PHARMACEUTICAL ABSTRACTS

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CONTENTS

CHEMISTRY

BIOCHEMISTRY (*Continued*)

Alcohol in Saliva—Determination of. Its Importance in Legal Medicine. Normal saliva does not contain appreciable amounts of volatile reducing compounds (equivalent to less than 0.03 mg. of alcohol per cc., *i. e.*, less than $^{3}/_{100,000}$). After ingestion of alcohol, the alcohol content of the saliva is substantially the same as that of the blood (ratio varies from 0.97 to 1.14). Smoking of tobacco does not modify the volatile reducing matter content of the saliva. After absorption of a concentrated alcoholic liquor, the alcohol which remains in the mouth and impregnates the saliva disappears to a large extent in 10 minutes, and completely in 20 minutes. The curve of disappearance of alcohol in the saliva is parallel to that of its disappearance in the blood. Putrefaction causes a considerably and rapid decrease in the alcohol content of the saliva; this may be prevented by the addition of a crystal of picric acid.—R. FABRE and E. KAHANE. *Ann. Méd. Légale, Criminol. Police Sci.*, 17 (1937), 1019–1031. (A. P.-C.)

Ascorbic Acid—Determination of Total, by the Methylene Blue Method. The method is similar to that of Martini and Bonsignore. The dehydroascorbic acid is first reduced to ascorbic acid by bubbling hydrogen sulfide through the solution. At *p*H 6.5, reduction is complete in a few minutes. In more acid solutions, reduction is incomplete and at *p*H 1 to 2 is less than 15% complete after 10 minutes or longer.—C. MENTZER. *Compt. Rend. Soc. Biol.*, 125 (1937), 330–333; through *Chimie & Industrie*, 39 (1938), 453–454. (A. P.-C.)

Ascorbic Acid—Human Requirements of. The experience of the British navy was that 1 oz. of lemon juice daily (= 15 mg. of ascorbic acid) was sufficient to protect adults from scurvy. More recently, on the basis of experimental results of attempts to "saturate" patients with ascorbic acid, much larger requirements have been indicated. The validity of the conclusions from these experiments is contested on two grounds: *firstly*, that the total dose of ascorbic acid required to cause saturation varies with the daily dose given; *secondly*, that clinical cure of scurvy precedes saturation. A patient with moderately severe scurvy was given 40 mg. of ascorbic acid daily. Clinical improvement was rapid and all symptoms disappeared in a week. Dosage was continued and four weeks were required for saturation. Subsequently 600 mg. daily doses of ascorbic acid were given and the subject attained saturation at a higher level of excretion after five days. This is the behavior of normal individuals, confirming that the lower dosage level of 40 mg. daily had sufficed to achieve saturation.—P. SCHULTZER. *Biochem. J.*, 31 (1937), 1934; through *Quart. J Pharm. Pharmacol.*, 11 (1938), 295. (F. J. S.)

Ascorbic Acid in Blood—Determination of. Ascorbic acid in blood is reversibly oxidized by mercuric acetate used to precipitate protein. Recovery of added ascorbic acid shows that it is not (as claimed by Gabbe) adsorbed by the precipitated oxyhemoglobin. Titration of ten blood filtrates (after reduction with hydrogen sulfide) with 2:6-dichlorophenolindophenol, or with methylene blue under standardized conditions, gave closely agreeing values, showing that interfering substances that reduce the dye, but not methylene blue, are removed by the mercuric acetate precipitation.—A. EMMERIE and M. VAN EEKELEN. *Biochem. J.*, 31 (1937), 2125; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 298. (F. J. S.)

Ascorbic Acid in Urine—Identification of. Twelve liters of fresh urine from subjects on a normal diet were concentrated to two liters after treatment with oxalic acid. After standing and filtering; charcoal was used to decolorize. The liquid was treated with hydrogen sylfide and excess of oxalic acid removed with lime. The filtrate showed 5.7 mg. per 100 cc. of reducing substances by indophenol titration. After strong acidification with hydrochloric acid a slight excess of iodine was added to oxidize the ascorbic acid, then 16 Gm. of 2:4-dinitrophenylhydrazine. The precipitate after boiling with 2.5 *N* hydrochloric acid weighed 4.0 Gm. The portion soluble in acetone-alcohol (1:1) was repeatedly adsorbed on columns of aluminum oxide, the purple zones being eluted with hot glacial acetic acid and the dinitrophenylhydrazones precipitated by pouring into water. Finally, the material was crystallized from hot glacial acetic acid. The product was identical with the dinitrophenylhydrazone of "synthetic" dehydroascorbic acid as regard crystalline form from acetic acid and nitrobenzene, m. p. and mixed m. p. and nitrogen content (20.52%; 20.56% respectively; theory 21.00%). Color reactions with sulfuric acid, and absorption spectra, were identical for the substance from urine and the synthetic one and they showed the same partition coefficient between nitrobenzene and 75% aqueous acetic acid. A second hydrazone, not yet identified, was also isolated from the urine.—P. J. DRUMM, H. SCARBOROUGH and

C. B. STEWART. *Biochem. J.*, 31 (1937), 1874; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 295. (F. J. S.)

Bee Venom and Process for Obtaining. Bees are induced to sting through a tanned goat or sheep hide which is rough on the side where the sting enters and smooth on the opposite side and just thick enough to allow the sting to penetrate. The dried venom which accumulates on the smooth side is removed by scraping or other suitable means.—EMIL BÜHLWE, assignor to HOFFMANN-LAROCHE INC. U. S. pat. 2,112,828, April 5, 1938. (A. P.-C.)

***p*H of Biological Fluids—Simple Glass Electrode for the Estimation of, under Anærobic Conditions.** The procedure for determining *p*H of blood, spinal fluid, etc., can be facilitated by building a glass electrode into the barrel of a hypodermic syringe, so that the determination can be made directly on the fluid in the syringe without transferring the material. By fusing Corning No. 015 glass onto the plunger of a 1.5 cc. syringe, it is possible to make immediate contact of the electrode system with the fluid under investigation. The follow part of the plunger is used to contain the chemicals of the electrode system.—M. K. HORWITT. *Am. Soc. Biol. Chemists*, proc. (3/30–4/2/38); through *Squibb Abstr. Bull.*, 11 (1938), A-1010. (F. J. S.)

Carotene and Ascorbic Acid Content of Fresh Market and Commercially Frozen Fruits and Vegetables. Data obtained on the approximate contents of vitamin A in fruits and vegetables, in both the fresh and frozen states, showed rather consistently that commercially frozen foods retain their original vitamin A content substantially unimpaired. Vitamin C values have been also determined for numerous commercially frozen fruits and vegetables with comparison, in many cases, with the fresh products. The data obtained indicate that climatic, soil, and possibly other factors besides maturity have an important influence upon the vitamin C content of both fresh and frozen foods.—G. A. FITZGERALD and C. R. FELLERS. *Food Research*, 3 (1938), 109; through *Squibb Abstr. Bull.*, 11 (1938), A-727. (F. J. S.)

Chloride—Colorimetric Microdetermination of. The iodine liberated by adding potassium iodide to the sodium iodate solution, resulting from interaction of chloride with silver iodate, may be estimated colorimetrically. The sensitivity may be so increased by adding starch and measuring the resulting blue color that samples representing 0.0006 mg. may be used, whereas at least 80 times as much is needed for gasometric or titrimetric measurement. The average error of ± 1.5% is, however, greater than that of the alternative procedures. The limitations are in the accuracy of measurement possible with minute samples. The colorimetric method cannot be applied to solutions containing protein, so it is not generally suitable for urine analysis, but may be used for salt solutions and protein-free filtrates of plasma and blood. The colors are matched against standards prepared from iodate solutions containing similar concentrations of acid and salts; Beer's law holds. Full experimental details and tables of factors are given.—J. SENDROY, JR. *J. Biol. Chem.*, 120 (1937), 419; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 300. (F. J. S.)

Cholesterol—Activation of. Cholesterol is activated to increase its content of provitamin D by distilling solid cholesterol and benzoyl peroxide with mercury in a vacuum still.—MORRIS S. KHARASCH and SIDNEY WEINHOUSE, assignors to ELI LILLY AND CO. U. S. pat. 2,112,200, March 22, 1938. (A. P.-C.)

Cysteine and Cystine—Colorimetric Determination of with Phosphotungstic Acid. Schoberl and Rambacher have applied the Pulfrich photometer to the colorimetric determination of cysteine, cystine and thioglycolic acid by phosphotungstic acid. The effects of temperature and sulfite concentration on the reaction were studied.—A. SCHOBERL and P. RAMBACHER. *Biochem. Z.*, 295 (1938), 377; through *Squibb Abstr. Bull.*, 11 (1938), A-640. (F. J. S.)

Ferric Iron in Biological Products—7-Iodo-8-Hydroxyquinoline-5-Sulfonic Acid as a Reagent for the Colorimetric Determination of. The 7-iodo-8-hydroxyquinoline-5-sulfonic acid method for iron is applied successfully to biological products and is used in the analysis of rice samples. The iron content of rice decreases with washing and polishing.—Y. C. YIN. *J. Chinese Chem. Soc.*, 5 (1937), 51–54; through *Chimie & Industrie*, 39 (1938), 454. (A. P.-C.)

Gases and More Particularly Gases in Blood—Extraction of. A description of a modification of Nicloux's apparatus (*Bull. Soc. Chim.*, 13 (1913), 770, 947) and of the manner of using it. It permits of removing and collecting quantitatively all the gases present in blood, after which they may be analyzed. Analysis of a large number of samples showed that the gases of normal human blood have the following average composition: oxygen 2 to 8, hydrogen sulfide nil, carbon dioxide 14 to 50, carbon monoxide nil, hydrocarbons 0.0 to 0.2, nitrogen 1.8 to 2.0 cc. per

100 cc. of blood. The nitrogen content of blood, even when highly putrefied, does not appreciably exceed that of ordinary water, indicating that nitrogen cannot be considered as a blood gas properly speaking.—KOHN-ABREST. *Ann. Fals.*, 31 (1938), 8–13. (A. P.-C.)

Glucose and Fructose—Determination of, in Acid Solution. In a recent number of the *Pharmaceutisch Weekblad*, ((1937), p. 1086) G. Reif proposed a method for the determination of ketose in mixtures with other sugars, depending upon the reduction of a selenium-sulfuric acid reagent. Now, F. Lucius publishes a procedure in which the fructose is oxidized to gluconic and erythric acids in acid solution, after which the glucose and the fructose may be determined polarimetrically or volumetrically. (*a*) 40 cc. of sugar solution are placed in a 100 cc. volumetric flask together with 30 cc. of 50% sulfuric acid and the necessary quantity of perhydrol (1.26 Gm. perhydrol is the theoretical amount for 1 Gm. fructose, but the perhydrol must be in excess). The flask is loosely stoppered and is warmed on a water bath for two hours at 60–70°, and after cooling is filled to the mark. The sugar solution is polarized before and after inversion in a 2 dm. tube. 1° rotation to the right corresponds to 0.95 Gm. glucose and 1° to the left to 0.54 Gm. fructose. (*b*) 10 cc. of sugar solution containing not more than 1% fructose is mixed in a glass-stoppered flask with 80 cc. of distilled water, 20 cc. of hydrochloric acid and 20 cc. of ferric chloride solution (4.3 Gm. $FeCl_3.6H_2O$, 20 Gm. hydrochloric acid and water to 100 Gm.). The atmosphere above the mixture is saturated with carbon dioxide, a reflux condenser is placed in the flask and the whole is warmed exactly two hours in a boiling water bath. It is then cooled, carbon dioxide being introduced during the cooling, after which the acid is neutralized by carefully introducing 4 Gm. of dried sodium carbonate. 20 Gm. of 10% potassium iodide is then added and after twenty minutes the separated iodine (that is, the unreduced $FeCl_3$) is titrated. A blank determination should also be run. 1 cc. of $N/10$ sodium thiosulfate = 4.5 mg. fructose.—F. LUCIUS. *Zeitschr. Unters. Lebensm.*, 74 (1937), 113; through *Pharm. Weekblad*, 75 (1938), 78. (E. H. W.)

Hormones and Hormone Preparations. A comprehensive review of hormone therapy as opposed to glandular therapy. The history of endocrinology from its beginning in 1849 is briefly traced. The structural formulas of such hormones as have been determined (adrenalin, thyroxine, diiodotyrosine, androsterone, testosterone, oestrone and progesterone) are given. A detailed study of each of the individual glands: suprarenal, thyroid, parathyroid, pancreas, pineal, thymus, pituitary and male and female reproductive, includes their physiology, pharmacology, therapeutic applications, standardization, concensus of current estimation and a description of the available commercial preparations.—W. DERNBACH. *Arch. Pharm.*, 275 (1937), 410. (L. L. M.)

α- and β-Lecithin—Methods of Separating. Lecithin is precipitated in a small amount of acetone with cadmium chloride, centrifuged and washed with alcohol and a 7:3 mixture of ether and alcohol. The lecithin-cadmium salt is dried, and separated by extraction with cool acetone into the cadmium salts of α- and β-lecithin, the β-form being the more soluble. The salts are freed of cadmium by making alkaline with ammonium carbonate and centrifuging.—T. YOSHINAGA. *J. Biochem.* (Japan), 27 (1938), 1; through *Squibb Abstr. Bull.*, 11 (1938), A-635. (F. J. S.)

Liver Extract for Injection. An address delivered at the Pharmaceutical Congress at Groningen, November 26, 1937.—J. A. C. VAN PINXTEREN. *Pharm. Weekblad*, 75 (1938), 251. (E. H. W.)

Malt—Evaluation of. Various methods for the evaluation of malts are critically discussed. Valuable information as to quality is best provided by a knowledge of titratable acidity, formol titration, extract protein malt protein and color, together with usual Congress analysis.—O. MENZEL. *Woch. Brau.*, 55 (1938), 65–68; through *J. Soc. Chem. Ind.*, 57 (1938), 572. (E. G. V.)

Mercuric Acetate—Action of, on Peptides, Diketopiperazines and Proteins. 2,5-Piperazinedione reacts with an excess of mercuric acetate in aqueous solution to form 1,4-diacetoxymercuri-2,5-piperazinedione, which is converted to 1,4-dichloromercuri-2,5-piperazinedione by means of hydrochloric acid. 3,6-Dimethyl-2,5-piperazinedione yields 1,4-diacetoxymercuri-3,6-dimethyl-2,5-piperazinedione. The action of mercuric acetate on glycylglycine and on casein, gelatin, and silk fibroin resulted in reduction of the mercuric acetate to free mercury.—E. J. MATSON, W. O. TEETERS and R. L. SHRINER. *J. Org. Chem.*, 2 (1937), 403; through *Squibb Abstr. Bull.*, 11 (1938), A-740. (F. J. S.)

Milk—Control of the Fermentability of. The influence of the food of the cow on the rate of lactic acid (I) fermentation in milk is discussed. It is claimed that some foodstuffs assist and others resist the growth of I organisms in the milk produced and that the food of the cow greatly influences the behavior of milk in the processes to which it is subjected in the manufacture of products.—C. GORINI. *Proc. XIth World's Dairy Cong., Berlin*, 2 (1937), 498–500; through *J. Soc. Chem. Ind.*, 57 (1938), 578. (E. G. V.)

Phenol Contents in the Normal Blood. In 100 cc. arterial blood, the free phenol estimated by the Theis-Benedict method averaged 1.13 mg. for the toad and 1.69 mg. for the rabbit, with little individual differences. The conjugated phenols averaged 0.12 and 0.27 mg., respectively, with wide individual differences. Tokuyama reverses an opinion formerly expressed that the free phenols determined by the Theis-Benedict method are phenol and *p*-cresol. They are probably aromatic hydroxyacid or diphenol. The muscular contraction effect of injecting ultrafiltrate of the serum from the arterial blood has been studied.—S. TOKUYAMA. *J. Biochem.* (Japan), 27 (1938), 119; through *Squibb Abstr. Bull.*, 11 (1938), A-734. (F. J. S.)

Sexual Hormones—Production of Activators for. A solution in carbon disulfide or a hydrocarbon of the substance which increases the activity of male sexual hormones for example, an extract of lipoid or acid character, prepared from animal organs, human or body fluids, etc., is treated with an adsorbent and the active material is extracted therefrom with a suitable organic solvent. Purification may be effected by complete or partial repetition of the process.—A. G. BLOXAM. From *Soc. Chem. Ind. in Basle.* Brit. pat., 469,728; through *J. Soc. Chem. Ind.*, 57 (1938), 457. (E. G. V.)

Syphilis—Producing a Reagent for Test for. Finely divided muscle is treated with alcohol at 40° to 75° C. for at least two weeks. Cholesterin is dissolved in the extract, and there is then added a bluish coloring matter adapted, in a positive reaction, to produce among the red corpuscles of the blood being tested, clumps which are bluish in color in contrast to the red color of the corpuscles.—SOBEI IDE and TAMAO IDE. U. S. pat. 2,112,496, March 29, 1938. (A. P. C.)

Testosterone Derivatives—Biological Properties of. Testosterone oxime is about one-fifth as active as testosterone in the capon comb test and has a very low activity in the castrated rat test. Testosterone oxime propionate has a similarly low activity. The diacetate of the enolic form of testosterone has a similar action to that of the monoacetate in both capon and rat tests. The oxime and oxime propionate gave no effect when pellets were implanted in the rat, little of the material being absorbed.—R. DEANESLEY and A. S. PARKES. *Biochem. J.*, 31 (1937), 1161; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 297. (F. J. S.)

Urea—Colorimetric Method for Determining Very Small Quantities of. When urea reacts with a definite quantity of nitrous acid, the excess of nitrous acid can be determined by means of the formation of the azo by the reaction with sulfanilic acid and α-naphthylamine. The presence of glycine, creatine, uric acid and egg albumin does not interfere.—W. BRANDT. *Mikrochem.*, 22 (1937), 181–186; through *Chimie & Industrie*, 39 (1938), 451. (A. P.-C.)

Vitamin A—Effect of Solvents on the Absorption Spectrum of. The effects of alcohol, cyclohexane, hexane, ether and chloroform on the intensity of absorption in the region 328 mμ by halibut and fish oils and concentrates are tabulated. The variation is about 20% in the different solvents, being greatest in ether, least in chloroform. Chloroform shows a shift in the maximum adsorption to approximately 330 mμ. The fact that the solvents do not affect all the oils in the same way is tentatively ascribed to the presence of *cis*-trans isomers of vitamin A as is also the effect of irradiation and storage upon the absorption of the oils.—E. L. SMITH, B. E. STERN and F. E. YOUNG. *Nature*, 141 (1938), 551; through *Squibb Abstr. Bull.*, 11 (1938), A-724. (F. J. S.)

Vitamin A. For the obtainment of a highly purified vitamin A product from a fish liver oil vitamin product such as that of halibut liver oil which has had cholesterol and similar impurities separated from it, a solution of the product and associated impurities in a low-boiling inert hydrocarbon liquid such as pentane is passed through a layer of an ultra-porous adsorbent such as carbon or magnesia, the pores of which are substantially free from oxidizing gases and which adsorbent is capable of preferentially adsorbing the vitamin A and its impurities to cause a separation of them within the adsorbent. A desorbing solvent such as pentane is passed through the layer and fractions of solution are collected having a higher ratio of vitamin A to impurities than the original solution, and the solvent is removed from the purified solution of vitamin A.—HARRY N. HOLMES, assignor to PARKE, DAVIS AND CO. U. S. pat. 2,111,049, March 15, 1938. (A. P.-C.)

Vitamin A—Spectrophotometric Determination of. Vitamin A exhibits an absorption band at 328$\mu\mu$, which can be observed by examining oils or concentrates containing the vitamin. Spectrograms have been worked out by examining a 1% alcoholic solution of the substance to be tested, through a thickness of 1 cm. In the case of certain substances containing chromophoric compounds, they must be saponified before examining spectroscopically. To compare the vitamin potencies of different substances, a value of 1600 was taken for the most potent solution that could be obtained. The apparatus used comprised a quartz spectroscope combined with a Spekter photometer, and the source of light was a spark produced between two tungsten-steel electrodes. The method was used for the evaluation of the vitamin potency of cod liver oils; with these oils it is necessary to examine also the unsaponifiable matter. It was observed that purification caused a considerable loss of vitamins.—A. J. A. De Gouveia and F. Pinto Coelho. *Rev. Fac. Cienc. (Coimbre)*, 6 (1937), 191–199; through *Chimie & Industrie*, 39 (1938), 517. (A. P.-C.)

