Chinoin G. m. b. H., Vienna, 12th dist.) contain 0.20 Gm. of histidine monohydrochloride in sterile isotonic solution. The packages contain 5 ampuls of 5.5 cc.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Isobroval Tablets (F. J. Kwizda, Korneuburg) contain 0.50 Gm. of bromdiethylacetylcarbamide and are put up in packages of 10 and 20 tablets.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Mercupurin (Campbell Products, Inc., New York) is a sterile solution of sodium trimethyl-cyclopentane-dicarbonic acid-methoxy mercury allylamide-theophylline, $C_{21}H_{30}O_6N_5NaHg.H_2O$, a white crystalline powder containing 39.2% of mercury and available in a 13.5% aqueous solution representing 3.5% of combined theophylline plus 1.5% of free theophylline. It is a powerful diuretic 20% more active than theophylline-free mercurials. It is administered either intravenously or intramuscularly in cardiorenal edema, in nephrosis and pericardial effusion. Mercupurin is marketed in 1.1-cc. ampuls (boxes of 5 and 100) or in 2.2-cc. ampuls (boxes of 10 and 100).—*Amer. Drug.*, 94, No. 6 (1936), 52. (E. V. S.)

Procaine Butyrate (William H. Rorer, Inc.), $NH_2.C_6H_4.COOC_2H_4.N(C_2H_5)_2.C_4H_8O_2$, is a new local anesthetic suitable for either injection or topical application. It is marketed as a powder; as a 2% solution in ampuls (2, 30 or 100 cc.), plain or with epinephrine 1:25,000; as rectal suppositories 10% in boxes of 6 and 12; as an ointment 10% in $^1/_2$-oz. tubes or 4-oz. jars; for topical anesthetic in 50% solution (glass-stoppered bottles of 10 or 25 Gm.); as an anesthetic lubricant 4% (1-oz. tubes or 6-oz. jars); and as an ophthalmic ointment 2% with epinephrine 1:25,000 in $^1/_8$-oz. tubes for eye anesthesia.—*Am. Drug.*, 94, No. 6 (1936), 50. (E. V. S.)

Propadrin Hydrochloride (Sharp and Dohme) is phenyl-propanolamine hydrochloride. It is used for rhinitis, coryza, acute and chronic sinusitis, allergic manifestations, for topical application and dysmenorrhea. It is marketed as a 1% solution in 1-oz. bottles (contains 0.5% chlorbutanol as preservative); capsules, $^3/_8$ gr., in bottles of 25; jelly in $^1/_2$-oz. nasal-top collapsible tubes, containing 0.66% with sodium chloride, chlorbutanol (0.5%), menthol, thymol and lavender oil in a water-soluble base.—*Australas. J. Pharm.*, 17 (1936), 1083. (E. V. S.)

Prostigmin "Roche" is a dimethylcarbamic ester of 3-hydroxyphenyl-trimethylammonium methylsulfate. It resembles physostigmine, but differs from this alkaloid, chemically, by its less complicated structure and its greater stability. It is a non-hygroscopic, white crystalline powder, m. p. 143–144° C., very soluble in water and to a lesser degree in alcohol. Solutions of the chemical are stable. It is used as a prophylactic against post-operative distention, maintaining muscular tone of the intestines and bladder by preventing parasympathetic paralysis, in the treatment of the above-mentioned conditions and orally, in the treatment of myasthenia gravis and other myopathies and neuropathies. Prostigmin is supplied in 1-cc. ampuls (1:4,000 for prophylaxis, 1:2,000 for treatment) and in 15-mg. tablets for oral use.—*Am. Drug.*, 94, No. 6 (1936), 74. (E. V. S.)

Sandoptal Sandoz is isobutyl-allyl-barbituric acid. It is a non-habit-forming hypnotic and sedative and is a constituent of Optalidon, which use when sleeplessness is concomitant of pain. The dose is 1–3 tablets (maximum 4 per day) which are supplied sugar-coated in tubes of 10 and bottles of 100.—*Australas. J. Pharm.*, 17 (1936), 1083. (E. V. S.)

Seconal (Eli Lilly & Co.) is a new barbituric acid compound, sodium propylmethylcarbinyl-allylbarbiturate, which acts faster than pentobarbital sodium with effects of such short duration as to represent the minimum in requirements. It is of value in surgery, insomnia, nervousness, extreme fatigue with restlessness and similar conditions, especially in obstetrics due to its shorter duration of action. Seconal is marketed in $1^1/_2$-grain pulvules in bottles of 40 and 500.—*Am. Drug.*, 94, No. 6 (1936), 76. (E. V. S.)

Septicemine (Anglo-French Drug Co., Inc.) **Ampuls** contain a solution of iodobenzomethyl-di-urotropin. It has been found to be of value in the antisepsis of acute infections, being rapidly diffused through the organisms, being non-toxic and possessing powerful sterilization action. It is particularly indicated in septicemia, however it can be used as a swab or spray for diseases of the throat but is usually administered for its general effect by intravenous injections. Septicemine is marketed in boxes of eight 4-cc. ampuls.—*Am. Drug.*, 94, No. 6 (1936), 78. (E. V. S.)