Vitamin B_1—Chemical Detection and Excretion of, in Urine. Urine contains substances which interfere with the Kinnersley and Peters reaction for vitamin B_1. The Jansen fluorescent test could be used if precautions were taken to get rid of interfering substances by fractional adsorption on china clay (Tonerde). Complete recovery of vitamin B_1 added to urine could not be obtained by the method finally elaborated, but this method was accurate enough to indicate variations in the vitamin B_1 content of urine corresponding to variations in the vitamin B_1 content of the diet. The daily excretion of vitamin B_1 in the urine of sick infants was estimated by testing on pigeons adsorbates prepared from the urine. In six infants from three to seven months old this varied between three and twenty-four "pigeon units." It was calculated that the infant required from six to fourteen "pigeon units" per kg. body weight daily.—F. Widenbauer, O. Huhn and G. Becker. *Z. ges. exptl. Med.*, 101 (1937), 178; through *Squibb Abstr. Bull.*, 11 (1938), A-775. (F. J. S.)

Vitamin B_1—Chemical Measurement of. The method of Jansen, in which the vitamin B_1 is oxidized with ferricyanide in alkaline aqueous methyl alcoholic solution, the resulting thiochrome extracted with isobutyl alcohol and the fluorescence of the extract compared with that of a standard quinine solution in the Cohen fluorimeter, has been found satisfactory, provided certain precautions are observed. For example, it is necessary always to run a blank without ferricyanide, and to protect the galvanometer from vibration. A linear relationship was established between deflection and quantity of International Standard acid clay used. A series of assays on fuller's earth adsorbates from rice polishing extracts showed an average deviation of 15.3% from the results of biological assays; this is considered to be within the limits of error of the latter. Satisfactory recoveries were obtained of vitamin B_1 (crystalline) added to milk, ham and wheat germ; with the latter substances hot aqueous 1% hydrochloric acid extracts were used for the assay. Urine could not be assayed directly, but preliminary adsorption on fuller's earth permitted the assay to be carried out, and again satisfactory recoveries of added vitamin B_1 were recorded. Samples of raw and pasteurized milk gave values between 0.06 and 0.18 international units per cc.—M. A. Pyke. *Biochem. J.*, 31 (1937), 1958; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 297. (F. J. S.)

Vitamin C—Absorption Spectrum of. The absorption spectrum of vitamin C has been measured at various p_H (2.4–6.1) in aqueous and ethyl alcohol solutions. In aqueous solutions the absorption band is $\lambda\lambda$2640–2660 Å., and the extinction coefficient is 48,000–55,000; at p_H 2.4 λ_{max}, is 2400–2450 Å., extinction coefficient 40,000. In 96% ethyl alcohol λ_{max}. is 2450 Å. in concentrated solution, and 2650 Å. in dilute solution, extinction coefficient 40,000–46,000. The band at 2650 Å. is due to the dissociated molecule and that at 2450 Å. to the undissociated molecule. The buffer solutions are sodium acid phosphate plus citric acid and hydrochloric acid plus sodium citrate.—B. Skarzynski. *Bull. acad. (Polonaise) A*, (1937), 462; through *Squibb Abstr. Bull.*, 11 (1938), A-785. (F. J. S.)

Vitamin C-Protein Complex. A solution of vitamin C in very pure water shows less loss of reducing power on aeration than does lemon juice. By addition of traces of dry egg albumin, phenylalanine or cystine, the reducing action of a 0.01N aqueous solution was held more constant; the amino acids glycine, leucine and glutamic acid-HCl act antagonistically. The formation of an oxidation-resisting complex between ascorbic acid and the protein is indicated.—W. Rudolph. *Naturwissenschaften*, 26 (1938), 155; through *Squibb Abstr. Bull.*, 11 (1938), A-678. (F. J. S.)

Yeast—Drying of. An amount of non-nitrogenous colloid material (such as pectin or linseed extract) not exceeding 10% of the dry weight of the yeast, is added to the yeast to be dried, and the mixture is dried at a temperature up to 30° C.—HAROLD A. AUDEN AND PHILIP EAGLESFIELD, assignors to STANDARD BRANDS INC. U. S. pat. 2,111,201, March 15, 1938. (A. P.-C.)

Yeast Cakes—Relation between Yeast, Sugar and Fat in.—Carbon dioxide evolution and cake volume are reduced by increasing quantities of fat or, especially, sugar; this effect may be counteracted by increasing the quantity of yeast.—W. HOFMANN. *Z. ges Getreidewes.*, 24 (1937), 178–182; through *J. Soc. Chem. Ind.*, 57 (1938), 577. (E. G. V.)

ANALYTICAL

Acid Value and Color Tests. The determination of the acid value is discussed. The colors given by various oils and resins in a modified Liebermann-Stroch test in which the acetic anhydride is diluted with toluene and the color observed immediately and after 5 minutes are tabulated.—P. H. FAUCETT. *Drugs, Oils and Paints*, 53 (1938), 60–64; through *J. Soc. Chem. Ind.*, 57 (1938), 682. (E. G. V.)

Alcohols and Acids—Volatile, Identification and Quantitative Determination of. Procedures are described for the identification and quantitative determination of minute quantities of volatile alcohols and acids. The essential method consists of distillation of the sample from acid Na_2WO_4-$HgSO_4$, redistillation from $Ca(OH)_2$-HgO, oxidation of the alcohol by chromic acid to the respective acid, and finally determination of the distribution constant with ethyl ether. A distribution constant below that of acetic acid indicates the presence of another alcohol or a mixture of alcohols. In such a case the final oxidation mixture from another sample is fractionally distilled and the total acidity and the distribution constant are determined in each of the serial distillates. Two physical constants, the rate of distillation and the distribution constant, thus determine the identity of the acids which in turn identifies the alcohols. Since success of the procedure depends on the determination of minute quantities of volatile acids, the determination of the latter in various biological materials is also described. The most practical method for the preliminary separation of volatile acids from the sample appears to be steam distillation with acid Na_2WO_4-$MgSO_4$. Formic, pyruvic, crotonic and other acids, *e. g.*, lactic, are removed by redistillation from acid $MgSO_4$-HgO. Aeration with carbon dioxide-free air at room temperature just before titration with 0.01 *N* sodium hydroxide quantitatively removes carbon dioxide without loss of volatile acid. The end-point is sharp and permanent with a maximum error of ± 0.05 cc. The procedures were successfully applied to the determination of alcohol in blood and the determination of alcohol and volatile acids in culture media.—T. E. FRIEDEMANN and T. BROOK. *J. Biol. Chem.*, 123 (1938), 161; through *Squibb Abstr. Bull.*, 11 (1938), A-582. (F. J. S.)

Alkaloids—Estimation of, in Syr. Glycerophosph. Co., B. P. C. A mixture of 2 volumes of chloroform and 1 volume of carbon tetrachloride is said to satisfactorily extract the alkaloids from Syr. Glycerophosph. Co., B. P. C. The solubility of caffeine in carbon tetrachloride was found to be 1 in 650; strychnine in carbon tetrachloride, 1 in 384. A mixture of equal volumes of ether and chloroform when ignited burns gently with a smoky flame resembling that of a tallow lamp except for the fumes of carbonyl chloride emitted. A mixture of 2 volumes of chloroform and 1 of ether is ignited with difficulty, the flame being immediately extinguished by the chloroform vapor.—D. B. Dott. *Pharm. J.*, 140 (1938), 357. (W. B. B.)

Alumina—Determination of, by Means of *o*-Oxyquinoleine. The gravimetric method by difference is too long. When the determination of ferric oxide and titanium oxide also are required, it is preferable to use the volumetric method by difference, titrating either the combined oxyquinoleine or the excess of free reagent. In the direct determination of alumina by decomposition of the silicate with caustic alkali, oxalic acid should preferably be used to fix the iron as a complex.—P. P. BOUDNIKOV and S. S. JOUKOVSKAÏA. *J. Prikl. Khim.*, 9 (1936), 2079–2087; through *Chimie & Industrie*, 39 (1938), 448. (A. P.-C.)

Aluminum—Volumetric Determination of, by Means of Pyrogallol. Precipitation of aluminum hydroxide is not prevented by glycerol, mannitol, glucose, or sucrose; pyrogallol (I) (1 molecule per aluminum) prevents precipitation, and liberates an equivalent amount of acid from aluminum salts, according to the reaction $Al^{+++} + C_6H_3(OH)_3 \rightarrow 3H^+ + C_6H_3O_3Al$. Aluminum may be determined by titrating the free acid formed after addition of 3% aqueous I.—A. V.

PAVLINOVA. *J. Appl. Chem.* (U. S. S. R.), 10 (1937), 1718; through *Squibb Abstr. Bull.*, 11 (1938), A-1743. (F. J. S.)

Amines—3,5-Dinitro-*p*-Toluic Acid as a Reagent for the Identification of. 3,5-Dinitro-*p*-toluic acid is prepared by direct nitration of *p*-toluic acid at 100° to 110°C. With simple amines or amines that are substituted in the benzene ring, it gives well crystallized salts having characteristic melting-points ranging from 110° to 230° C. The test is carried out as follows: to 0.5 Gm. of the reagent dissolved in absolute alcohol add the corresponding quantity of the amine separately dissolved in hot absolute alcohol; mix the two solutions, boil a few minutes on the water-bath and let cool; if no precipitate forms, concentrate the solution.—P. P. T. SAH and K. H. YUIN. *J. Chinese Chem. Soc.*, 5 (1937), 129–133; through *Chimie & Industrie*, 39 (1938), 451. (A. P.-C.)

Ammonium Oxalate as a Standard for Permanganate Titration. Dissolved ammonium oxalate is precipitated by 96% ethanol in the form of anhydrous salt and dried at 85° to 90° C. to constant weight. The product thus obtained is of constant composition. The only defect is a slight hygroscopicity.—M. M. KIRILOV. *J. Prikl. Khim.*, 9 (1936), 2065–2067; through *Chimie & Industry*, 39 (1938), 448. (A. P.-C.)

Antimony—Determination of, by Formation of Antimony and Potassium Iodide Complex. *Colorimetric:* Place increasing quantities of *N*/100 tartar emetic, corresponding to 0.03 to 0.24 mg. of antimony, in 4 test-tubes. Add 0.35 to 0.2 cc. of water, respectively, and 2 cc. of a freshly prepared 1:1 mixture of 1:10 sulfuric acid and 1:10 potassium iodide. The intensity of the golden-yellow color that appears is proportional to the concentration of antimony. The color is noticeable with 0.005 mg. of antimony. The blank does not show the color and arsenic does not give any color under these conditions. Hydrochloric acid may be substituted for the sulfuric acid. *Volumetric:* Add the antimony solution, dropwise and with shaking to a convenient amount of the sulfuric acid-potassium iodide solution until an orange precipitate of antimony iodide suddenly forms. If 1:1 sulfuric acid-potassium iodide solution is used 4–5 seconds may elapse before the precipitate forms, but if 2:1 sulfuric acid-potassium iodide is used the precipitate forms immediately. Arsenic does not form a colored compound or give a precipitate under these conditions. If very little antimony is present, add a known excess of the acid-iodide solution and determine the excess by titrating with a standard antimony solution until the precipitate forms.—L. FAUCHON. *J. pharm. chim.*, 25 (1937), 537–541. (S. W. G.)

Antimony—Precipitation and Determination of, with Hypophosphorous-Sulfuric Acid Reagent. Heat the antimony solution on a water bath for 30 minutes with twice its volume of a mixture of sodium hypophosphite 100 Gm., distilled water 200 cc., and sulfuric acid (*d* 1.83) 150 cc. Cool and reheat for some minutes to aid filtration and prevent oxidation during washing of the precipitate on a Jena 3G3 filter with sulfuric acid (1:4). Dissolve the antimony in a measured excess of *N*/10 or *N*/100 iodine with addition of 1 cc. of 1:10 tartaric acid or Rochelle salt. Then pass through the filter a volume of standard arsenous acid solution equivalent to the iodine used, and 10 cc. of saturated sodium bicarbonate solution. Titrate the excess arsenous acid with iodine. The above reagent precipitates only 30% of arsenic from solutions. *Separation of antimony and arsenic:* (1) Determine total arsenic by precipitation with Bougault's reagent (hydrochloric acid + hypophosphorous acid). (2) Determine antimony with part of the arsenic by precipitation and titration with iodine as above. (3) Determine arsenic not precipitated in (2) with Bougault's reagent. The arsenic and antimony may be calculated.—L. FAUCHON and L. VIGNOLI. *J. pharm. chim.*, 25 (1937), 541–545. (S. W. G.)

Antipyretics—Study of the Qualitative Separation of. The mixture to be separated consisted of 25% phenacetin, 40% antipyrine salicylate, 5% caffeine, 25% dimethylaminoantipyrine and 5% quinine sulfate. Many procedures have been described for the separation of such mixtures but only characteristic color reactions for the constituents have been required. The author has devised a separation in which the ingredients are obtained in such purity that their melting points check with those of the literature. The method is briefly as follows: 2 Gm. of the mixture are warmed to about 60° on a water bath with 100 cc. of 0.5 *N* sulfuric acid until practically all of the solid dissolves. The liquid is then poured into a 250 cc. separatory funnel and allowed to cool. The beaker is rinsed with 50 cc. of ether and the ether is used to extract the acid solution. When the ethereal extract is washed with sodium carbonate solution, pure salicylic acid can be obtained by acidifying the alkaline solution and reëxtracting with ether. The ethereal extract after washing

with sodium carbonate yields pure phenacetin. The sulfuric acid layer which has a p_H of about 2.0 is then extracted with chloroform which removes the caffeine and some of the antipyrine. The chloroform is distilled off and the residue treated with water, hydrochloric acid and picric acid which precipitates crystals of antipyrine picrate. The filtrate is then made alkaline and extracted with chloroform, giving pure crystals of caffeine. The sulfuric acid layer from above is now adjusted to a p_H of 4.0 with sodium hydroxide and tartaric acid and is again extracted with chloroform. The chloroform is distilled off, the residue treated with water, hydrochloric acid and picric acid when the remainder of the antipyrine is obtained as the picrate. The filtrate is then made alkaline and extracted with chloroform which removes dimethylaminoantipyrine. The residual acid layer is adjusted to a p_H 8.6 with sodium hydroxide and extracted with ether. On evaporation of the ether, crystals of quinine are obtained. The article gives all details of the manipulations.—A. BÜRGIN. *Pharm. Acta Helv.*, 13 (1938), 34–38. (M. F. W. D.)

Arsenic—Application of the Gutzeit Method of, Determination to Analyses in Series. A description of the method, based on the color produced by arsine on paper or cotton impregnated with mercuric chloride or bromide.—K. UHL. *Angew. Chem.*, 50 (1937), 164–165; through *Chimie & Industrie*, 39 (1938), 248. (A. P.-C.)

Arsenic—Semi-micromethod for Rapid Determination of. The following procedure is recommended: Place a sample containing 0.1–1.0 mg. of arsenic in a 25-cc. pear-shaped Pyrex flask, add 5 cc. of nitric acid (*d* 1.40) and 1 cc. of sulfuric acid (*d* 1.84), then heat on a wire gauze. As the oxidation continues add more nitric acid until the organic matter is completely decomposed, avoiding darkening by carbonization as much as possible. The reaction should be complete in thirty minutes. Heat the residue just until sulfur trioxide is evolved, cool, add 0.1 Gm. hydrazine sulfate, heat again until the sulfur trioxide is eliminated. Add gradually 5 cc. of boiling distilled water and allow to cool, then add 3 cc. of hydrochloric acid (*d* 1.19), 2 cc. of 1% gelatin, and 1 cc. of saturated hydrogen sulfide solution (prepared with boiled and cooled distilled water). A series of standards is prepared containing between 0.1–1.0 mg. of arsenic, using a solution of sodium arsenite 1 cc. of which is equivalent to 0.001 Gm. of arsenic, and making up to 5 cc. with boiled distilled water, then adding the amounts of sulfuric and hydrochloric acids, gelatin solution and hydrogen sulfide solution given above. Compare in flat bottomed, colorless glass tubes having a diameter of 16 mm.—F. GAUDY and M.-P. ANTOLA. *J. pharm. chim.*, 27 (1938), 165–170. (S. W. G.)

Arsenic—Use of Photoelectric Comparator in the Determination of Small Amounts of, by Bougault's Method. The turbidity produced on addition of Bougault's reagent (hydrochloric and hypophosphorous acids) is measured in a photoelectric comparator and compared with a previously prepared standardization curve. The author adds 10 drops of 20% gum arabic as a colloid protector after reduction of the arsenic and cooling of the mixture. This gives a product which will give constant readings for at least two hours. The method is sensitive to 0.0001 mg. of arsenic per cc. and the errors are less than ± 2%.—M. THURET. *J. pharm. chim.*, 26 (1937), 18–23. (S. W. G.)

Atropa Belladonna—Analysis of the Alkaloidal Mixture in. Emphasis is placed on the importance of estimating chemically the alkaloids of belladonna in addition to applying biological methods whenever possible to determine the different alkaloids in the roots. The following method permits the exact separate estimation of hyoscyamine, atropine, scopolamine: Treat 30 Gm. of the drug in a thick-walled flask with 300 cc. ether and after vigorous shaking add 15 cc. 10% ammonium hydroxide, set aside and shake occasionally for two hours. Pour off the ether solution and dry with sodium sulfate and filter through a dry filter. Evaporate 200 cc. of the ether solution (= 20 Gm. of drug) on a water bath to a small volume, add 10 cc. of 0.5% hydrochloric acid and warm further to expel all of the ether. Filter the acid solution into a separatory funnel, rinse the flask and filter with 3 x 5 cc. water and make the solution slightly alkaline by the careful addition of a saturated solution of sodium bicarbonate. Extract with 3 x 20 cc. portion of ether (B) and set aside the aqueous solution (A) containing atropine and hyoscyamine. Evaporate the ether solution B on a water bath to a few cc., add 10 cc. 0.5% hydrochloric acid solution and again warm to expel the ether. Transfer the acid solution to a separatory funnel, make alkaline as above with sodium bicarbonate and extract with 3 x 20 cc. portions of ether (C). The aqueous solution contains small amounts of hyoscyamine and atropine and is added to A. Solution C is treated a third time as above and the aqueous solution is added to A. The ether

solution (D) obtained from the last extraction after drying with sodium sulfate is transfered to a small flask, rinsing flask and filtered several times with ether and warmed on a water bath to remove the ether. Dissolve the residue in 2 cc. of alcohol, add 10 cc. water and methyl red-methylene blue indicator and titrate the scopolamine with 0.1 *N* hydrochloric acid (1 cc. acid = 0.0303 Gm. scopolamine). Add to solution A 3 cc. of concentrated ammonium hydroxide and shake with 3 x 30 cc. chloroform; shake the chloroform solution with 0.5 Gm. tragacanth, allow to stand $^1/_2$ hour and filter into a flask; rinse the flask and filter several times with chloroform. Evaporate the chloroform solution on a water bath almost completely, remove the last traces by means of a stream of air, place the residue for several hours in a desiccator and add exactly 20 cc. of alcohol (90%) (1 cc. of alcohol = 1 Gm. of drug). Allow to stand for 2 hours, determine accurately the specific gravity of the solution and finally determine the hyoscyamine polarimetrically in a 220 mm. tube (specific rotation for hyoscyamine in 90% alcohol = 24.0°). Pipet 10 cc. of the alcohol solution (= 10 Gm. of drug) into a small flask, add 20 cc. water and for the determination of hyoscyamine and atropine titrate with 0.1 *N* hydrochloric acid using methyl red-methylene blue as an indicator. Type calculations are offered; results obtained with a series of samples, fresh plant triturations, tinctures and extracts are reported. It appears that the atropine content of 3–15% of the total alkaloids varies, scopolamine was generally 1–3% of the total alkaloids; hyoscyamine amounted to at least 85% of the total alkaloids. The advantages of the belladonna fresh plant preparations in therapy as compared to atropine depend in part, at least, on the high content of the biologically active hyoscyamine. Twenty-nine references.—A. KUHN and G. SCHAFER. *Deut. Apoth. Ztg.*, 53 (1938), 405–407, 424–427. (H. M. B.)

Barbiturates—New Color Reactions for. *Reactions of Allyl Barbiturates with Aldehydes.*—(1) Add several particles of Dial (diallyl-malonylurea) to 2 cc. of sulfuric acid and add 4 drops of 40% formaldehyde. Heat for 2–3 minutes in boiling water and observe a yellow orange color and a very intense green fluorescence. After cooling, add 10 cc. of distilled water. The color will disappear but the fluorescence will remain. Numal (isopropylallyl-malonylurea) and Sandoptal (isobutylallyl-malonylurea) also give an identical reaction. Luminal or Gardenal (phenylethyl-malonylurea) gives an intense wine-red color. No color is observed with Veronal, Proponal, Soneryl or Amytal. Phanodorm gives a yellow to orange tint with a slight fluorescence after dilution, but a blank test gives the same reaction. (2) Triturate several crystals of Dial with 5 drops of 1% dimethylaminobenzaldehyde in sulfuric acid. At first no color is apparent, after 1 minute a pale orange-yellow color is observed and the borders have a rose tint. After 3 minutes the borders are definitely rose colored. Heat gently in the vapors from boiling water and observe the formation of a current-red border with a faint orange color in the center of the liquid. Addition of 2 drops of water changes the color to violet-rose. This reaction is characteristic of compounds with two allyl groups. (3) Place 1–2 cg. of Dial in a dry tube, add 2 cc. of sulfuric acid and only 1 drop of a 1:20 solution by volume of salicylic aldehyde in 90–95% alcohol, then mix. A sulfur-yellow color appears which on heating in boiling water changes to an intense current-red. The reaction detects 0.1 mg. of Dial, and seems to be specific for this barbiturate. *Identification of phenylbarbiturates by formation of nitro-derivatives.* The compound (0.05 Gm.) is heated in 1 cc. of a mixture of nitric and sulfuric acids (1:1) to form the metadinitro-derivative. After dilution with 5 cc. of distilled water this is extracted by means of 6–8 cc. of ether or ethyl acetate. The solvent is removed and the residue is shaken vigorously with 2 cc. of acetone and 2 cc. of sodium hydroxide solution. Allow the mixture to stand and observe the pansy to bishop violet color in the upper acetone layer. The maximum intensity is reached in 10 minutes. The reaction is specific for barbiturates containing a benzene ring in the molecule. *Characteristic reaction for Isonal, N-methylphenylethylmalonylurea.* Place 2 cc. of sulfuric acid and 5 drops of nitric acid in a dry tube, add about 0.05 Gm. of Isonal, mix and heat on a water bath for 5–6 minutes. Cool the tube in cold water, and add carefully 10 cc. of water. Add 5 cc. of ether, shake vigorously, allow to stand several seconds, then remove the ether solution and evaporate on a water bath. Dissolve the residue in 2 cc. of acetone, add 2 cc. of sodium hydroxide solution and shake. A yellow color is observed in the acetone layer changing to yellow-green (10 seconds) and then to a very intense green (1 minute). Add 6–8 cc. of acetone; the color changes to blue-green, to extremely intense sky blue to bishop violet and finally to bordeaux red (5 minutes). The lower alkaline layer has an orange-yellow color. With Luminal and Rutonal a yellowish color is observed in the

acetone layer; while the alkaline layer is red. Other barbiturates tested gave negative reactions. —M. PESEZ. *J. pharm. chim.*, 27 (1938), 247–254. (S. W. G.)

Benzene—Structure of. C. K. Ingold stated that spectroscopic data of ordinary benzene and benzenes, in which a part or the whole of the hydrogen is substituted by deuterium, establish unequivocally a plane and regular (hexagonal) symmetry for the isolated (gaseous) benzene molecule. The prior predilection for this stereochemical structure thus proves to fit with fact.—ANON. *Chemist and Druggist*, 129 (1938), 129. (A. C. DeD.)

Bismuth—Colorimetric Determination of. Dilute aqueous sodium sulfide is added to a slightly acid solution of the sample in presence of gum arabic or polyvinyl alcohol. The solution is made slightly alkaline with ammonia, diluted to a standard volume, and the color matched against a standard. The accuracy is ± 3%.—T. YAMAMOTO. *Bull. Inst. Phys. Chem. Research* (Japan), 16 (1937), 1312; through *Squibb Abstr. Bull.*, 11 (1938), A-743. (F. J. S.)

Bismuth—Determination of, in Compounds Commonly Used in Pharmacy. Treat 1 Gm. of the bismuth compound with 2 cc. of concentrated hydrochloric acid, dilute to 100 cc. with 5% hydrochloric acid and filter. Dilute 1 cc. of the filtrate to 100 cc. with acetone. To 1 cc. of the acetone solution add 0.2 cc. of 25% aqueous solution of potassium iodide and dilute to 2 cc. with acetone. A colored iodobismuthate is formed. Compare in a colorimeter with a standard containing a known amount of bismuth prepared in a similar manner. Other methods are discussed. Z. M. LUGONES. *Rev. Centro Estud. Farm. Bioquim.*, 27 (1937), 67–73; through *Chimie & Industrie*, 39 (1938), 508. (A. P.-C.)

Calcium Arsenite—Determination of Free Arsenic Trioxide in. The method of Spitsin and Miller for determining arsenic trioxide in calcium arsenite based on different solubilities in ammonium citrate gives inconsistent and too high results. The sublimation method depends on the complete volatilization of arsenic trioxide at 200° to 250° C. and the chemical stability of calcium arsenite at 300° C. A 0.2-Gm. sample is sublimed either (1) in a specially designed apparatus (illustrated), consisting of a glass crucible connected by a ground joint with an inverted glass funnel provided with a glass cock and water jacket with an inlet and outlet for running water, or (2) in a watch glass covered with a tightly fitting glass funnel plugged with a piece of cotton wool. The funnel is cooled outside with water running through a cone-shaped lead coil snugly fitting over the funnel down to 1 to 2 cm. from the base edge. After heating at 250° C. for one to one and a half hours on a sand or electric bath, the sublimed arsenic trioxide in the funnel is dissolved in 10 cc. of 30% sodium hydroxide solution, the solution is made acid with 20 cc. of hydrochloric acid and then titrated with potassium bromate in the presence of methyl orange. The method is accurate to ± 0.5% of arsenic trioxide.—N. S. ARTAMONOV and Z. KH. BAKHTIAROVA. *Zav. Lab.*, 5 (1936), 1176–1179; through *Chimie & Industrie*, 39 (1938), 449. (A. P.-C.)

Camphor—Titrimetric Method of Determination of, in Mixtures of Drugs. Camphor (I) in relatively small amounts is satisfactorily determined by the following titrimetric oxime method: A drug preparation containing 0.2 Gm. I is weighed into a flask and treated with 10 cc. hydroxylamine (II) solution (2 Gm. II, 10 cc. water and 50 cc. 96 volumes % alcohol), about 0.15 Gm. sodium bicarbonate and one drop 0.1% brom phenol blue solution. The mixture is warmed four hours without boiling. The blue color gradually turns green and finally yellow. When the yellow color appears, alcohol sodium hydroxide (2 cc. 10% sodium hydroxide + 8 cc. 96 volume % alcohol) is added in sufficient amount to bring the color to green. This is repeated several times. If directions are followed exactly the mixture is yellow-green after four hours. The cooled solution is acidified with 1–2 drops 10% hydrochloric acid and exactly neutralized with 0.1 *N* carbon dioxide-free sodium hydroxide (brom phenol blue indicator). A 10-cc. portion of the above II solution is taken through the same procedure as a blank. Both solutions are then titrated with 0.1 *N* alkali to a rose color with 0.1 Gm. phenolphthalein and 2–3 drops 1:1000 tropaolin. The difference between the two gives the camphor content, 1 cc. 0.1 *N* sodium hydroxide being equivalent to 0.0152 Gm. camphor.—E. SCHULEK and R. WOLSTADT. *Z. anal. Chem.*, 104 (1936); through *Squibb Abstr. Bull.*, 11 (1938), A-692. (F. J. S.)

Caramel Color—Analysis of. Analyses are given for three different caramels. The tests by means of which one can determine the grade and quality of caramel include specific gravity, tinctorial power, viscosity, acid-fastness, resistance to flocculation by tannin, fermentation, foam, compatability and p_H.—W. R. FETZER. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 349–353. (E. G. V.)

Carotene—Obtaining, from Carrots. Drying of the carrot juice must be avoided in order to protect the carotene against degradation. The first operation must therefore consist in separation of the carotene from the liquid, which is most simply effected by precipitation of the carotene with a reagent such as aluminum sulfate; centrifuging does not give satisfactory results. Carotene is best removed from dry carrot cake by extraction in a Soxhlet extractor rather than by percolation; extraction may be accelerated by adding ethanol to the gasoline or petroleum ether used for extracting. The material should be first properly subdivided.—S. N. MATSKO and V. N. BELEKHOVA. *Voprossy Pitania*, 6 (1937), 103–118; through *Chimie & Industrie*, 39 (1938), 518. (A. P.-C.)

Chloride—Microdetermination of, in Biological Materials. To 0.2 cc. of the sample in a centrifuge-titration tube 0.5 cc. of approximately $N/5$ silver nitrate and 1 cc. of concentrated nitric acid are added and the tube is agitated and stored in the dark until the next stage can be performed. The tube is then heated in a boiling water bath after the addition of two drops of 30% hydrogen peroxide. Plasma and whole blood require less than thirty minutes for digestion, but cells require at least one hour, and at the end of thirty minutes two drops more of the hydrogen peroxide solution should be added. The tube is centrifuged for ten to fifteen minutes and a definite amount (about one or two drops) of a fairly dilute ferric alum solution is added, followed by 1 cc. of chloride-free ether; the contents of the tube, which are kept stirred by means of an air jet, are now immediately titrated with approximately $N/10$ ammonium thiocyanate, using a burette, the delivery tube of which dips beneath the surface of the liquid. The effect of centrifuging is to pack the silver chloride precipitate at the bottom of the tube, thus lessening the effect upon it of the added thiocyanate ions, and the ether collects the precipitate of silver thiocyanate at the ether-water interface, thus keeping the titration field unobscured. The result may be calculated from the formula:

$$\text{Cl (m.-eq. per liter)} = \frac{1000 \times (\text{volume} \times \text{concentration of } AgNO_3) - (\textit{volume} \times \textit{concentration of } NH_4SCN)}{\textit{volume of sample}}$$

where the volumes are expressed in cc. and the concentrations of silver nitrate and ammonium thiocyanate in Gm.-mols. per liter. Calculation may also be made graphically from two chloride standards.—A. KEYS. *J. Biol. Chem.*, 119 (1937), 389; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 300. (F. J. S.)

Chloroform Liniment, United States Pharmacopœia XI—Note on Assay of. Detailed procedure for a new method is given. It eliminates distillation, and the four-hour refluxing mixture. This decreases the opportunity for error and shortens the time of determination. Average recovery of chloroform is 98.4%.—SAMUEL W. GOLDSTEIN and WILLIAM F. REINDOLLAR. *J. Am. Pharm. Assoc.*, 27 (1938), 400. (Z. M. C.)

Copper—Colorimetric Determination of. The most sensitive method is that involving the use of 1,2-diaminoanthraquinonesulfonic acid. The methods involving use of aqueous ammonia, $K_4Fe(CN)_6$, alone or with citric acid, or of sodium sulfide can be applied only over a narrow range of concentrations.—J. SEBOR. *Chem. Listy*, 31 (1937), 419; through *Squibb Abstr. Bull.*, 11 (1938), A-743. (F. J. S.)

Diethyl—Or Diallylbarbituric Acid, Titrimetric Determination of. Determination of Barbituric Acid Derivatives in Presence of Acetic, Salicylic and Phenylcinchoninic Acids, and of Theobromine and Theophylline. Dissolve 0.10–0.15 Gm. substance in 25 cc. of 5% borax solution, add one cc. 10% potassium chromate solution and titrate the warm solution with $0.1N$ silver nitrate to constant reddish color. The method cannot be applied to phenylethyl—or other derivatives of barbituric acid. In presence of organic acids dissolve the substance by adding 10% sodium hydroxide solution, then lead in carbon dioxide until added phenolphthalein is decolorized, and shake out with ether repeatedly until the ether contains no dry matter. Distil the united ether solutions and weigh the residue.—E. SCHULEK and P. ROZSA. *Magyar Gyogyszeresztud. Tarsasag Ertesitöje*, 14 (1938), 96–108; through *Chem. Abstr.*, 32 (1938), 3901. (F. J. S.)

Distillation Columns for Fractionation at Atmospheric Pressure and under Reduced Pressure. The apparatus is an all-glass combination plate and point column. A slightly modified design is used for distilling under reduced pressure. It can recover practically quantitatively (95

to 100%) small quantities of alcohol (0.1 to 0.2 cc. in 300 cc. of liquid) by distilling about 20% of the original volume of liquid, which requires about 2 hours.—HENRI VIGREUX. *Ann. fals.*, 31, (1938), 26–28. (A. P.-C.)

Ferric Salts—Use of, as Clarifiers in Extraction of Certain Heterosides. Ferric sulfate solutions 30–50% were used with calcium carbonate and anhydrous sodium sulfate in precipitating and drying the heteroside-containing mixture. This replaces the lead subacetate procedure. The carefully dried mass was powdered and extracted with successive portions of anhydrous ethyl acetate.—R. LUNEAU. *J. pharm. chim.*, 26 (1937), 256–259. (S. W. G.)

Formaldehyde—Determination of, in Dilute Solution and in the Presence of Interfering Substances. The method is applicable to pharmaceutical preparations. Exhaust the aqueous or aqueous alcoholic fluid with ether-petroleum ether (1–2) to remove flavor, etc. Four to five extractions, each with one-half volume of solvent, are usually sufficient. To 10-cc. aliquot, add in rapid succession 100 cc. of 0.1 *M* silver nitrate, 1 cc. of hydrochloric acid (37%) and 3 cc. of sodium hydroxide (25%). Whirl once after each addition. Finally whirl 10 minutes for good contact. Filter through paper and wash until chloride free. Pour warm nitric acid (1 to 3) onto precipitate to dissolve all reduced silver. Wash with hot water and titrate with 0.1*N* ammonium thiocyanate and ferric alum.—O. HEIM. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 431. (E. G. V.)

Glycerin—Detection and Colorimetric Determination of, Particularly in Admixture with Water-Soluble Substances, and at Great Dilution. The solution containing glycerin (I) is mixed with a 1% solution of anthrone (II) in concentrated sulfuric acid. On heating to 120° a yellow color is produced which turns red and reaches its maximum intensity at 170–175°, when it may be compared with known standards. At the same time there is a reddish yellow fluorescence which is specific for I. The II is produced by reduction (zinc-hydrochloric acid) of anthraquinone. The limit of sensitivity in aqueous solutions is 0.5 part per 10^5 parts, and the method is not disturbed by the presence of reducing agents.—F. SCHUTZ. *Papier-Fabr.*, 36 (1938), 55–56; through *J. Soc. Chem. Ind.*, 57 (1938), 548. (E. G. V.)

Halogens—Determination of, in Organic Substances. The method is outlined as follows: Burn the sample with some solid potassium permanganate in a sealed glass tube, extract with water, remove excess permanganate with hydrogen peroxide, and determine the halide present in the aqueous solution as the potassium salt in case of chlorine or bromine, and as potassium iodate in case of iodine. The iodate may be determined volumetrically. Samples of 2–4 cg. may be assayed by this method. Results of a series of determinations are given.—J. A. SANCHEZ. *J. pharm. chim.*, 27 (1938), 5–18. (S. W. G.)

Honeysuckle. Treatment with petrolic ether of flowers of *Lonicera gigantea* cut about mid-June yielded 3.30% of a dark green, brittle concrete, with an odor only faintly recalling that of the flower. The concrete yielded 23.8% of a syrupy, olive green absolute which, by steam distillation with cohobation, yielded 9% (0.07% on the flowers) of a yellowish, fluid oil, with penetrating odor, having the following characteristics: specific gravity at 15 C. 0.9012, optical rotation at 20° C. 0, refractive index at 20° C. 1.4613, acid value 25.20, ester value 145.60, insoluble in 90% alcohol, soluble with opalescence in 1 volume of 95% alcohol. It contains no aldehydes, ketones nor nitrogen, and gives a negative Sabetay reaction (bromine in chloroform solution).—GEORGES IGOLEN. *Parfums de France*, 15 (1937), 298-300. (A. P.-C.)

Hydrocarbons—Aromatic, Physical Constants of Mononuclear. A review and extensive bibliography.—G. EGLOFF and A. V. GROSSE. *Universal Oil Products Co.*, Chicago, Booklet 217, (1938), 72 pp.; through *J. Soc. Chem. Ind.*, 57 (1938), 624. (E. G. V.)

Hypnotics—Identification of Several, in Viscera. The suspected barbiturate is extracted by the Fabre and Fredet procedure. The product of the proteinolysis is shaken with petroleum ether to remove fat and then extracted with a large amount of ether. The ether is evaporated and the resulting crystalline residue is sublimed onto a microscope slide and compared with crystals of known compounds (crystals are illustrated). The melting point may be determined as a check.—M. J. PAPAVASSILIOU and S. N. LIBERATO. *J. pharm. chim.*, 25 (1937), 586–595. (S. W. G.)

Indicators—Fluorescent, and the Importance of r_H in Fluorescence. A table of 38 organic substances with their p_H limits for observance under Wood's light is given. With a bifluorescent indicator one fluorescence changes to another; whereas in a monofluorescent indicator, fluores-

ence disappears. The technic of use is explained, and applications given, one of which is with colored products and solutions. The relative activities of reduction or oxidation in dilute aqueous solutions, or r_H, influence the fluorescence of certain substances. Figures are given on benzidinedisulfonic acid (S-dioxide of diamino-dibenzophenedisulfonic acid) with r_H 12–41 and also 8-amino-1-naphthol-2,4-disulfonic acid (Acid SS).—M. DERIBERE. *Tiba*, 15 (1937), 349; through *Squibb Abstr. Bull.*, 11 (1938), A-578. (F. J. S.)

Iodides in Complex Mixtures—Estimation of. Working on a modification of Scott's method, the following procedure was developed: Weigh enough of the finely powdered material to represent approximately 5 grs. of potassium iodide (or equivalent amount of iodine), transfer to a separatory funnel. Add 50 cc. of water and, if alkaline, neutralize with phosphoric acid, finally adding 5 cc. in excess. Add 25 cc. of hydrogen peroxide and agitate thoroughly. Allow to stand a few minutes to be sure the reaction is complete and extract the liberated iodine with several portions of chloroform until the iodine has been removed, as can be noted by the color. Collect the chloroform extractions in an iodine flask containing about 4 Gm. of potassium iodide in 25 cc. of water. Titrate with $N/10$ thiosulfate solution using starch as indicator. Originally devised for ferrous iodide pills, it is satisfactory for mixtures of iodides with drug extracts, ferrous salts, reduced iron or arsenic and for total iodine in iodine ointment. No mixture containing an inorganic iodide has been found in which the iodine could not be determined. Results of experiments with a considerable number are tabulated.—J. B. FULLERTON, W. J. WATKINS and C. L. GRAHAM. *J. Am. Pharm. Assoc.*, 27 (1938), 417. (Z. M. C.)