Somnal Tablets (A. G. für med. Produkte, Berlin, N.) contain diallylacetisovalerianylurea.—*Pharm. Weekblad*, 73 (1936), 1423. (E. H. W.)

Sylnasol (G. D. Searle & Co.) is a 5% solution of the sodium salt of the fatty acids of psyllium seed oil to which is added 2% of benzyl alcohol. It is a crystal-clear, amber-colored solution mildly irritating to connective tissues and serous sacs and the intima of blood vessels, thus accomplishing venous sclerosis. Sylnasol is recommended only in the injection treatment of hernia and is supplied in 60-cc. serum type vials.—*Am. Drug.*, 94, No. 6 (1936), 82. (E. V. S.)

Synochin (Vincent Christina, Inc.) **Ampuls** contain solutions of triphenylmethoxyaminoquinoline derivatives; "S" for subcutaneous use being a 5% solution and "V" for intravenous use a 10% solution. These solutions are designed for the chemotherapy of pneumonia, influenza, laryngitis and tonsilitis. Synochin "S" is marketed in 2-cc. ampuls, boxes of 12 and 24 and Synochin "V" in 5-cc. ampuls, boxes of 6 and 24.—*Am. Drug.*, 94, No. 6 (1936), 82. (E. V. S.)

Syntropan (Hoffmann-LaRoche, Inc.) is the 3-diethylamino-2,2-dimethylpropanol ester of tropic acid. It is indicated for all vagotonic states, dysmenorrhea, hypertension, either essential or traceable to cardiac, arterial or renal disease, arterial spasm, angina, effort syndrome, gastric ulcer, spasm or inflammation, spasm due to cholecystitis or cholecystitis and intestinal colic. Syntropan conveys the beneficial antispasmodic effects of atropine and papaverine and in therapeutic doses does not give rise to troublesome by-effects or evidences of toxicity, *i. e.*, dryness, mydriasis or tachycardia. It is supplied in 50-mg. oral tablets, tubes of 20 and bottles of 100 and in 1-cc. ampuls containing 10 mg., cartons of 6.—*Am. Drug.*, 94, No. 6 (1936), 82. (E. V. S.)

Vinocoline (Vincent Christina) is a 10% solution of a stable choline ester of thiomethylpentylamide. It is a powerful vasodilator producing effects similar to those which follow stimulation of the parasympathetic nerves. It is a direct physiological antagonist to adrenalin. It is active in either subcutaneous or oral administration, not readily hydrolyzed by tissues, has a powerful muscarine-like action and is permanently stable in solution. Its use is indicated in Raynaud's disease, in cerebral thrombosis, in arterial hypertension and in headache. Vinocoline is supplied in 1-cc. ampuls (boxes of 12, 24 and 100) and 5-cc. vials (boxes of 6, 24 and 100).—*Am. Drug.*, 94, No. 6 (1936), 89. (E. V. S.)

Specialties

Acidolamine (Winthrop Chemical Co.) is a combination of betaine hydrochloride and methenamine. It is used as an urinary antiseptic in cystitis, prostatitis, urethritis and pyelitis. Acidolamine is marketed in 1.1-Gm. tablets (15 to the tube).—*Am. Drug.*, 94, No. 6 (1936), 52. (E. V. S.)

Alprimol Liquid (Alpine Chemische A. G., Kufstein) contains the expressed juice of primula root and is put up in 20-Gm. packages.—*Pharm. Presse*, 41 (1936), 516. (M. F. W. D.)

Antiflammin Salve (Oesterreich Serum Ges.) is supplied in packages of 10 and 20 Gm. containing staphyllo-streptococcus antivirus in ointment base.—*Pharm. Presse*, 41 (1936), 516. (M. F. W. D.)

Antirheuma (Fabrik pharm. Spezialitäten M. R. Minaty, Koln a. Rh.) is a combination of the carbonates, salicylates, sulfates and citrates of potassium, sodium, lithium and magnesium. It is used as a drink for gout, ischias, rheumatism, etc.—*Pharm. Zentralh.*, 77 (1936), 786. (E. V. S.)

Argidal Salve (C. F. Boehringer & Sons, Mannheim) contains acetylsalicylic acid-methenamine-silver. This ointment is used in the treatment of wounds, ulcers, fistula, etc.—*Pharm. Weekblad*, 73 (1936), 1421. (E. H. W.)

Arsenetten (J. Blaes & Co., Munich) contains 1 mg. of arsenious acid per tablet, together with yeast extract and powdered yeast. The dose is one tablet, increasing to three tablets three times a day. They are used in anemia, chorea, acne, etc.—*Pharm. Weekblad*, 73 (1936), 1421. (E. H. W.)

Baldrinorm Tablets (Degen and Küth, Düren, Rheinland) are supplied in packages of 12 and 25 tablets containing the extractive material from valerian root and sodium bromide.—*Pharm. Presse*, 41 (1936), 516. (M. F. W. D.)