Iodine and Potassium Iodide—Quantitative Determination of, in Tincture of Iodine. The following procedures are offered: Weigh exactly into a tared 50 cc. volumetric flask about 5 Gm. of the tincture, which is introduced by means of a small funnel so that no drops are on the neck of the flask, close the flask during weighing. After weighing add 25 cc. ethyl or methyl alcohol and fill to the mark with water. Determine the free iodine with $0.1N$ sodium thiosulfate in 20 cc. (= 2 Gm. of tincture) measured from a burette. Titrate with thiosulfate solution until the sample is a bright yellow, dilute to 100 cc., add 1 cc. starch solution and titrate until disappearance of the blue color. (1 cc. $0.1N$ thiosulfate = 0.012692 Gm. I_2.) Heat 10 cc. (= 1 Gm. of tincture) of the solution of 5 Gm. of the tincture in 50% ethyl or methyl alcohol after the addition of 5 cc. water in a 100 cc. beaker on a water bath until a colorless aqueous solution remains. Transfer the colorless liquid to a 250-cc. flask and rinse the beaker several times with water, dilute to 150 cc. and add 10 cc. of acetate-bromide buffer solution (30 Gm. glacial acetic acid, 15 Gm. sodium acetate and 5 Gm. potassium bromide in 50 Gm. water); add 10% chloramine solution at the rate of 5 drops in 10 seconds, shake well whereby the iodine is oxidized to iodic acid. The solution must be entirely colorless; add more chloramine solution until the liquid is again bright yellow; this color should remain for some minutes and should decolorize a methyl red solution. Add further 10 drops of chloramine solution, shake well and then add 5 cc. of formic acid whereby the solution must be completely colorless and upon the addition of a drop of methyl red solution the red color should persist. Add 1 Gm. of potassium iodide, shake, allow to stand 5 minutes and titrate the separated iodine ($5\ HI + HIO_3 = 3I_2 + 3H_2O$) with $0.1N$ sodium thiosulfate using starch as an indicator (1 cc. = 0.016602 Gm. KI).—G. BAUCH and H. ESCHENBRENNER. *Deut. Apoth. Ztg.*, 53 (1938), 233–234. (H. M. B.)

Iodine in Liquid Petrolatum—Preparation and a Method of Assay of. Therapeutic value of these solutions is reduced by lack of uniformity in strength. A study has been made of the methods of making a solution, the value of adding potassium iodide, the limit of solubility in light and heavy liquid petrolatum. Information on physical constants is limited. A new assay method which extracts the iodine with ethyl alcohol instead of chloroform as previously suggested was found to be quite accurate. Seven liquid petrolatums were tested for saturation point and it was found to range from 1.32 to 1.42% and is controlled by viscosity. Trituration yielded solutions containing 40 to 75% of the quantity of iodine weighed. A method suggested heats petrolatum in a bottle at 70° C. on a water bath for 6 or 7 minutes and then adds iodine. Time for solution varies from five to 23 minutes depending on amount. There is gain in compounding time and in accuracy of strength.—S. W. BOWER and LEWIS G. MURPHY. *J. Am. Pharm. Assoc.*, 27 (1938), 496. (Z. M. C.)

Iron—Direct Determination of, in Malt Beverages. The colorimetric method described permits the determination of iron in beverage quickly and directly without ashing the beverage or

subjecting it to any other preliminary treatment. The reagent used is 2,2'-bipyridine which reacts with ferrous iron to give an intense red coloration. Place 10 cc. of degassed beverage in each of three test-tubes; add 0.5 cc. of the reagent to one of the tubes and mix and heat in a water bath at 70° for 30 minutes to develop the color. Compare the color with permanent iron standards in a block comparator.—P. P. GRAY and I. M. STONE. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 415–417. (E. G. V.)

Laboratory Stirrer—New. A description and illustration of a new, light, serviceable stirrer.—F. H. W. LOEWE. *Schweiz. Apoth.-Ztg.*, 76 (1938), 333. (M. F. W. D.)

Leptandra and Leptandrin. The author describes his studies on leptandra and various proprietary preparations appearing under the name of leptandrin or purported to contain constituents of leptandra. Two tests are described. Five grams of the material under investigation are powdered and shaken with 25 cc. of alcohol for $^1/_2$–1 hour, filtered and the filtrate evaporated to dryness on the water bath. 200 mg. of the residue so obtained are taken up in 5 cc. of water and basic lead acetate added until no more precipitate forms. The precipitate is filtered off and washed with enough water to make the filtrate measure 5 cc. after which it is saturated with hydrogen sulfide, filtered and the filtrate adjusted to 5 cc. (I) 2.5 cc. of the filtrate so obtained is mixed with 1 cc. of alcohol and 2 cc. of 4*N* hydrochloric acid and the mixture slowly boiled over a small flame. A blue-green color develops which upon continued boiling passes to purplish red through a fleeting blue. (II) 2.5 cc. of the filtrate are boiled for several minutes with 50 mg. of vanillin and while still warm treated with 3 cc. of 4*N* hydrochloric acid. In the presence of leptandrin a rose-red color develops. A table of results with these tests applied to leptandra and various leptandrin is given.—H. J. VAN GIFFEN. *Pharm. Weekblad*, 74 (1937), 1066. (E. H. W.)

Magnesium—Phosphate Method for the Determination of. In the precipitation of magnesium ammonium phosphate, to avoid interference of concentrated ammonia, it is recommended to precipitate by means of ethanol with cooling and stirring before introduction of an excess of concentrated ammonia for complete precipitation of the magnesium. The determination of magnesium by the pyrophosphate method yields better results.—P. S. SAVTCHENKO. *J. Prikl. Khim.*, 9 (1936), 2069–2074; through *Chimie & Industrie*, 39 (1938), 448. (A. P.-C.)

Magnolia Grandiflora—Seed of, Phytochemical Study of. Report that the bark has been used in infusions or decoctions for the treatment of rheumatism and malaria, and tinctures made with brandy or whiskey for chills and fever when quinine failed, led to the present investigation on the seeds. An investigation of the bark will be made later. Experimental work was thorough and is reported in considerable detail. There was no evidence of alkaloid or glucoside. Acid-soluble ash was high and a complete analysis will be made. Alcoholic extract yielded a volatile oil. One fraction gave no color with ferric chloride and no addition product with sodium bisulfite; the other fraction showed a slight coloration with ferric chloride but no addition product with sodium bisulfite. The water soluble portion of the extract contained a sugar, which yielded a *d*-phenylglucosazone and some tannin. A solid which separated on standing needs further investigation. The fatty oil amounted to 42.5%. Its composition was: saturated acids, 20.20%; unsaturated 72.63%; unsaponifiable matter 2.83%. Saturated acids were myristic, palmitic, stearic and arachidic; the unsaturated were oleic and linoleic. Oxidations of the oil in alkaline permanganate solution gave sativic and two dihydroxystearic acids; oxidation in boiling acetone with permanganate gave acetic and some lower acids, nonanoic and azelaic acids. At least two pigments were present.—ST. ELMO BRADY. *J. Am. Pharm. Assoc.*, 27 (1938), 407. (Z. M. C.)

Malt—Analytical Determination of Modification of. Various chemical and physical methods for the assessment of malt modification are discussed, reference being made to analyses of numerous samples of barley and of pale and dark malts. The results of various methods are not necessarily in agreement, since they measure varying aspects of modification. The value of comparison between malt properties and those of the corresponding barleys is stressed. The density of barley compared to the density of malt gives results for comparative modification showing a substantial measure of agreement with the average of all other methods.—C. ENDERS and F. SCHNEEBAUER. *Woch. Brau.*, 55 (1938), 73–86; through *J. Soc. Chem. Ind.*, 57 (1938), 572. (E. G. V.)

Microchemical Laboratory of the Biochemical Research Foundation of the Franklin Institute. A description of the laboratory is given.—H. K. ALBER and J. HARAND. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 403–406. (E. G. V.)

Nicotine—Qualitative Determination of. A detailed and critical review of the qualitative tests for nicotine and of their value and significance.—ROBERT J. DONZALLAZ. *Rev. Intern. Criminalistique*, 9 (1937), 350–362. (A. P.-C.)

Nitrates and Nitrites—Determination of Small Quantities of. *Nitrates.*—Good results are obtained by suitable modification of Grandval and Lajoux's colorimetric method, which depends on the formation of triammonium nitrophenol disulfonate from nitric acid, disulfophenol and ammonia. The standard solutions should be treated with the same amount of sulfates as are present in the unknown; the solution to be tested should be evaporated to dryness; treatment of the residue with the reagent should be carried out rapidly on the water bath. Substitution of an alkali for ammonia intensifies the color. *Nitrites.*—The method is based on the color reaction of neutral red with nitrites in acid solution. The reagent is prepared by mixing 666 cc. of 0.003% solution of neutral red, 266 cc. of 1:5 sulfuric acid and 68 cc. of water. Safranine also can be used for the colorimetric determination of nitrites.—M. V. ALEKSEEVA and S. S. GURVITS. *Hig. Truda*, 15 (1937), No. 2, 65–96; through *Chimie & Industrie*, 39 (1938), 474. (A. P.-C.)

Nitrates in Water—Determination of, by Means of Diphenylamine. Nitrates may be determined by diphenylamine methods. Very highly colored water, or water containing more than 5 mg. of iron per liter, may be coagulated with aluminum sulfate-sodium carbonate, but the nitrate concentrations found for the filtrates are the actual values.—S. V. BRUEVITSCH and E. S. BRUK. *J. Appl. Chem. Russ.*, 10 (1937), 2144–2152; through *J. Soc. Chem. Ind.*, 57 (1938), 597. (E. G. V.)

Pectin—Determination of. Methods hitherto used for determining pectin are valueless. Solidity of the jelly formed is largely dependent on the mean molecular weight, which is determined from the viscosity (measurement described) of the nitrate in dimethyl ketone. The nitrate prepared by nitric acid (density 1.54), is shown not to be degraded by conversion into the acetate. By heating for 1 hour with 0.5% aqueous lactic acid at 100° and pouring into 70% ethyl alcohol, the approximate (5% too high) content of material of high molecular weight is determined; the exact amount (A) is given by Tollens and Lefevre's method applied to the wet or dried precipitate. A method of measuring the solidity of the jelly in 2 hours is described (removal of substances of low molecular weight by precipitation from water by dimethyl ketone). The value of pectin juice is assessed by comparison of viscosity, A, and the content of solid matter.—G. G. SCHNEIDER and H. BOCK. *Angew. Chem.*, 51 (1938), 94–97; through *J. Soc. Chem. Ind.*, 57 (1938), 584. (E. G. V.)

Pectin Materials—Constitution of. A review.—BENNO REICHERT. *Deut. Apoth. Ztg.* 53 (1938), 595–596. (H. M. B.)

Phenols—Comparative Study of Reducing Power of Some. The reducing power was determined as follows: for each 5 cc. of *M*/10 solutions of the phenols, 5 cc. of ammoniacal silver nitrate (10 Gm. silver nitrate, 80 cc. distilled water, ammonia enough to dissolve precipitate) was added. The mixture was centrifuged, the residue of silver washed, then dissolved in nitric acid and, after making up to 100 cc. with distilled water, titrated with *N*/10 thiocyanate. The following phenols were tested: phenol, pyrocatechol, resorcinol, hydroquinol, pyrogallol, phloroglucinol, gallic acid, salicylic acid, thymol, salol, guaiacol, picric acid, beta-naphthol and alpha-naphthol. All the phenols exhibited a reducing action on ammoniacal silver nitrate. The reducing action was observed to be proportional with the number of phenolic hydroxyl groups, and dependent upon time and temperature. This was particularly so with resorcinol. Those phenols whose molecular arrangement allows easy formation of stable quinones showed the maximum reducing power among the isomers. Pyrogallol and gallic acid showed the greatest activity. Alpha-naphthol was much more active than beta-naphthol, the latter approaching the reducing action of ordinary phenol. Esterification involving the phenolic hydroxyl group lowers the reducing power of the compound.—A. IONESCO-MATIU and A. POPESCO. *J. pharm. chim.*, 27 (1938), 193–203. (S. W. G.)

Phosphate—Colorimetric Determination of, in Turbid Waters and Those Rich in Silicic Acid. A method is described for the colorimetric determination of phosphate in turbid solutions, natural waters, etc., which depends on extraction of the phosphomolybdic acid obtained, with organic solvents (amyl alcohol, ether, ethyl acetate) followed by reduction with stannous chloride. The validity of Beer's law for the ether solution of phosphomolybdic blue has been found to be in the neighborhood of 0–100 mg. phosphorus pentoxide per cu. m. using a pure phosphate solution. Since the silicomolybdic acid does not go over into the ether extract the method eliminates the

effect of silicic acid.—K. STOLL. *Z. anal. Chem.*, 112 (1938), 81; through *Squibb Abstr. Bull.*, 11 (1938), A-744. (F. J. S.)

Phosphate—Colorimetric Determination of, an Improved Method for the. An improved method is described for the colorimetric determination of phosphate. It consists of the removal of the reducible phosphomolybdic acid from the aqueous solution by extraction with isobutyl alcohol, and its reduction to the blue complex by shaking the alcoholic extract with an acidified aqueous solution of stannous chloride. Since the extraction occurs readily over a wide acid range (0.05–1.5*N* sulfuric acid) and is not effected by the presence of excess molybdic acid, considerable variation in the concentration of these reagents is permissible. The concentration of reducing agent may also vary over a wide range while the effects of interfering substances are prevented by the use of high concentrations of molybdate and reducing agent.—I. BERENBLUM and E. CHAIN. *Biochem. J.*, 32 (1938), 295; through *Squibb Abstr. Bull.*, 11 (1938), A-580. (F. J. S.)

Phosphate—Colorimetric Determination of, Studies on the. In order to improve the method for the colorimetric determination of phosphate, based on the reduction of phosphomolybdic acid, investigations were carried out on the reduction of molybdic acid. All the reducing agents tested reduce molybdic acid in the absence of phosphate. The reduction velocity is greatest at about 0.2*N*, and diminishes rapidly to zero with increasing acidity. Phosphates accelerate the rate of reduction of molybdic acid over a wide acid range, but the acceleration decreases with increasing acidity. From the point of view of sensitivity, the ideal reducing agent is one which will reduce the maximum number of molybdate molecules per atom phosphorus. This appears to be achieved by dilute stannous chloride.—I. BERENBLUM and E. CHAIN. *Biochem. J.*, 32 (1938), 286; through *Squibb Abstr. Bull.*, 11 (1938), A-580. (F. J. S.)

Phosphate—Improved Method for the Determination of, by Photoelectric Colorimetry. A sensitive and accurate method for the determination of phosphate, involving the application of the Evelyn photoelectric colorimeter to the ceruleomolybdate reaction, is described. This technic makes it possible to differentiate phosphate P from other forms of P. Conditions affecting the rate and extent of color development have been studied. The results show that the maximum color intensity is developed in about 5 minutes after the addition of the reducing agent. The determination may be made in the presence of extraneous color, and soil organic matter does not interfere with the reaction. Under the conditions specified, using light filters, Beer's law applied to the reaction in soil extracts as well as in pure solutions in the range of 0.02 to 0.40 parts per million of phosphorus.—W. J. DYER and C. L. WRENSHALL. *Can. J. Research Sect. B*, 16 (1938), 97; through *Squibb Abstr. Bull.*, 11 (1938), A-744. (F. J. S.)

Phosphates in Blood Serum—Determination of. Using Scheffer's principle and Linderström-Lang and Holter's apparatus, 1 to 10 mg. of phosphorus can be determined with a mean error of 1.5%. Weigh 0.2 Gm. of serum, precipitate with 1.2 cc. of 5% trichloroacetic acid, shake, let stand 1 hour, and centrifuge 5 minutes at 3000 r. p. m. in a tube in which 100 = 5 mm. Weigh 0.5 cc. of the clear liquid into a tube in which 60 = 5 mm., heat on the water bath at 75° C., bubble CO_2-free air, and add 0.4 cc. of a mixture of 150 cc. of 10% ammonium molybdate, 50 cc. of concentrated sulfuric acid, and 20 cc. of 50% ammonium nitrate solution; let stand 3 hours, wash the precipitate with 3 1-cc. portions of 50% alcohol, dissolve it in a measured amount of fourteenth-normal sodium hydroxide, add formaldehyde and an indicator, and titrate the excess alkali with eight-normal hydrochloric acid to a p_H of 7.6. The number of cc. alkali consumed × 15.68 = mg. of phosphorus. The phosphorus content of 0.2 Gm. of serum varies from 4.02 to 8.98 mg.—J. G. A. PEDERSEN. *Beretn. Forsögslab. Landökon. Forsög.*, (1936), No. 170, 25–45; through *Chimie & Industrie*, 39 (1938), 658–659. (A. P.-C.)

Picric Acid As a Qualitative Micro-Analytical Reagent. Experiments with 21 cations showed that a saturated solution of picric acid can give precipitates having a characteristic appearance under the microscope with: ammonium, sodium, magnesium, barium, strontium, lead, zinc, nickel, mercurous and mercuric mercury and silver.—A. F. ORLENKO and N. G. FESSENKO. *J. Prikl. Khim.*, 9 (1936), 2116–2118; through *Chimie & Industrie*, 39 (1938), 448. (A. P.-C.)

Platinum Ware—Treatment and Care of. A discussion.—WALTER MEYER. *Deut. Apoth. Ztg.*, 53 (1938), 364–365. (H. M. B.)

Pumpkin Seeds—Constituents of. Though long known as an efficacious and harmless anthelmintic, the active principle has not yet been discovered. Extraction of the seeds with pe-

troleum ether yielded a fixed oil, from the unsaponifiable residue of which cucurbitasterol, $C_{28}H_{46}O.{}^1/_2H_2O$, melting point 162° to 163° C., was isolated. This was characterized by its acetate, leaves melting at 174° to 175° C., and benzoic ester, arborescent crystals melting at 105° to 107° C. The chloroform extract yielded the same sterol and a saturated hydrocarbon, $C_{30}H_{62}$, melting at 61° to 62° C. Examination of the alcoholic extract indicated the presence of a lecithin, fructose, sucrose and the orthophosphates of sodium and potassium. Analysis of the aqueous extract demonstrated the presence of pectin, *l*-arabinose, albumin and α-amino-β-hydroxy glutaric acid. Extraction with water acidulated with hydrochloric acid yielded a solution containing phosphates, calcium, magnesium and inositol which was isolated as the hexabarium salt of inositolhexaphosphoric acid.—A. LENDLE. *Arch. Pharm.*, 276 (1938), 45. (L. L. M.)

Pyrasulf—Investigation of the Composition of. Pyrasulf is stated by the manufacturer to be a molecular combination of dimethylaminophenyldimethylpyrazolon with strontium sulfosalicylate. The author investigated this compound and summarizes as follows: pyrasulf is a mixture of dimethylaminophenyldimethylpyrazolon and strontium sulfosalicylate of the composition $2C_{13}H_{17}N_3O.C_6H_3OH(SO_3)(COO)Sr.2H_2O$ probably prepared by melting the two components together, in consequence of which there is some separation of pyramidon. These conclusions are based on the following facts: (1) The components can be separated from one another by extraction with alcohol (2) The proportion of the components is not in agreement with the molecular weights of the water-free substances (3) Pyramidon crystallizes from the concentrated aqueous solution (4) The material does not have a sharp melting point; only one of the components melts. From the solubility in water it appears that the solubility of the pyramidon is hardly influenced by the strontium sulfosalicylate. Based upon these facts, it is not improbable, that prepared in this way, the product has greater therapeutic value than a simple mixture of the two components.—M. J. SCHULTE. *Pharm. Weekblad*, 74 (1937), 1081. (E. H. W.)

Qualitative Analysis—Organic, Microtechnic of. The advantages of the schlieren cell and capillary tube technics, for the determination of solubility of a substance in various solvents, are discussed. Technics are given in detail.—F. SCHNEIDER and D. G. FOULKE. *Ind. Eng. Chem. Anal. Ed.*, 10 (1938), 445–447. (E. G. V.)

Salicylic Acid—Contribution to the Bromometric Determination of. The bromometric method was first reported in 1876 but from time to time various workers have reported difficulties with it. The concentration of acid, the amount of shaking and exposure to light seem to be factors. The author's results indicate that four modifications of the method as described in the literature all give reproducible and practical values if one is especially careful to mix the reagents after the addition of the hydrochloric acid only for a short time and not at all during the formation of the precipitate. If, in the mixed reagents, the concentration of hydrochloric acid does not exceed 0.4*N*, then there is no risk of the introduction of errors. The results of over 40 determinations did not vary from one another by more than $\pm 0.3\%$ and only 2 samples showed this variation.—A. KÄLIN. *Pharm. Acta Helv.*, 13 (1938), 48. (M. F. W. D.)

Selenium—Determination of. The determination of selenium by precipitation with sulfur dioxide, and iodometric titration after addition of potassium iodide, is described.—Z. SHIBATA. *Sci. Repts. Tohoku* [*i*], 26 (1937), 248; through *Squibb Abstr. Bull.*, 11 (1938), A-744. (F. J. S.)

Silicated Soap—Free Alkali and Silica in. *The Determination of Free Caustic (Hydroxide) Alkali.*—Boil 100 cc. of industrial alcohol (66° o. p.; 96% by volume) to remove carbon dioxide. Add 0.5 cc. of a 0.5% solution of phenolphthalein and neutralize at 70° C. with *N*/10 acid or alkali. Add 10 Gm. of the soap in thin shavings and heat on a water bath, breaking up the insoluble residue with a glass rod, if necessary, in order to effect complete solution of the soap. Allow to settle and decant 50 cc. of the clear liquid. Titrate at 70° C. with *N*/10 sulfuric acid until the pink color just disappears. Calculate the apparent free caustic alkali as sodium oxide (1). *Free Alkali Due to Carbonate and Silicate.*—Filter the insoluble residue from the determination of free caustic alkali and wash the residue with 20 cc. of hot alcohol previously neutralized at 70° C. Dissolve the residue in about 50 cc. of water, pour through the filter, and wash the insoluble residue with water. Titrate the solution and washings with *N*/2 sulfuric acid, using methyl orange as indicator. Calculate the result as sodium oxide (2). Next determine the carbon dioxide on another portion of the soap or on the residue insoluble in alcohol by expelling the carbon dioxide by means of dilute sulfuric acid and absorbing the evolved gas in potassium hydroxide solution in the usual

way. The apparatus used should be one which includes a condenser in its train, as it is necessary to heat the acidified soap solution in order to ensure complete evolution of the carbon dioxide. From the weight of carbon dioxide the equivalent sodium oxide as carbonate is calculated (3). The difference between (2) and (3) gives the sodium oxide due to silicate. *Total Free and Combined Alkali.*—Dissolve about 5 Gm. of the soap in hot water, rinse into a separator, and add a slight excess of $N/2$ sulfuric acid. Extract the fatty acids with three quantities of ether and wash the combined ethereal solution three times with water. After evaporating the ether from the combined aqueous liquids titrate the excess of acid with $N/2$ alkali, using methyl orange as indicator. The acid used corresponds to the sum of total free alkali (caustic, carbonate and silicate) and alkali combined as soap. Evaporate the ether from the combined ethereal solutions and dry and weigh the fatty matter. Determine the neutralization value by dissolving a weighed portion in alcohol and titrating with $N/2$ alcoholic potassium hydroxide solution. From this value calculate as sodium oxide the alkali combined as soap. The difference between the total free and combined alkali and alkali combined as soap should be found to agree with the sum of the three separate determinations of free caustic, carbonate and silicate alkali. *Silica Present as Alkaline Silicates.*—The standard method of the American Chemical Society (*Ind. Eng. Chem., Anal. Ed.* 9 (1937), 5) is recommended.—Report No. 4, SUBCOMMITTEE ON METHODS OF SOAP ANALYSIS OF THE ANALYTICAL METHODS COMMITTEE. *Analyst*, 62 (1937), 865. (G. L. W.)

Sodium Nitroprusside—Applications of, to Determination of Copper, Cadmium, Cobalt and Nickel. The solubility of some nitroprussides in water at 20° are: cadmium 3, cobalt 2 and nickel and copper 0.6×10^{-4} Gm. moles per liter. To determine copper and nickel, excess of $0.05M$ $Na_2Fe(CN)_5NO$ (I) is added to 10 cc. of approximately 0.05 M-copper II or -nickel in dilute sulfuric acid, the volume is made up to 50 cc. after 12 hours (final [sulfuric acid] = $0.05M$), the solution is centrifuged, and an aliquot part of the centrifugate is electro-titrated with $0.1N$ silver nitrate, to determine excess of I used. Cobalt is determined similarly, without adding sulfuric acid. In the case of cadmium 10–15 cc. ethyl alcohol are added in place of sulfuric acid, and the solution is filtered instead of being centrifuged.—O. TOMICEK and J. KUBIK. *Chem. Listy*, 31 (1937) 471; through *Squibb Abstr. Bull.*, 11 (1938), A-743. (F. J. S.)

Sodium Salicylate (or Sodium Benzoate) and Sodium Carbonate—Potentiometric Determination of, When Simultaneously Present in Solution. Sodium salicylate (I) and sodium benzoate (II) solutions of concentrations not lower than $0.1N$ were titrated potentiometrically with $0.5N$ hydrochloric acid in 90% methyl acetate solution (methyl acetate to avoid formation of supersaturated solutions). The error was 1.0 and 0.5% for I and II respectively, whereas in titrating $0.01N$ solutions with $0.1N$ hydrochloric acid, the error was up to 2%. Titration of mixtures containing I + sodium bicarbonate (II) or II plus III in 45% methyl acetate solution gave an error of 0.5–1.0% for I and up to 1.0% for II and III each. For practical analyses the Pinkhof method is recommended, using buffer solutions of p_H 6.1, 3.0 and 2.5 for III, II and I respectively. The respective errors were 1.5%, up to 1.0% and up to 1.5%.—N. A. IZMAILOV and A. G. SHVARTSMAN. *Ukrain. Khem. Zhur.*, 12 (1937), 375; through *Squibb Abstr. Bull.*, 11 (1938), A-693. (F. J. S.)

Solutions—New Technic for Dialysis Applied to. The author describes a new technic for dialysis suitable for researches with dialyzed material, that allows sheets of cuprophane or cellophane to be used. He reports the results of experiments carried out which show its applicability. and its characteristics. The author finally lays stress on the advantages and the possible uses.—G. VANZETTI. *Biochim. terap. sper.*, 16 (1938), 159. (A. C. DeD.)

Sublimation Apparatus—Simple, for the Apothecaries' Laboratory. The apparatus described consists of a metal block provided with a lateral opening for a thermometer. On the upper side of the block which may be round or square are several cylindrical holes to hold the material for sublimation, all under a suitable glass cover. The holes are 12, 14.5 and 17 mm. in diameter and 0.5, 2 and 5 mm. respectively in depth. Details of procedure are given. The sublimation temperature for seventeen drugs and fourteen references are offered.—R. FISCHER. *Deut. Apoth. Ztg.*, 53 (1938), 361–363. (H. M. B.)

Sulfanilamide. A review by the scientific staff of the Danish Apothecaries Control Laboratory of the literature on the preparation, physical and chemical properties and purity tests of sulfanilamide. Seven commercial specimens are compared with five laboratory preparations of the drug. Monographs for official description and purity rubrics of Sulfanilamidum and Tablet-

tae Sulfanilamidi (30 Cg.) are issued. For quantitative assay a bromometric titration is recommended. The acid and base dissociation constants of sulfanilamide are determined. Base constant: $10^{-11.9}$; acid constant: $10^{-10.9}$. Nine literature references are cited.—J. K. GJALDBAEK and K. K. JENSEN. *Arch. Pharm. Chemi.*, 45 (1938), 431. (C. S. L.)

Sulfates in Water—Iodometric Determination of. Five to ten drops of concentrated hydrochloric acid and 20 cc. of standard barium chloride (2 liters of solution contain 2.5449 Gm. of $BaCl_2.2H_2O$ and 20 cc. of concentrated hydrochloric acid) are added to 100 cc. of the water, and the solution is boiled and cooled. 20 cc. of potassium dichromate solution (2.7581 Gm. in 2 liters) and 1 drop of 10% aluminum chloride are added, the solution is made neutral to litmus with 10% aqueous ammonia, the volume made up to 200 cc. and the solution filtered. 50 cc. of 10% hydrochloric acid and 2 Gm. of potassium acid carbonate are added to 100 cc. of filtrate, followed by 0.2–0.5 Gm. of potassium iodide, and the solution is titrated after 15 minutes with standard sodium thiosulfate. If a cc. of mN-sodium thiosulfate are required, the sulfate content of the sample is $am - p$, where p is the number of cc. of sodium thiosulfate used in a blank test with distilled water. Should the oxidizability of the water be greater than 8 mg. of oxygen per liter, organic matter should be removed by shaking with active carbon. If the water contains more than 1 mg. of iron per liter it should be eliminated by the usual procedures.—W. SKORECKI. *Arch. Chem. Farm.*, 3 (1937), 218–231; through *J. Soc. Chem. Ind.*, 57 (1938), 597. (E. G. V.)

Sulfomolybdate Reagent—Denige's, New Applications of. Ammonium molybdate in 50% sulfuric acid gives a blue color with mineral oils in 110 minutes and with vegetable oils in 10 minutes; the presence of vegetable oil can be determined colorimetrically in samples of mineral oil by means of the time taken to match a standard cuprammonium solution. The mechanism of the reaction, which is also given by formaldehyde and glycerol, is discussed.—R. DIAS DA SILVA. *Rev. Soc. Brasil Quim.*, 6 (1937), 59–65; through *J. Soc. Chem. Ind.*, 57 (1938), 682. (E. G. V.)

Sulfur—Reaction for. When a small fragment of sulfur is placed in sodium hydroxide solution ($4N$) and a little pyridine is added, a beautiful blue color appears in the pyridine, which in time changes to green and finally to brown, especially when more than a trace of sulfur is present. If the pyridine is replaced with acetone a similar reaction takes place although the color is not such a beautiful blue, but more greenish. The author has investigated this test for free sulfur and describes experiments with pyridine, sulfur and sodium hydroxide and with acetone, sulfur and sodium hydroxide, but reaches no specific conclusions as to an explanation of the coloration. He suggests the possibility of colloidal phenomena.—L. VAN ITALLIE. *Pharm. Weekblad*, 75 (1938), 278. (E. H. W.)

Sulfur—Determination of, in Organic Compounds. For the determination of sulfur in organic material containing little sulfur, 1–5 Gm. substance are moistened in a 200 cc. short-necked Kjeldahl flask with 5–10 cc. concentrated nitric acid, mixed with 0.5–1.0 Gm. sulfur-free magnesium oxide and covered finally with 20 or 15 cc. strong fuming nitric acid. The oblique flask is warmed gently on an electric hot-plate 2–4 hours to dissolve the substance. A small funnel is placed at the mouth of the flask. After a great part of the oxidation has occurred, the funnel is removed, the solution evaporated to dryness and the residue heated. If it seems white as is always the case with a proper oxidation, 10 cc. concentrated hydrochloric acid are added and evaporated again to dryness. The residue is dissolved in acidified water (hydrochloric acid), filtered free of inorganic impurities, *e. g.*, silicic acid, and the sulfate ion precipitated in the usual way. If the oxidation was not complete, more fuming nitric acid is added (before addition of hydrochloric acid) and taken to dryness.—F. W. KLINGSTEDT. *Z. anal. Chem.*, 112 (1938), 101; through *Squibb Abstr. Bull.*, 11 (1938), A-744–A-745. (F. J. S.)

Syringa. Best results, from an olfactive standpoint, are obtained by extracting with petroleum ether, which yields 0.144 to 0.179% of a reddish brown, brittle concrete; benzene extraction gives a higher yield (0.215%) but the product is of distinctly lower quality, the flowery odor being masked by a green, disagreeable, chlorophyll odor. Syringa concrete contains considerable wax, the yield of absolute being only 25 to 27.2%. Steam distillation of the absolute, with cohobation, yields 9% of oil with a specific gravity at 15° C. of 0.912, an optical rotation at 24° C. of 3.45°, a refractive index at 20° C. of 1.4668, an acid value of 25.2 and an ester value of 95.2. The oil reduces silver nitrate and contains an oximable constituent; when treated by the standard method, 0.5 Gm. of oil requires 0.6 cc. of half-normal potassium hydroxide to neutralize

the liberated acid. It gives a greenish color by Sabetay's reaction (bromine in chloroform solution).—GEORGES IGOLEN. *Parfums de France*, 16 (1938), 92–93. (A. P.-C.)

Thalleoquinine Reaction. Place a drop of the quinine solution to be tested on a piece of filter paper, and without drying subject to the action of bromine vapors. The blue fluorescence at first diminishes and then disappears completely. Treat the paper with ammonia vapors; a yellow fluorescence appears over the whole surface of the spot. The test will detect 0.4γ of quinine, corresponding to a sensitivity of 1:500,000.—M. HAITINGER. *Mikrochim. Acta*, 1 (1937), 1–4; through *Chimie & Industrie*, 39 (1938), 314. (A. P.-C.)

Tin—Corrosion of. I. Potential Measurements of High-Purity Tin in Carbonate Solutions. Potential-time curves have been determined for uniformly prepared surfaces of Chempur tin in aqueous sodium bicarbonate and sodium carbonate. The tendency to corrosion, as measured by potential values, increases with increasing alkalinity. Oxide films produced by annealing in air prevent electrochemical activation. The behavior of the material is uninfluenced by chlorine ions when present in not greater than 0.001*M* concentration.—G. DERGE. *Amer. Inst. Min. Met. Eng. Tech. Publ.*, 913 (1938), 5 pp.; *Met. Tech.*, 5, No. 2 (1938); through *J. Soc. Chem. Ind.*, 57 (1938), 528. (E. G. V.)

"Triton B"—Separation of Magnesium from Potassium and Sodium with. Triton B (I) is a mixture of strong quaternary organic bases of a molecular weight averaging 170; it is put out at a reasonable price. Using an excess of I it is possible to precipitate magnesium completely as the hydroxide, and thus to separate it from potassium and sodium. After removal of the ammonium salts, the method is suitable for the qualitative chemical analysis of mixtures of magnesium, potassium and sodium salts. By using larger amounts of I, magnesium can be precipitated in the presence of ammonium salts, thus significantly simplifying the qualitative analysis.—T. KROKOWSKI. *Z. anal. Chem.*, 112 (1938), 183; through *Squibb Abstr. Bull.*, 11 (1938), A-893. (F. J. S.)

Viscera—Toxicological Analysis of, an Investigation into the Methods of. I. The Extraction of Alkaloids from Viscera. A critical examination of existing methods, which are modifications of the original Stas procedure, shows that extraction "tends to be incomplete and the extracted alkaloids to be contaminated with a comparatively large weight of adventitious material." The suggested method may be summarized as follows: The tissues to be extracted are frozen and minced into a tared casserole. One-half as much water by weight is added and the mixture warmed until homogeneous. The mixture is treated with 50 Gm. of ammonium sulfate and 2 cc. of glacial acetic acid for each 100 Gm. of minced material and warmed at about 65° C. until the protein coagulates. The hot mixture is filtered on a suction filter, leached with 200 cc. of hot acidulated water and again filtered. If quinine is sought the drained material (I) is extracted by leaching and filtering with small successive portions of hot 1% acetic acid until a total of 1.5 to 2 liters have been used. The combined aqueous acid extracts are extracted with ether to remove fat, made alkaline with ammonia and extracted five times with 75 cc. portions of ether. The combined ether extracts are extracted with four 10 cc. portions of dilute sulfuric acid, the acid extracts made alkaline with ammonia and extracted with chloroform. The chloroform is evaporated, the crude quinine dissolved in ethyl acetate, filtered and the quinine precipitated as tartrate by the addition of an excess of saturated solution of tartaric acid in ethyl acetate. After standing, the precipitated quinine tartrate is filtered, dissolved in water, the solution made alkaline with ammonia and extracted with chloroform. Pure quinine is obtained after evaporation of the chloroform. A recovery of approximately 86% of the material used was reported. If morphine is sought (I) is extracted with hot saturated solution of ammonium sulfate, containing 1% of acetic acid in the manner described above until 1.5 to 2 liters of extract are obtained. This is extracted with petroleum ether to remove fat. The fat free extract is made alkaline with ammonia water and sufficient alcohol (approximately 100 to 150 cc.) to form a small upper layer is carefully added. The morphine is extracted from this mixture with five portions of 1:1 mixture of chloroform and alcohol. This solution is shaken with two small portions of water and three small portions of 5% sodium hydroxide. The combined aqueous and alkaline extractions are acidified, made alkaline with ammonia water and extracted with chloroform-alcohol mixture. The chloroform-alcohol extracts are evaporated, the residue extracted with hot ethyl acetate and the ethyl acetate evaporated to dryness. This purified morphine is dissolved in 30% alcohol and an aliquot portion of this solution is used for the determination of morphine by the method of Mannich.

A maximum recovery of 84% of the morphine used was reported.—C. G. DAUBNEY and L. C. NICKOLLS. *Analyst*, 62 (1937), 851. (G. L. W.)

Volatile Oils in Vegetable Drugs—Quantitative Determination of. Purified and oven-dried sawdust was impregnated with known quantities of volatile oil, or moisture, or volatile oil and moisture. The several sources of error in the U. S. P. XI are probably insufficient drying of the drug and later of the extract, and condensation of moisture. There may be loss of volatile oil in desiccator and during evaporation and there may be decomposition. All of these possibilities were investigated. Details of experiments are given and results are tabulated. Besides the U. S. P. XI method that of the German Pharmacopœia VI, the Clevenger method, the Mynhardt method and the Wasicky method were tried. Other methods in the literature seem to be subject to the same kind of error. Determination of moisture in drugs containing ether-soluble constituents at 100° C. and determination of ether-soluble extractive were reversed and called "oven method." A sample of the drug is dried to constant weight at 100° C. Loss represents total volatile matter. Moisture is determined in a second sample by the toluene method. The figure subtracted from the total volatile figure represents volatile matter other than water. The method is simple and free from sources of error in the other methods but in some drugs there are constituents other than volatile oils which decompose at 100° C. The method will be checked against the Clevenger method which appears to be 90% accurate.—L. GOLDBERG, R. K. SNYDER, E. H. WIRTH and E. N. GATHERCOAL. *J. Am. Pharm. Assoc.*, 27 (1938), 385. (Z. M. C.)

Zinc—Gravimetric Determination of. The method suggested is the mercuric thiocyanate method. The method gives good results if other salts are not present to a large extent; particular attention must be paid to the washing of the precipitate. The Gooch crucible should be washed before weighing with a 0.001*M* solution of the thiocyanate and use the same wash solution on the precipitate.—W. C. VOSBURGH, H. PFANN, G. COOPER and W. J. CLAYTON. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 393–394. (E. G. V.)

Zinc—Precipitation of, as Zinc Salicylaldoxime. The method for the quantitative separation of copper, nickel and zinc by means of salicylaldoxime by exact control of the p_H of the solution fails in the case of zinc, (1) because of the solubility of the zinc compound in water and particularly in aqueous salt solutions, (2) because of the extraordinarily narrow p_H range in which the precipitation is complete.—TH. G. PEARSON. *Z. anal. Chem.*, 112 (1938), 179; through *Squibb Abstr. Bull.*, 11 (1938), A-894. (F. J. S.)

Zinc Sulfide—Reagent for Fractional Detection of Mercury, Copper and Cadmium. An equal volume of 10% potassium iodide is added to the solution, followed by 20% sodium hydroxide plus sodium carbonate to a strongly alkaline reaction, and the solution is boiled and filtered, and the filtrate heated with zinc sulfide; a black precipitate of mercuric sulfide forms. The precipitate is boiled with ammonium sulfate in aqueous ammonia, the solution is filtered and the filtrate is warmed with zinc sulfide; a brown precipitate indicates copper. A second portion of filtrate is decolorized with potassium cyanide, and zinc sulfide is added; a yellow precipitate indicates cadmium sulfide.—M. SCHTSCHIGOL. *J. Appl. Chem.* (U. S. S. R.), 10 (1937), 1644; through *Squibb Abstr. Bull.*, 11 (1938), A-743. (F. J. S.)

PHARMACOGNOSY

VEGETABLE DRUGS

Absorption Spectra—Their Use in Pharmacognosy and Biology. A lecture reviewing the principles of absorption spectra measurements and their application to the determination of chemical constitution and structure, studies on hormones, the quantitative determination of the alkaloids of ergot and other alkaloids, vitamins A and D, the heart glycosides, studies on the ethereal oils and blood serum.—L. FUCHS. *Scientia Pharm.*, 9 (1938), 41–45. (M. F. W. D.)

Beam's Reaction—Report on. A positive test was obtained with a 22-year old sample of hashish. Greek and Turkish hashish gave positive tests. Ten per cent potash or alcoholic potash may be used; and the petroleum ether extract of the substance containing hashish should be gently heated. Aromatic vegetable substances give color reactions by the Beam test but careful comparison will detect the difference between the observed color and that given by hashish.