Benerva Vitamin B_1 (Hoffmann-LaRoche) is an aqueous solution of a highly concentrated and purified vitamin B_1 extract. It is used for polyneuritis, alcoholic neuritis, vitamin B_1 deficiency, etc. The dose is 1–2 hypodermic or intramuscular injections of 1 cc. weekly or 2 cc. (or 1000 International units) daily. It is supplied in boxes of six 1-cc. ampuls.—*Australas. J. Pharm.*, 17 (1936), 1080. (E. V. S.)

Chlorophyllose Tablets (Apotheker F. Schuster, Ichenhausen) contain plant chlorophyll 7%, plant and colloidal silicic acid, organic calcium 3.5% and combinations of iron 0.7%, manganese 0.1% and copper 0.01%. They are indicated for use in chlorosis, tuberculosis, skin diseases, etc.—*Pharm. Zentralh.*, 77 (1936), 759. (E. V. S.)

Cuprangin (Ifah, Institut für angewandte Chemie, Hamburg) is a quinine bismuth iodide used as an intramuscular injection for angina.—*Pharm. Zentralh.*, 77 (1936), 759. (E. V. S.)

Curarina-roman (Apotheker H. Rüber, Alpirsbach (Wttb.)), a wound antiseptic, is a plant extract of tropical aristolochias. **Curarina-Salbe**, a biological healing and wound ointment, is an aristolochia extract in eucerin.—*Pharm. Zentralh.*, 77 (1936), 786. (E. V. S.)

Dehydral Tablets (Eggochemia, Vienna, 19th dist.) contain 0.30 Gm. purified theophylline and 1.0 Gm. hexahydro-*p*-diazine citrate, put up in packages of 10 tablets.—*Pharm. Presse*, 41 (1936), 516. (M. F. W. D.)

Digimed Liquid (F. J. Kwizda, Korneuburg) contains in each cc. the glycosides of *Digitalis lanata* equivalent to 0.30 Gm. of leaves. The packages contain 15 cc.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Ergal Ampuls (Istituto Opoterapico Nazionale, Pisa) contain in each cc. an extract of adrenal glands equivalent to 0.05 Gm. of fresh glands. They are also sold along with 0.0005 Gm. atropine sulfate/cc. and with 0.001 Gm. strychnine nitrate/cc. All three are sold in packages of 6 ampuls of 1 cc. each.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Exasthmut (E. Tell, Herst. u. Vert. pharm. Präparate, Berlin-Charlottenburg) are dragees for bronchial asthma containing ephedrine, sodium bromide, pyrazolone, dimethylaminophenazone, potassium iodide, extract lobelia and althea root.—*Pharm. Zentralh.*, 77 (1936), 759. (E. V. S.)

Ferro-B (Pitman-Moore Co., Indianapolis) contains in each fluidounce iron and ammonium citrate 36 gr., soluble manganese citrate 2 gr. and the extractive matter from fresh yeast 100 gr. It is a palatable hematinic tonic, combining the vitamin B complex of yeast with the therapeutic properties of iron. Ferro-B is used for nutritional and secondary anemias and is supplied in pint bottles.—*Am. Drug.*, 94, No. 6 (1936), 52. (E. V. S.)

Fluex (Chem. Fabrik Dr. Wilhelm Sternberg G. m. b. H. Hamburg) is marketed in gelatin capsules containing 20 drops of an oil consisting of 50% α-pinene, 2% camphene, 5% limonene, 0.50% sylvestrene, 0.50% dipentene, 25% β-pinene and 10% compound oil. It acts as a diuretic and bactericide in the treatment of vagina-cervix-catarrh with a dose of 1–3 capsules a day.—*Pharm. Monatsh.*, 17 (1936), 202. (H. M. B.)

Folinerin Suppositories (Schering-Kahlbaum A. G., Berlin) are supplied in packages of 6 containing in each 0.20 mg. of the glycoside obtained from the leaves of *Nerii Oleandri*.—*Pharm. Presse*, 41 (1936), 516. (M. F. W. D.)

Fortamin Liquid (Schering-Kahlbaum A. G., Berlin) contains dried bitter principles, glycerin, sodium glycerophosphate, alcohol and water. The bottles contain 120 cc.—*Pharm. Presse*, 41 (1936), 468. (M. F. W. D.)

Hypophiole Ampuls (Schwarz, Vienna, 2nd dist.) contain in each 1 cc. 0.05 to 0.03 Gm. atoxicain (*p*-aminobenzoyldiethylaminoethanol) and 1 unit of hypopressan (part of the posterior pituitary) and are sold in packages of 10, 20 and 50.—*Pharm. Presse*, 41 (1936), 516. (M. F. W. D.)

Iminol (Boehringer Corp., London), a remedial agent for asthma, contains in each tablet agaricine 0.005 Gm., papaverine 0.02 Gm., theophylline 0.1 Gm. and caffeine 0.1 Gm. The dose is one tablet at first sign of impending attack, or, if regular attacks occur at night, one tablet before retiring. It is marketed in vials of 10 and hospital packages of 100.—*Australas. J. Pharm.*, 17 (1936), 1080. (E. V. S.)