Whenever possible the microscopic and biologic tests should be carried out.—M. J. PAPAVASSILIOU and S. N. LIBÉRATO. *J. pharm. chim.*, 27 (1938), 19–32. (S. W. G.)

Belladonna Root and the Bulgarian Treatment. The culture of belladonna is described and the average alkaloid content, determined by several methods, is reported, together with the preparation of the tincture necessary for the Bulgarian treatment of the sequelæ of epidemic encephalitis.—A. FERRARI. *Fitoterapia*, 14 (1938), 8–12; through *Chem. Abstr.*, 32 (1938), 6397. (F. J. S.)

Berberis and Its Value in German Medicine. A discussion of the article by Schweizer (*Deut. Apoth. Ztg.*, 53 (1938), 458).—WALTHER AWE. *Deut. Apoth. Ztg.*, 53 (1938), 610–611. (H. M. B.)

Capillary Pictures—Short Method for Preparing. For the identification of drugs a short method is described using 0.2 cc. of an alcoholic extract (1 part of drug to 10 parts of 60% ethyl alcohol) and strips 1 cm. wide and 8 cm. long and then followed by 0.2 cc. of 60% alcohol. The treatment of these pictures with reagents are also given.—RUDOLF SEIFERT. *Deut. Apoth. Ztg.*, 53 (1938), 351–352. (H. M. B.)

Catechu and Aconite—Note on. Experiments were carried out with specimens of catechu of different ages. It is shown that the intensity of color obtained by chloroformic extraction of catechu depends upon the particular sample of the drug, rather than upon its age. Other investigations were carried out on aconite to show that the stellate cambia can be observed by cutting aconite roots higher up, toward the crown.—R. E. WAGG. *Pharm. J.*, 141 (1938), 27. (W. B. B.)

Cornus Florida L.—Verbenaloside in, and in Root Barks of Cornus Mas L. and Cornus Sanguinea L. The following conclusions are given: the verbenaloside extracted by Bourdier from *Verbena officinalis* L. is identical with cornine which was obtained later by Miller from *C. florida* L. The above-ground portion of the European Verbena is about three times as rich in verbenaloside as is the root bark of the American *C. florida* L. The root barks of *C. mas* L. and *C. sanguinea* L. appear to have no verbenaloside.—J. CHEYMOL. *J. pharm. chim.*, 26 (1937), 5–11. (S. W. G.)

Croton Seed. It has been shown that seeds from *Croton megalobotrys* are rich in a semi-drying oil, which, if it could be produced in commercial quantities, might be used for the manufacture of soap. Characters of this oil are given. The oil is said to have some purgative properties, but is unlikely to find an outlet for medicinal use except possibly in the country of production.—ANON. *Pharm. J.*, 141 (1938), 24. (W. B. B.)

Grindelia—Detection of, in Asthma Plants and Powders. As an aid to the microscopic identification of the herb is the recognition of the resin in the drug. The drug is extracted with ether and underlaying this with ether and concentrated sulfuric acid gives a yellow color followed by a yellowish brown and finally after long standing a grayish green fluorescence in fading light.—C. GRIEBEL. *Deut. Apoth. Ztg.*, 53 (1938), 384. (H. M. B.)

Herba Lobeliæ and Its Cultivation. Twelve references.—Ilse Esdorn. *Deut. Apoth. Ztg.*, 53 (1938), 801. (H. M. B.)

Kigelia æthiopica, Decne—Pharmacognosy of. The seeds (120 Gm.) yield an oil (10 Gm.), d_{15} 0.964, acid number 1.23, saponification number 192, iodine number 154.6 and contain arabinose. The fruit does not contain tannin.—C. MASINO. *Boll. chim. farm.*, 76 (1937), 525–528; through *Chem. Abstr.*, 32 (1938), 5577. (F. J. S.)

Teas—Pharmacognostic Analysis of. The discussion includes *Melissa, Mentha crispa, Prunus cerasus, Salix fragilis, Betula alba, Castanea visca, Ribes nigrum, Juglans regis, Mentha piperita.* Eighteen illustrations.—F. SCHLEMMER and L. HÖRHAMMER. *Deut. Apoth. Ztg.* 53 (1938), 473–474, 768–769, 898. (H. M. B.)

Verbena Officinalis L.—Desiccation of, and Loss of Holoside and Verbenaloside. The amount of primary reducing sugars is slightly greater in the dried upper portion and considerably greater in the dried underground portion of the plant as compared with the amounts present in the fresh plant. This is caused by hydrolysis during the drying of the drug. The upper portion loses 18.9% of holoside and 28.7% of verbenaloside; while the underground portion loses 3.3% of holoside and 9.5% of verbenaloside during the drying process. The glycosidal loss is augmented in a humid atmosphere.—J. CHEYMOL. *J. pharm. chim.*, 25 (1937), 581–586. (S. W. G.)

PHARMACY

GALENICAL

Agar Agar—Extraction of, by the Countercurrent Method. The yield and quality of agar agar extracted from *Phyllophora* by the countercurrent method are lower than with the method of successive extraction.—A. KORENTZVIT. *J. Appl. Chem. Russ.*, 11 (1938), 331–335; through *J. Soc. Chem. Ind.*, 57 (1938), 978. (E. G. V.)

Aspidium—Resinification of Extract of. From 4 Kg. of aspidium collected in early October, the following extracts were prepared. I. The fresh undried rhizome and lower portion of the frond stems were peeled singly, the inner green portion cut into slivers and then put into a dark bottle containing peroxide-free ether. After standing in the dark for 6 days the ether was decanted and the material then extracted 3 more times with ether. The last extract was colorless. The combined etheral extracts were separated from the aqueous layer in a separatory funnel, filtered, dried over anhydrous sodium sulfate and again filtered. The ether was then distilled off and the residual ether removed at a temperature not exceeding 50°. There was obtained 40 Gm. of green, thick, fatty extract. II. The residue from I was crushed in a mortar and again extracted with ether, yielding 20 Gm. of thin, but otherwise similar extract. III. The brown-black, brown and green-brown peelings remaining from the paring of the rhizomes and frond stems were dried at 20° in a current of air and then ground to a coarse powder. On extraction with ether as above, there was obtained 9.4% of olive-green, fluid, fatty extract. IV. The young green fronds freed of chaff were cut in slivers and extracted to yield a thick, green, viscid resinous extract with a strongly bitter taste. V. After rubbing in a mortar, the marc remaining from IV was again extracted to yield a green, thick, fatty extract of aromatic odor. VI. The extract obtained from the chaff and spiral tips of the fronds was olive-green, waxy and resinous. The individual extracts were immediately assayed for crude filicin, ether-soluble fraction (fat, wax and ethereal oil), and ether-insoluble material (resin-barium compound). Some extracts were again assayed after long storage. Extract I contained 40.5% crude filicin, 58% "fat" and no resinous material. After 26 months storage in a half-filled bottle the extract was sticky, had a crude filicin content of 41.2% and the ether-insoluble residue, although increasing from 0.4 to 0.64%, was not resinous. Extract II immediately after preparation contained 9.3% crude filicin, 71.7% fat and practically no resinous material. This illustrates that on powdering the drug more crude filicin can be obtained and also that ether more easily extracts crude filicin than fat. Extract III when fresh contained 26.8% crude filicin, 67.4% fat and in the place of resin, 3.2% of a butter-like fat. The authors conclude that resins occur in the extract from the dead or dying parts of the rhizome. After 26 months the crude filicin and fat content of extract III had not changed but the ether-insoluble residue was hard and resinous. On the basis of the assays of extracts IV, V and VI, the authors offer the restriction that the fresh spiral tips of the fronds and the chaff should not be allowed in the drug for the preparation of extract of aspidium.—I. STAMM and E. WILLNER. *Pharmacia* (Tallinn), 17 (1938), 4; through *Scientia Pharm.*, 9 (1938), 66. (M. F. W. D.)

Decicain Solutions—Decomposition of, during Sterilization. Decicain (*p*-butylaminobenzoyldimethylaminoethanol hydrochloride) is a local anesthetic, chemically allied to procaine and is used in solutions varying in strength from 0.1 to 2%, either in distilled water or physiological saline. Statements made regarding the stability of decicain solution during sterilization are somewhat contradictory. As the literature reports gave such conflicting opinions a series of experiments were carried out to ascertain its position. A table is given to show the percentage of decomposition of decicain by different methods of sterilization, namely, (1) tyndallization at 80° C. (2) steaming at 100° C. for 1 hour, (3) autoclaving at 115° C. for 30 minutes. The results show that the decomposition of decicain solutions increases with temperature and hydrogen ion concentration. A solution in *N*/1000 hydrochloric acid is stable at the highest temperature needed for sterilization, and, since there can be no objection to the presence of this trace of acid, this solution is to be recommended.—A. RAE. *Pharm. J.*, 141 (1938), 24. (W. B. B.)

Drugs—Stabilization of. An address.—F. NEUWALD. *Süddeut. Apoth.-Ztg.*, 78 (1938), 273–274; through *Chem. Abstr.*, 32 (1938), 6003. (F. J. S.)

Pharmaceuticals—Preparation of Sterile Aqueous, by Filtration. Sintered glass filters of 3 sizes and pore dimensions and a membrane filter were tested. These filters all gave sterile filtrates in times varying inversely with the diameter of the filter and the pore size, did not give

up any appreciable residue to the water and did not absorb acid. Some liquid was lost during filtration, depending to some extent on the time required for filtration. No appreciable concentration of solutions of morphine hydrochloride, strychnine nitrate, caffeine sodio-salicylate or glucose solutions occurred except when the filtration time was extremely long. These glass filters can be repeatedly sterilized at 120° in an autoclave without being in any way affected. They have the disadvantage that on repeated daily use, the organisms can grow through the pores of the filters, but since pharmaceuticals for parenteral use are to be prepared with sterile water, there should be little difficulty in this respect. These filters have the further disadvantage of requiring more complicated apparatus and consuming more time for use than the heat methods. In addition, great care must be taken in manipulating the filtered solution to prevent contamination during transfer. The method should, for practical purposes, be used only for those solutions which are thermolabile. From time to time, the function of the filter should be checked by plating some of the filtrate and observing for the growth of organisms.—J. THOMANN. *Pharm. Acta Helv.*, 13 (1938), 39–45. (M. F. W. D.)

Quillaja Preparations—Studies on. Decoctions were made from pulverized and from coarse powdered quillaja bark. That from the pulverized drug contained 50–60% of the saponin present in the original drug; the decoction from the coarsely powdered drug contained 90–98% of the total saponin. By percolation with 10, 30, 45 and 60% alcohol, specimens of fluidextract of quillaja were prepared. Good extraction of the saponin was obtained with all four strengths but the extracts made with the more dilute menstrua precipitated considerable material on standing. With keeping, the hemolytic index of the percolates decreased considerably and were only 15–20% of the original strength after six months. Quillaja tinctures were prepared using 40, 50, 60, 70 and 86% alcohol. The more dilute menstrua yielded tinctures strongest in saponin content; with higher alcohol percentages the saponin content fell off markedly. Quillaja tincture is used for the preparation of Liquor Carbonis Detergens, Dan. Phar. Here the saponin content is of some importance for the solubility of the tar, but the content of alcohol is of greater importance.—C. J. T. MADSEN. *Dansk Tids. Farm.*, 12 (1938), 121. (C. S. L.)

Sodium Bicarbonate—Influence of, on the Decoctions of Althaea and Sarsaparilla. By extraction of the drugs with sodium bicarbonate 1% solution the density of the decoction of althæa was increased from 1.0027 to 1.0086, total N decreased from 0.047 to 0.0458%, ash from 0.1327 to 0.095%; in sarsaparilla, density increased from 1.0011 to 1.0063, total N decreased from 0.0242 to *B* 0.0216, ash from 0.1554 to 0.0424%. The action of sodium bicarbonate appears to be the solubilization of the active principles of the drugs.—A. ESPOSITO. *Chim. ind. agr. biol.*, 14 (1938), 104–5; through *Chem. Abstr.*, 32 (1938), 6397. (F. J. S.)

Sodium Sulfide Solutions—Stabilization of. The addition of barium carbonate or strontium carbonate inhibits the oxidation to barium sulfate and strontium sulfite.—K. FEIST and W. AWE. *Deut. Apoth. Ztg.*, 53 (1938), 596. (H. M. B.)

Sterilization of Aqueous Drug Solutions. A discussion with thirteen references. TH. SABALITSCHKA. *Deut. Apoth. Ztg.*, 53 (1938), 440–443. (H. M. B.)

Sterilization of Aqueous Pharmaceutical Solutions and Pharmaceutical Apparatus for Chemical Methods. Chloretone in 0.5% strength was found to kill *B. coli* and *staphlyococci;* in higher dilutions its action is not bad but uncertain and it has no action even in higher concentrations on hay bacilli or spores and must be rejected as a sterilizing agent for pharmaceutical solutions. Cardizol (pentamethylenetetrazol) was found to show no sterilizing power; solutions of the substance itself needed sterilization. Zephriol in dilutions of 0.1–0.2% was found to be very effective. Twenty five references.—LÜHR and GUTSCHMIDT. *Deutsch. Apoth. Ztg.*, 53 (1938), 161–162, 172–175. (H. M. B.)

Sterilization of Medicinal Preparations by Heat. An extensive study on the basis of which sixty-one substances are classified as thermostabile drugs, those which were not more than 5% decomposed by heat. The following were thermolabile: alypin, methylene blue, sodium diethylbarbiturate, sodium phenyl ethyl barbiturate, physostigmine (p_H less acid than 4) and suprarenin. Fifteen references.—F. SCHLEMMER and C. TÖRBER. *Deut. Apoth. Ztg.*, 53 (1938), 646–653. (H. M. B.)

Tinctures—Various Procedures of Preparing of Officinal. To obtain optimal results macerate for 24 hours in the percolator, lixivate for 24 hours at a rate of one Gm. per minute and leave the extract standing for 24 hours preceding filtration. The extraction is improved by addi-

tion to the menstruum of 2% of an organic acid, preferably tartaric. Various methods of assay are suggested.—A. ESTEVEZ. *Rev. farm.* (Buenos Aires), 80 (1938), 99. (A. E. M.)

PHARMACOPŒIAS AND FORMULARIES

"Cerbelaud" Formulary. A commentary on the recently published third volume of the reference work that is indicated by the surname of the author "Cerbelaud." In scope and arrangement, this book follows the other two of the set. The book contains a profuse selection of modern and interesting recipes that includes vitamin and hormone creams. The book is recommended for use by those chemists who wish to produce products for commercial exploitation.—ANON. *Pharm. J.*, 141 (1938), 26. (W. B. B.)

German Pharmacopœia VI.—Some Reagents of the. Comments are made on 22 reagents and 9 volumetric solutions and indicators which are present in or omitted from the pharmacopœia.—VASTERLING. *Deut. Apoth. Ztg.* 53 (1938), 307–310. (H. M. B.)

Homeopathetic Pharmacopœia—Proposals for an Official. Preparations of coffee, Kola and guarana are discussed and the specific gravity, % residue, % caffeine and theobromine, content of extract to alkaloids in % and capillary pictures are offered in a table.—W. PEYER. *Deut. Apoth. Ztg.*, 53 (1938), 300–301. (H. M. B.)

NON-OFFICIAL FORMULÆ

Cosmetics. Hazen discusses (chiefly from the health point of view) soaps, shampoos, powders, creams, hand lotions, freckle removers, sunburn preparations, rouge, lipstick, eye cosmetics, nail preparations, hair dyes, hair tonics, astringents, deodorants and depilatories. He warns against "dry-cleaning" hair preparations, *p*-phenylenediamine hair dyes, face powder containing tremolite, baby powders containing zinc stearate, freckle removers containing mercury, astringents containing phenol, etc. On testing many sunburn preparations with an ultraviolet lamp, he found only one which was reasonably effective. An ointment containing about 3% quinine bisulfate in a good greasy base is recommended as the best sunburn preventive. As a deodorant, one dram of zinc oxide in one ounce cold cream is suggested.—H. H. HAZEN. *Am. J. Nursing*, 38 (1938), 791–798 ; through *Chem. Abstr.*, 32 (1938), 6400. (F. J. S.)

Skin Bleach Products. A number of formulas useful for bleaching purposes are given.—ANON. *Chemist and Druggist*, 129 (1938), 287. (A. C. DeD.)

DISPENSING

Ampul Sealer. A brief note on a type of blowpipe used with great success for the sealing of ampuls. The apparatus gives a steady flame which is more convenient than any other type of blowpipe used. An illustration of the blowpipe is given.—A. E. BAILEY. *Pharm. J.*, 141 (1938), 51. (W. B. B.)

Binary Systems, Camphoric Acid Methylacetanilide and Camphoric Acid Acetanilide. The mixture camphoric acid (I) (45%) and methylacetanilide (55%) has a eutectic at 32°. The incompatibility between the two compounds is purely physical. Similarly a mixture of 34% I and 66% acetanilide has a eutectic at 88°.—D. PONTE. *Boll. chim. farm.*, 77 (1938), 285–287; through *Chem. Abstr.*, 32 (1938), 6803. (F. J. S.)

Camphorated Oil. A technic is given for preparing colorless camphorated oil.—A. COSTA. *Pub. pharm. rev. trimestr.* (São Paulo), 3 (1938), 25, 27–29; through *Chem. Abstr.*, 32 (1938), 5577. (F. J. S.)

Chloral Suppositories—Preparation of. The preparation of cacao-butter suppositories with the addition of 4% of white wax permits the inclusion of 0.75–1.0 Gm. chloral hydrate in 3 Gm. of excipient. The white wax content may be increased to 5% if it is necessary to raise the melting point above 25°.—G. C. GUALDONI. *Boll. chim. farm.*, 77 (1938), 373–379; through *Chem. Abstr.*, 32 (1938), 7207. (F. J. S.)

Dispensing Apparatus for Fluids. An apparatus for filling bottles with a given quantity of fluid is described. This consists of an aspirator bottle reservoir, three-way stop-cock and a constant level chamber, which is filled, then the valve set to run its contents into the bottle.—N. MALMQUIST. *Farm. Revy*, 37 (1938), 464. (C. S. L.)

Dispensing: The Pharmacist or the Doctor? The primary function of the physician begins when he is called to his patient; it ceases when he has written out his prescription, and has

dictated instructions for the administration of any course of treatment. The author proposes that the Ministry of Health of Great Britain deal directly with the overlapping that exists in in connection with the dispensing of prescriptions.—F. C. WILSON. *Pharm. J.*, 141 (1938), 95. (W. B. B.)

Emulsions as Pharmaceutical Preparations. The article is a general review of emulsions including history, definition, theories of formation, types of emulsions, characteristics, determination of types, preparation of emulsions and apparatus such as homogenizers.—A. MAYRHOFER and B. SAIKO. *Scientia Pharm.*, 9 (1938), 61–65. (M. F. W. D.)

Fluidextracts of Valeriana in Pharmacy. Analytical data for four commercial and two official preparations of the extracts show marked variations in, *e. g.*, density, alcohol and glycerol content, volatile acid and ash. The adoption of a standardized method of preparation to yield products conforming with the pharmacopœial requirements is recommended.—A. BARTOLE. *Boll. chim. farm.*, 76 (1937), 613–14, 617–619; through *Chem. Abstr.*, 32 (1938), 7207. (F. J. S.)

Pills—Disintegration of Various, under Artificial and Natural Conditions. An illustrated article showing the physical changes in pills after introduction into the stomach. Contrary to the generally accepted views on the fate of pills taken *per os*, it is shown that hardened pills are neither insoluble nor difficultly soluble in the alimentary canal. The disintegration took place after 10, 5 and even after a few minutes in the stomach. Only pills coated with wax, lanolin, petrolatum and other fatty substances, and also pills containing tragacanth, unguentum glycerini, remained soft and elastic for a considerable period. Pills with lanolin dissociate in the intestine only after 6 to 7 hours, while waxed pills are capable of passing through the intestinal tract intact. In general, pills prepared with plant extracts and powders, as also those containing sugar, gum arabic and tragacanth, disintegrate easily in the digestive canal, even after a 6 months' storage.—Y. AHONEN. *Arch. Pharmazie*, 274 (1936), 497–502; through *Chimie & Industrie*, 39 (1938), 512. (A. P.-C.)

Powder Measurer. The powder measurer, simply designed, measures rapidly and fairly accurately powders of widely varying bulk in small amounts by weight, and fills them into cylindrical vials of small diameters or other containers.—R. P. WODEHOUSE. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 423–424. (E. G. V.)

Prescription Orders in 1937. A critical review of recommended prescriptions for circulatory disturbances, nervousness, respiratory ailments, urinary disorders, disturbances of the oral cavity and digestive tract, skin troubles, pneumonia and grippe, chronic gonorrhoea, night sweats of tuberculosis and antacids. Sixty seven prescriptions and thirty seven references are offered.—K. KOCH. *Deut. Apoth. Ztg.*, 53 (1938), 657–661. (H. M. B.)

Salve Bases—Modern. Ointments are classified as (1) fatty preparations with liquid phases, (2) fatty preparations with 2 liquid phases as W/O and O/W emulsions and (3) lyophyllic colloidal ointments. Modern bases for these types are discussed. Fifteen references.—ECKERT. *Deut. Apoth. Ztg.*, 53 (1938), 281–284. (H. M. B.)

Suppository Mass—Use of a Native, in Place of Cocoa Butter. A new base called Suppositol made from domestic fats is shown to be a satisfactory substitute for cocoa butter.—A. HERMANN MÜLLER and FRITZ ROSZBACH. *Deut. Apoth. Ztg.*, 53 (1938), 728–730. (H. M. B.)

Tinctures and Extracts According to Different Pharmacopeias. An address.—H. WOJAHN. *Süddeut. Apoth. Ztg.*, 78 (1938), 264–265; through *Chem. Abstr.*, 32 (1938), 6003. (F. J. S.)

PHARMACEUTICAL HISTORY

Dietary Principles in Ancient Chinese Medicine. In the Chou dynasty (1155 B. C.) the state medical service included a department of dietetics. The Fa Ssu Hui (1328 A. D.) gives a list of 55 incompatibilities between foods and emphasizes special food for pregnant women and nursing mothers. Goiter, recognized in the Han dynasty (300 A. D.), was treated with seaweed. Beriberi was treated with an extract of rice polishings.—H.-C. HOU. *Chinese Med. J.*, 53 (1938), 347–352; through *Chem. Abstr.*, 32 (1938), 7207. (F. J. S.)

Fifteen Apothecaries in the Family of Lutteroth (Lutterodt, Lutterot) from 1581 to 1917.—WILHELMUS FRANCISCUS DAEMS. *Deut. Apoth. Ztg.*, 53 (1938), 940–942. (H. M. B.)

500 Year Privilege of the City Apothecary of Neisze. Historical.—ANON. *Deut. Apoth. Ztg.*, 53 (1938), 365. (H. M. B.)

Native Drug Substitutes—Contribution to the History of. Ninety-nine references.—HEINZ HARMS. *Deut. Apoth. Ztg.*, 53 (1938), 186–188, 201–203. (H. M. B.)

160 Apothecaries in the District of Wiesbaden—History of. Fifty-six references.—C. DÖNGES. *Deut. Apoth. Ztg.*, 53 (1938), 338–340, 428, No. 35, 597–598, 731–733, 924–926. (H. M. B.)

340 Year Old Apothecary in Tönning on the Eider (Schleswig).—ANON. *Deut. Apoth. Ztg.*, 53 (1938), 475–476. (H. M. B.)

PHARMACEUTICAL ECONOMICS

Hospital Pharmacist—Professional Opportunities Open to. Analyses frequently done in a hospital are the following: 1. Analysis of urine for color, acidity, specific gravity, albumin, sugar or acetone and microscopic study of sediment. 2. Analysis of blood consisting of red and white count, determining Hb content, amount of sugar and non-protein nitrogen, possibly others. 3. Teaching student nurses in the fundamentals of materia medica.—CHARLES O. MCCULLOM. *J. Am. Pharm. Assoc.*, 27 (1938), 427. (Z. M. C.)

Hospital Pharmacy and its Relation to Retail Pharmacy and Medicine. The author relates some of his own experiences in hospital work particularly preparation of a hospital formulary.—MORRIS DAUER. *J. Am. Pharm. Assoc.*, 27 (1938), 503. (Z. M. C.)

Hospital Pharmacy—Medical Requirements of. The hospital pharmacy should have a laboratory equipped for testing the strength and purity of drugs and the pharmacist should be trained to do the testing. Pharmacy has an important place in the teaching of doctors, nurses and medical students. "Formulary committees" assist in protecting reputation and finances of a hospital. A list of fourteen rules under which such a committee functions in a certain hospital is given. The hospital pharmacist is always a member of the "formulary committee" of that institution. Chief problems of the "formulary committee" are proprietary medications and unnecessarily complicated presciptions. Classification of proprietary drugs into the following groups is the first step: (1) drugs, the therapeutic value of which has never been established; (2) drugs that are not essentially different in therapeutic action from simple official preparations; and (3) drugs that have a new and different therapeutic value but have not as yet been in use a sufficient length of time to receive official sanction. In the interest of rational therapy, the committee should discourage complex formulas. Research problems may involve investigations by the pharmacist or assistance to physicians engaged in research work.—W. J. STAINBY. *J. Am. Pharm. Assoc.*, 27 (1938), 423. (Z. M. C.)

Hospital Pharmacy—Outlook for. Hospital pharmacy will help to redeem professional pharmacy. The literature recently indicated that hospital authorities are thinking more about it and that colleges of pharmacy are considering it more seriously and making changes in their courses. Employment of pharmacists by hospitals will create professional positions and add to the usefulness and efficiency of the hospital.—W. B. SMITH. *J. Am. Pharm. Assoc.*, 27 (1938), 429. (Z. M. C.)

Pharmacist-Physician Relationship. The difficulties of this relationship with respect to what a hospital pharmacist may be able to do.—CARL A. ABEND. *J. Am. Pharm. Assoc.*, 27 (1938), 501. (Z. M. C.)

Profession of Pharmacy—Developing the, Through the Hospital. The two main objectives of a pharmacist establishing himself as a professional man in his community and raising the standards of pharmacy to a level with that of the allied professions in small cities can be accomplished through local hospitals. The author relates how he accomplished these ends in his own community.—DON A. BROOKE. *J. Am. Pharm. Assoc.*, 27 (1938), 498. (Z. M. C.)

MISCELLANEOUS

Ageing Perfumes without Fixatives. Perfumes assume a new mild fragrance in a short time if they are treated with submicroscopic particles of heavy metals or compounds, it is claimed in a patent recently issued to a German inventor. Mentioned as "rapid agers" are platinum, iridium, gold, silver, copper, cadmium, cobalt and nickel. The perfume may be fed continuously through a chamber coated with silver and containing a gravel-like material similarly coated, and a small amount of electric current allowed to pass through the system. In maturing perfumes by this process, the inventor points out that an odor fixative like musk does not have to be added and

the perfume thus treated has strong sterilizing properties.—ANON. *Perfumery Essent. Oil Record*, 29 (1938), 227. (A. C. DeD.)

Ampuls—Standardized, British Standards Specification for. The British Standards Institution has issued a specification for glass ampuls. Standards are set up for five different varieties—flat-bottom straight-neck, round-bottom tapered-neck, flat-bottom constricted-neck, flat-bottom drawn-out-neck, flat-bottom sloping-shoulder, open-ended. All the ampuls must comply with certain standards, including the pharmacopeial tests for limit of alkalinity of glass.—ANON. *Pharm. J.*, 141 (1938), 51. (W. B. B.)

Colloidal Silver Preparations—Differential Reactions of. Differential precipitation reactions of collargol, argyrol, protargol, argonin, argyrin, choleval and silver proteinate with sodium thiosulfate and sodium chloride, biuret reagent, nitric acid, acetic acid and ferric chloride are tabulated.—F. ANGELO. *Boll. chim. farm.*, 77 (1938), 219–220; through *Chem. Abstr.*, 32 (1938), 6803. (F. J. S.)

Composition for Use as Deodorant and for Application to the Human Skin. A composition for tropical use comprises ethyl alcohol, propyl alcohol, or similar solvent, aluminum chloride ($AlCl_3.H_2O$) and/or zinc chloride, aluminum or zinc stearate or the like, a wax, for example, candelilla or carnauba and perfume.—W. C. MOORE. Brit. pat. 480,379; through *J. Soc. Chem. Ind.*, 57 (1938), 598. (E. G. V.)

Dentifrice—Manufacture of. Wax, for example, ceresin, is incorporated in a mixture of cleansing agent, antiseptic and polishing material to form a tooth powder or paste. For example, a dentifrice consisting of sodium borate, magnesium oxide, sodium bicarbonate, sodium chloride, calcium carbonate, borax, ceresin and a soap, with flavorings, etc., is claimed.—H. LA V. CROWTHER and D. E. KEECH. Brit. pat. 472,679; through *J. Soc. Chem. Ind.*, 57 (1938), 598. (E. G. V.)

Dentifrice—Preparation of. Insoluble sodium phosphate ground to particles of not more than 35 microns is used either alone or mixed with flavoring and massing agents (gum tragacanth) or diluents.—PEPSODENT CO. Brit. pat. 472,812; through *J. Soc. Chem. Ind.*, 57 (1938), 598. (E. G. V.)

Insecticidal Oil Spray. The leaf penetration quality of an insecticidal petroleum distillate, which has a viscosity of about 40 to 100 sec. Saybolt at 100° F. and which is substantially free from components removable by concentrated sulfuric acid, is controlled by dissolving in the oil about 0.1 to 5% of an oil-soluble aluminum soap of a sulfonated oil.—ELMER W. ADAMS, assignor to STANDARD OIL CO. U. S. pat. 2,115,380, April 26, 1938. (A. P.-C.)

Insecticide. The product comprises a compound of the general formula $R_1.N—N.R_2—(NH_2)$, in which R_1 and R_2 are interchangeable aryl nuclei, R_1 being a single benzene nucleus and R_2 a naphthyl nucleus.—DONALD L. VIVIAN and HERBERT L. J. HALLER, dedicated to the free use of the Public of the United States. U. S. pat. 2,111,879, March 22, 1938. (A. P.-C.)

Insecticide—New Synthetic. Tests are described showing the effiicacy as insecticides of arylthiocarbimides and, in particular, of the alpha-naphthyl derivative (I) toward houseflies, clothes-moth larvæ, carpet beetles, etc. I, melting point 55.5°, is non-staining, stable, practically colorless and odorless, and amply soluble in the usual insecticide diluents, and also appears to be non-injurious to warm-blooded animals and the human skin when applied in such dilutions as would be used for insect control. Preliminary tests suggest its possible usefulness as a plant-spray insecticide.—N. TISCHLER and A. VIEHOEVER. Soap, 14, No. 2 (1938), 109–123; through *J. Soc. Chem. Ind.*, 57 (1938), 595. (E. G. V.)

Insecticides. Stabilized calcium arsenate is prepared by precipitating calcium arsenate in a liquid medium maintained at a temperature below 100° C. and calcining the precipitate at a temperature between 250° and 500° C. for about at least half an hour, sufficient to inhibit an increase of more than 0.5% in the water soluble arsenic content (computed as metallic arsenic).—ARTHUR L. SMITH and ROWEN D. CURTIS, assignors to THE SHERWIN-WILLIAMS CO. U. S. pat. 2,115,933, May 3, 1938. (A. P.-C.)

Paraffins—Pharmaceutical. A discussion of the various grades and types of white mineral oils and petrolatums for use in pharmaceutical and cosmetic practice.—C. C. CLARK. *Can. Pharm. J.*, 71 (1938), 438, 440; through *Chem. Abstr.*, 32 (1938), 6805. (F. J. S.)

Parasiticidal Composition—Stabilized. A parasiticidal composition stabilized against atmospheric inactivation has as the active parasiticidal ingredient a thio-diarylamine and an antioxidant which inhibits the discoloration of thio-diphenylamine toward the short wave-length

of the spectrum when ferric chloride is added in a small amount to an acetone solution of thiodiphenylamine containing a small amount of the antioxidant.—PAUL L. SALZBERG, assignor to E. I. DU PONT DE NEMOURS AND CO. U. S. pat. 2,112,381, March 29, 1938. (A. P.-C.)

Preparations for Decreasing Perspiration. The essential ingredient of the preparation is an alkali-metal metaphosphate.—KENNETH K. JONES, assignor to HALL LABORATORIES, INC. U. S. pat, 2,144,599, April 19, 1938. (A. P.-C.)

Sick Room—Fresh Air in. A description and illustration of an ozone ventilator for sick rooms in both the home and hospital when the windows cannot be opened.—F. H. W. LOEWE. *Schweiz. Apoth.-Ztg.*, 76 (1938), 275. (M. F. W. D.)

Soaps—Solvent-Containing. The various solvents (boiling point, flame point and density are listed) and emulsifiers therefor which may be incorporated in soaps (including spot-removing soaps) are described, and some typical manufacturing formulæ given.—A. DAVIDSOHN. *Ole, Fette, Wachse*, 2 (1938), No. 2, 1–5; through *J. Soc. Chem. Ind.*, 57 (1938), 683. (E. G. V.)

Sunburn. A review of the cause of sunburn, the changes occurring in the skin during and after the burn and some of the materials useful as screens against the ultraviolet light.—M. DIENER. *Schweiz. Apoth.-Ztg.*, 76 (1938), 313. (M. F. W. D.)

Ultra-Sound Waves—Physical, Chemical, Thermal and Biological Action of, and their Use in Scientific and Practical Pharmacy. "Ultra-sound waves and Pharmacy"—only a few years ago such a topic aroused only head-shaking and astonishment because the majority of chemists and pharmacists either denied the existence of any relation or influence or allowed it only with many reservations. The author has presented a review of the possible applications of ultra-sound waves to pharmacy. Perhaps the most important and interesting application is the production of emulsions, especially of the heavy metals. Seventy-seven references.—WALTER MEYER. *Scientia Pharm.*, 9 (1938), 49–54. (M. F. W. D.)

Ultraviolet Light—Harmful, Protecting the Human Skin against. A medium which protects the skin from noxious rays of ultraviolet light without excluding tanning rays contains as the light-absorbing reagent sodium phenylbenzimidazole sulfonate or other practically colorless, nonpoisonous organic substance which has a high and simultaneously steep slope of the absorption curve toward the shorter wave-length in the range between about 320 and 350 mμ, the slope corresponding to an increase of the logarithm of the molar extinction coefficient by at least 1 within a range of 10 mμ, so that at least the value 3.2 is reached.—ERICH MERKEL and CHRISTIAN WIEGAND, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,104, 492, Jan. 4, 1938. (A. P.-C.)

Vermin—Production of Preparation for the Destruction of. Mixtures of allyl-mustard oil (not more than 10 parts) and carbon tetrachloride (not less than 90 parts) are claimed for fighting vermin (gnats, ants, moths, mice, etc.). They are fireproof, non-explosive and safe to human skin.—H. HAAG. Brit. pat. 473,769; through *J. Soc. Chem. Ind.*, 57 (1938), 598. (E. G. V.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY

Adrenaline—Action of, on the Coronaries and the General Circulation after Diethylaminomethylbenzodioxane (883 F). Using the dog anesthetized with luminal, the action of adrenaline on the coronaries and other vessels was studied before and after 883 F. A part of the experiments were made on the heart-lung preparation; another part on the whole animal, recording simultaneously the coronary venous flow and the blood pressure. 883 F. diminishes the coronary venous flow by vasoconstriction of the coronaries and increases the femoral venous flow by vasodilatation in the general circulation. 883 F. considerably diminishes the vasoconstrictive action of adrenaline and consequently its hypertensive action as well as the vasodilatative action of adrenaline on the coronaries.—DANIEL DANIELOPOLU and ION MARCOU. *Compt. rend.*, 206 (1938), 692. (G. W. H.)

Adrenaline—Sensibility Toward Action of, of Animals Exposed to Cold. In dial-narcotized cats exposed to the action of cold there is noted an increased sensibility toward the action of adrenaline, revealed by isotonic contractions of the nictitanting membrane. A discussion on the various possibilities of interpretation of this phenomenon is given in relation to the doctrine of the chemical mediator.—A. BONSIGNORE and C. LOMBROSO. *Biochim. terap. sper.*, 16 (1938), 101. (A. C. DeD.)

Amino Alcohols—Spasmolytic Properties of Certain. For the sixty compounds belonging chemically, for the greater part, to the group of esters of amino alcohols have been studied more particularly regarding their spasmolytic properties. Some general rules concerning the relation between the chemical constitution and the pharmacodynamic activity have been cleared by this research. The series of α-phenyl-aliphatic acids of the type $\begin{matrix}\text{Ar}\\ \text{R}\end{matrix}\!\!>\!\text{CH.COOH}$ give, in general, the most interesting esters. α-Phenylvaleratediethylaminoethanol represents the most advantageous therapeutic coefficient and hence has been subjected to a more extensive study. α-Phenylvaleratediethylaminoethanol is a compound with slight toxicity. Upon the intestine, uterus and isolated bladder its antagonistic action is shown to both acetylcholine (neurotropic poison) and barium chloride (musculotropic poison). It is equally capable of causing a cessation *in vivo* of the spasm of the vegetative organs (intestine, bladder, etc.) provoked by an injection of pilocarpine, acetylcholine and barium chloride. Radiologic study upon animals has shown that in equivalent doses, the synthetic spasmolytic acts longer than papaverine and less than atropine upon the motility and transit of the digestive tract. The action of α-phenylvaleratediethylaminoethanol upon the terminations of the parasympathetic system is dissociated and elective; for pain, two to three times less efficacious than atropine upon the acetylcholine spasm of isolated intestine, it is at least 200 times less active upon the heart and almost 5000 times less mydriatic than the alkaloid of belladonna. From the breaking of the molecule, the author has concluded that it is the function of the amino alcohol which is the substrate of the spasmolytic properties since neither sodium α-phenylvalerate nor diethylaminoethanol are endowed with the slightest spasmolytic properties. —B. N. HALPREN. *Arch. intern. Pharmacodyn. et Therp.*, 59 (1938), 149. (W. H. H.)

Anterior Pituitary Extracts—Production of Diabetes in Dogs by. A dog was given injections of anterior-pituitary extract for seventeen days, during which he excreted increasing quantities of glucose. The glycosuria continued for fifty-eight days after cessation of injections; the glucose tolerance curve was of diabetic type, and insulin caused a prompt fall in blood and urine sugar. The pancreas was then removed, with little effect upon the insulin requirements. The Islands of Langerhans showed extreme hydropic degeneration, and the insulin content of the pancreas was very low.—J. CAMPBELL and C. H. BEST. *Lancet*, 234 (1938), 1444. (W. H. H.)

Choline—Physiological Effects of Some Thio Esters of. Thioacetylcholine chloride and thioacetyl-gamma-homocholine chloride have a nicotine-like action. However, when respiratory failure occurs, stimulation of the phrenic nerve still causes tetanic contractions of the diaphragm. Thioacetyl-beta-methyl-choline chloride has a muscarine-like action, which, however, is not augmented by physostigmine.—W. F. ALEXANDER, J. B. DILLON and C. N. JORDAN. *Proc. soc. exptl. biol. med.*, 38 (1938), 566. (A. E. M.)

Cinchonine and Cinchonidine—Biliary Elimination of. The authors find that cinchonine and cinchonidine administered intravenously to dogs is eliminated by the bile, the appearance of the alkaloids being very early in some cases. The intensity of the reactions given by the alkaloids generally attains a maximum six hours after the administration. It is noted to a greater extent where the subject has been treated with chloralose.—F. CAUJOLLE. *Bull. sci. pharmacol.*, 44 (1937), 425–428. (S. W. G.)

Cyclopropane—Effect of, on Intestinal Activity in Vivo. Cyclopropane causes an increase of both intestinal contractions and tone in the first two planes of third stage anesthesia; in the lower planes of third stage anesthesia contractions are inhibited but tone is maintained. Ether, on the other hand, causes abolition of the contractions in all phases of surgical anesthesia.—C. L. BURSTEIN. *Proc. soc. exptl. biol. med.*, 38 (1938), 530. (A. E. M.)

Depressor Effects from Urine and Tissue Extracts. The depressor effects of certain tissue extracts and urines used in circulatory disorders have been considered as to scope of actions in several species (cats, dogs, rabbits and white rats), vasomotor changes in different organs, and comparisons with known chemical agents from tissues to which the depressor effects have sometimes been attributed. Considerable species and individual variations were found. Human and rabbit urines and padutin, which is claimed to be an extract of urine, produced similar effects and could not be differentiated from each other pharmacodynamically. Tissue Extract No. 568, which is claimed to be a pancreatic extract, differed from padutin, which is claimed to contain the active depressor constituents secreted by the pancreas. Padutin and rabbit and human urines

increased the venous right (intraauricular) and portal pressures, the size of the liver and intestines, and produced a peripheral vasoconstriction in the legs and slowing of the heart in all species, independently of the vagus innervation. Accordingly the depressor effect of these agents is the result of marked splanchnic vasodilation and pooling of blood in the splanchnic region, cardiac slowing and passive peripheral vasconstriction being the result of such redistribution of the blood. Tissue Extract No. 568 reduced the venous pressure, increased the portal pressure, decreased the size of the liver, increased the size of the intestines, caused peripheral vasoconstriction, and slowed the heart in cats and dogs, but not in rabbits, which showed irregular though generally opposite vasomotor effects. Accordingly, the depressor action was the result of a decreased cardiac output brought about by a diminished venous return to, and slowed rate of, the heart. The depressor effects of padutin, human and rabbit urines and Tissue Extract No. 568 are not due to the presence of histamine, acetylcholine, adenosine or adenylic acid, since the effects of the two groups of agents are not parallel or identical in different species and organs, thus confirming the results of others. Contrary to the claims of Frey, the urine of one species of herbivora, namely, the rabbit, produced definite and powerful depressor effects in at least four species of animals. Thus, great species and individual differences in the actions of the depressor agents tested and the complications of the hemodynamic actions produced, which cannot be reconciled with therapeutic indications and claims, render the effects in man unpredictable. Moreover, the actions in animals are fleeting, which is not promising for therapeutic indicatoins, and obtained with intravenous injections, which do not correspond to clinical usage. Hence, the therapeutic use of these products in serious vascular diseases is largely emperical and, at present, unwarranted, without independent and more critical and controlled clinical studies.—A. J. LEHMAN and W. VAN WINKLE. *Arch. inter. Pharmacodyn. et Therp.*, 59 (1938), 75. (W. H. H.)

Ergotamine Tartrate in Experimental Vascular Hypertension Associated with Increased Intracranial Pressure. Ergotamine tartrate lowers transiently the high blood pressure associated with increased intracranial pressure in the rat. The explanation is a peripheral vaso motor paralysis.—M. A. LINDAUER, J. Q. GRIFFITH, JR., and W. A. JEFFERS. *Proc. soc. exptl. biol. med.*, 38 (1938), 497. (A. E. M.)

Ethylapocupreine as Local Anesthetic. Tests on dogs and on the eyes of rabbits indicated that ethylapocupreine (better known as ethylapoquinine) was a good local anesthetic.—I. C. ALBRICHT. *Acta Brevia Neerland. Physiol. Pharmacol., Microbiol.*, 8 (1938), 39–42; through *Chem. Abstr.*, 32 (1938), 5156. (F. J. S.)

Folliculine—Action of Zinc on the Estrogenic Effect of, with the Ovariectomized Rat. Zinc chloride increases the intensity and prolongs the duration of the estrogenic effects of folliculine. In order to produce this reinforcement, it is necessary that the zinc be associated with this hormone in a certain proportion which should be not less than 1.50 mg. of zinc for 2.4γ of folliculine and 3.0 mg. of zinc for 2.7γ of folliculine.—RAYMOND CAHEN and ANDRE TRONCHON. *Compt. rend.*, 206 (1938), 1409. (G. W. H.)

Hormone Preparations—Commercial, Potency of. Commercial extracts of the anterior lobe, both gonadotropic and growth, and aqueous estrin preparations appear to deteriorate on standing. Assay methods show a lack of uniformity which could be overcome if commercial firms would agree upon uniform methods and standard units.—F. E. D'AMOUR and M. C. D'AMOUR. *Endocrinolgy*, 22 (1938), 583-7; through *Chem. Abstr.*, 32 (1938), 5158. (F. J. S.)

Lobeline—Hyperglycemic Action of, and the Suprarenal Glands. Alpha lobeline was administered in rabbits (normal, doubly splanchnicotomized or doubly suprarenalectomized) intravenously (315 mg. or 7 mg. per kilo of body weight) or subcutaneously (5 mg., 10 mg. or 20 mg. per kilo). The last two groups of animals were indefinitely surviving and quite healthy. Doubly splanchnicotomy diminishes the hyperglycemia caused by loveline to some extent, but if a large amount be given, lobeline is capable of causing an increase in the blood sugar concentration. If large doses are given subcutaneously, there are commonly two summits in the hyperglycemia curve and they are of smaller height. Double suprarenalectomy is capable of causing lobeline hyperglycemia of an insignificant degree only, and with large doses there develops frequently the hypoglycemic stage. These facts indicate that the suprarenals are almost indispensable in causing the hyperglycemia by lobeline, which acts also to increase the blood sugar through the central mechanism, for the carbohydrate metabolism, though not so strongly.—M. TIBA. *Tohoku. J. Exp. Med.*, 33 (1938), 107. (A. C. DeD.)

Narconumal—Anesthesia by the Intravenous Injection of. This new anesthetic, which is the sodium salt of allysopropyl N-methyl barbituric acid, has been utilized 683 times. 395 additional observations have been made by the author. The anesthetic was used in the following manner: a half-hour before the injection an adjuvant subcutaneous injection was made, followed by the slow intravenous injection of the anesthetic; 60 to 70 cg. of active product is sufficient; then in case of additional anesthetic during the course of the operation, inhalation of a volatile anesthetic, ether or nitrous oxide is used. The physiological effects are analogous to those of the barbiturates already utilized in the same manner; rapidly diminishing consciousness, retarding respiration, accelerating the pulse, lowering the blood pressure, then abolishing the defensive reflexes. In general, the anesthetic has been inoffensive; post-operative agitation has been noted in nine of one hundred cases, responding rapidly to morphine. There has been no vomiting or pulmonary complications.—M. TALHEIMER. *Presse Medicale*, 53 (1938), 1056. (W. H. H.)

Phenyl-1-Amino-2-Propane Sulfate—Action of, upon the Smooth Muscle Organs. The isolated intestine of the rabbit reacts oppositely from phenyl-1-amino-2-propane sulfate (in a concentration of 10^{-4}) by relaxation of the tonus and often diminishes the pendular amplitude of the contractions. The inhibitory action of this substance upon the smooth muscle organ becomes evident when acting upon an organ in the state of contraction by a spasmodic poison; the addition of phenyl-1-amino-2-propane sulfate produces an immediate cessation of the spasm. The mechanism of action of this amine appears as follows: its inhibitory effect upon the smooth muscles is not suppressed by the addition of a sympathicolytic, this compound often reverses adrenaline action, a veritable antagonist. From the evidence submitted the author believes that the action is through the muscle fibers.—B. N. HALPERN. *Presse Medicale*, 53 (1938), 1057. (W. H. H.)

Polycyclic Series —Study of the Comparison between Reversible Oxidability and Carcinogenic Power in. From previous studies, it was thought that carcinogenetic properties of anthracene derivatives might be due to reversible oxidability which is due to the reactivity of the 9 and 10 carbon atoms. The following compounds were studied: (1) Anthracenes substituted in the 9 position: methyl, ethyl, phenyl, anthranyl; (2) anthracenes substituted in 9 and 10: phenyl, naphthyl, phenyl-carboxy, phenyl-carbomethoxy, phenyl-phenyl-9-anthranyl; (3) naphthacenes tetrasubstituted: tetraphenyl-9,10,11,12-naphthacene and its tetramethyl and hexabrom derivatives. The experiments were conducted on mice according to the usual method, the cutaneous applications were continued for about 10 months. In other experiments, 0.2% oily solutions were injected. Only phenyl-9-anthracene showed a slight action. The result of these experiments tend to show that reversible oxidability and carcinogenetic power are in reality two distinctly independent properties.—LEON VELLUZ. *Compt. rend.*, 206 (1938), 1514. (G. W. H.)

Radioactive Water—Pharmacodynamic and Therapeutic Researches with. Radioactive water causes in the organism: a decrease of the superficial tension, and an increase of the viscosity of the blood; an increase of the reduced glutathion in the blood, liver and lungs; an increase of the amino acids contained in the blood and the invaribility of the total non-proteic nitrogen; an increase of the proteic substances of the blood plasma in connection with an unparallel increase of the single proteic fractions, and disturbance of the colloidal state of the blood in the way of a marked lability of it; and radio-active water finally exercises an antianaphylactic power. —L. LIACI. *Biochim. terap. sper.*, 16 (1938), 213. (A. C. DeD.)

Rattlesnake and Bee Sting Poison—Relationship between Toxicity and Intestinal Action of. The tachyphylactic action of rattlesnake venom and bee sting poison on the isolated guinea pig intestine is ascribed to one and the same substance. With the aid of the tachyphylactic action, it can be shown that heating or ultrafiltration reduces the activity on the intestine of both snake venom and bee sting poison. The neurotoxic action of the snake venom is also decreased. By means of ultrafiltration, the histamine-like portion of bee sting poison was separated from the other substances active on the intestine. Either snake venom or bee sting poison produces a tachyphylaxis on the intestine which is not only similar to that produced by the other but also conforms to that produced by other poisons. The intestinal activity of snake venom and bee sting poison bears no relation to its neurotoxic action. Just as the snake venom acts indifferently on the intestine and the uterus, so it acts on warm-blooded blood vessel preparations, relieving either a dilatation or a constriction of the vessels.—R. RICHTER. *Naunyn-Schmiedebergs Arch.*, 189 (1938), 172; through *Scientia Pharm.*, 9 (1938), 72. (M. F. W. D.)

Santonin, Cosine and Filicic Acid—Action of, on Neuromuscular Excitability. Santonin caused a slight decrease of the chronaxie of the nerve and a very marked increase of that of the muscle. Inexcitability of the nerve appeared after 4 hours in a solution of santonin in Ringer solution. The muscle lost its excitability after 24 hours. The results remained the same if a 0.5% emulsion of santonin was used on account of the low solubility. The action of cosine was identical to that of santonin. Filicic acid decreased the chronaxie of the nerve. When the latter reached half of its original value, the muscle lost the excitability. Both muscle and nerve were rendered inexcitable after the same time of contact with a 0.02% solution. Both died after 90 minutes.—J. E. LOBSTEIN and MME. SIMONET-JEANGUYOT. *Bull. Sci. Pharmacol.*, 43 (1936), 609–618; through *Chimie & Industrie*, 39 (1938), 319. (A. P.-C.)

Sympatol—Action of, on Carbohydrate and Creatinin Metabolism. Sympatol, which resembles adrenaline chemically and its action on the circulation, differs considerably from it in the characteristic action on metabolism. It causes very little disappearance of glycogen in the muscle; it produces only a small increase in the blood lactic acid and a hyperglycemia which is much less than that caused by adrenaline; it produces no glycosuria and only a light creatinuria. The lack of almost all toxic side actions on metabolism makes sympatol an especially valuable pressor drug.—F. PFLUG. *Naunyn-Schmiedebergs Arch.*, 189 (1938), 64; through *Scientia Pharm.*, 9 (1938), 72. (M. F. W. D.)

Whortleberry Leaves—Action of. Folia Myrtilli plays an important part in folk medicine in the treatment of diabetes. There are also reports in the literature which claim to show a reduction of the urine sugar after the administration of infusions or pills of the extract of whortleberry leaves. The author has sought to determine experimentally the mode of action of extract of Folia Myrtilli and to what extent the drug might be used as an oral substitute for insulin. More than 50 rabbits and cats were given definite doses orally of the various extracts. In one case, a cold water extract 1 to 6 was made of the carefully dried young leaves and old plants and another extract was made with hot water on the marc in the proportion of 1 part of dry plant to 30° of water. Doses of 0.1 to 0.3 Gm./Kg. caused in normal fasting animals a very definite blood sugar increase. Doses of 5.0 Gm./Kg. and larger were followed in addition to the increase in blood sugar by first, an excitant, and then a paralyzing action on the central nervous system. Doses of 10.0 to 18.0 Gm./Kg. caused the death of the animals in from 6 to 48 hours. In alimentarily hyperglycemic animals, no reduction in blood sugar could be shown. Chronic toxicity resulting from daily doses of 1.5 Gm./Kg. and more were described. The observed activity simulates hydroquinone poisoning as substantiated by parallel studies using crystalline hydroquinone. The author comes to the conclusion that the drug is of no therapeutic value since even small doses of Folia Myrtilli show strong toxic symptoms and never caused a lowering of the blood sugar.—HANS. DIETERING. *Naunyn-Schmiedebergs Arch.*, 188 (1938), 500; through *Scientia Pharm.*, 9 (1938), 58. (M. F. W. D.)

TOXICOLOGY

Anemia—Some Cases of, in Leather Workers. A description of several cases of anemia observed in persons working in footwear factories, and due to adhesives and mastics containing benzine.—G. G. ZOLEZZI. *Medicina Lavoro*, 28 (1937), 225–235; through *Chimie & Industrie*, 39 (1938), 475. (A. P.-C.)

Benzol—Intoxication with. The symptomatology of acute benzol poisoning is described. Benzine is less toxic, and should be used preferably to benzol whenever possible. The workmen handling these products should be free from diseases which can sensitize the system to the action of the poison (anemia, hemorrhagic tendencies, hyperthyroidism, hepatic and renal insufficiency). The workmen should be subjected to periodical blood controls, and removed from contact with benzol as soon as any abnormality is noted.—P. LAMBIN. *Rev. Méd. Louvain*, (1937), No. 1, 3–8; through *Chimie & Industrie*, 39 (1938), 473. (A. P.-C.)

Carbon Tetrachloride—Use of, in the Removal of Adhesive Tape. Report of a near fatal case. Carbon tetrachloride substituted for benzene because of fire hazard, used to remove adhesive from shoulders of small child. Child collapsed, due to heavy fumes, but was resuscitated.—FREMONT A. CHANDLER. *J. Am. Med. Assoc.*, 109 (1936), 2121. (G. S. G.)

Flaxseed—Hydrocyanic Acid Content of. Flaxseed contains a glycoside linamarin which on hydrolysis gives glucose, acetone and hydrocyanic acid. Some samples have been shown to

contain as much as 26 mg. hydrocyanic acid per 100 Gm. of seed and consequently they should not be given indiscriminately internally. The seeds are not rendered free of hydrocyanic acid by heating several hours in a drying oven at 100° or by heating with water on a water bath for several hours. Hydrochloric acid of the strength present in the stomach has little effect on the glycoside. —K. REBER. *Schweiz. Apoth.-Ztg.*, 76 (1938), 229. (M. F. W. D.)

Fly Sprays. Fly sprays of high paralytic and lethal effect contain a mixture of esters such as octyl thiocyanate and decyl thiocyanate so proportioned as to give the mixture a mean molecular weight of about 185 to 213.—EUCLID W. BOUSQUET and PAUL L. SALZBERG, assignors to E. I. DU PONT DE NEMOURS & CO. U. S. pat. 2,112,688, March 29, 1938. (A. P.-C.)

Glycols—Constitution and Toxicity of. The glycols are dihydric alcohols with a general formula HO.R′.R″OH; sometimes R′ and R″ are similar as in ethylene glycol and $\beta\gamma$-butylene glycol and sometimes they are dissimilar as in α-*iso*-amylene glycol. By condensing together two molecules of glycol (either similar or dissimilar) a compound is obtained which, while being a dihydric alcohol, is also an ether. Diethylene glycol belongs to this series. It will be readily appreciated that the number of glycols and glycol derivatives possible is legion, and so it is not surprising to find that manufacturers of this type of solvent are able to supply their own particular "Special Solvent." Toxicity tests carried out upon ethylene glycol show that it is by no means safe. On the other hand, propylene glycol is said to be quite safe. The probability is that the toxicity of the glycols as a class is due either to the formation of a small, but highly toxic, quantity of a cyclic ether actually within the body, or because this product is present as an impurity in the original product prior to ingestion. Whatever the cause may be the real danger lies in the cumulative and long range effect, no symptoms being observed until death suddenly intervenes. Very few, if any, glycols are used in pharmaceuticals, but undoubtedly large quantities are being used daily in the cosmetic and food industries.—C. L. M. BROWN. *Pharm. J.*, 140 (1938), 49. (W. B. B.)

Iodine Poisoning—Unusual Source of. The application of Philonin salve, a preparation containing iodo-8-hydroxy-quinoline sulfate among other things, when used for periods of several months, caused severe iodine poisoning.—R. BURKLEN. *Med. Klin.*, 33 (1937), 1397; through *Squibb Abstr. Bull.*, 11 (1938), A-684. (F. J. S.)

Nicotine Thiocyanate and Other Insecticides. Nicotine thiocyanate spray was used on red spiders in an effort to determine its usefulness in destroying insects. A table is given to demonstrate the effect of different "spreaders" when used with nicotine thiocyanate. Diglycol oleate was found to be one of the more efficient "spreaders" for the nicotine thiocyanate. The sulfonated higher alcohols and the sodium salts of naphthalene sulfonic acids were also found suitable as spreaders. The best control of the plum sawfly (*Hoplocampa flava* L.) has been obtained by spraying with a quassia solution. Calomel is recommended as a control of seed-dressing; for instance, calomel is toxic to the larva of the onion fly (*Hylemyia antiqua* Meig). —ANON. *Pharm. J.*, 140 (1938), 520. (W. B. B.)

Posology of Chinese Drugs. The dosage is recorded for about 300 drugs as used by old-style practitioners.—F.-P. YUEH. *Chinese Med. J.*, 53 (1938), 363–378; through *Chem. Abstr.*, 32 (1938), 7207. (F. J. S.)

Rhododendron Californicum Hook—Toxicity of the Leaves of. Research on 15 species of rhododendron has shown that 13 contain poison. An alcoholic extract yielded no material with marked physiological activity. Aqueous extracts were purified with lead acetate or magnesium oxide. A crystalline substance, $C_{16}H_{24}O_8$ was not toxic but a resinous substance obtained from the mother liquor of the crystals was highly toxic.—F. A. GILFILLAN and CHIEKO OTSUKI. *J. Am. Pharm. Assoc.* 27 (1938), 396. (Z. M. C.)

Silicosis—Geochemistry Applied to the Problem of. The study of the hydrolytic and solvent actions of blood and tissue secretions on the mineral particles which produce silicosis are of considerable importance. The dust can act through toxic products resulting from such actions; and on the other hand, particles which remain inert toward these solutions can act by retention and accumulation in the pulmonary tissues. Among the mineral residues that are important from the standpoint of the etiology of silicosis, there should be mentioned silica, alumina and ferric oxide. A certain parallelism exists between geochemical phenomena which involve the action of carbon dioxide, and the biochemical phenomena of the lungs (formation of carbonates and of bicarbonates with the products of hydrolysis of the alkaline constituents of dusts). The concen-

tration of the saline solutions to be used in this type of studies is fifth-normal. The action is determined by the analytical differences observed on the raw mineral or on the refractory residue after the action of the saline solution for a predetermined length of time at ordinary temperature or at 80° to 90° C.—A. BRAMMALL and J. G. C. LEECH. *Bull Inst. Mining Metall.*, (1937), No. 393, 1-9; through *Chimie & Industrie*, 39 (1938), 273. (A. P.-C.)

Sulfanilamide—Skin Eruptions in Patients Receiving. Report of 4 cases, 3 with gonorrheal urethritis, one with colon bacillus in urinary tract, treated with sulfanilamide, in relatively large doses. Maculopapular rash with itching appeared on parts of body exposed to sun. Disappeared on withdrawal of medication. Assume photochemical effect only in cases of very large doses.—JOHN G. MENVILLE and JOHN J. ARCHINARD. *J. Am. Med. Assoc.*, 109 (1937), 1008. (G. S. G.)

THERAPEUTICS

2-(*p*-Aminobenzenesulfonamido) Pyridine—Treatment of Massive Collapse Pneumonia, Type III. A case of massive Type III pneumonia complicated by collapse of the entire left lung is described. The patient, a woman aged 65, was treated by 2-(*p*-aminobenzenesulfonamido) pyridine and made a good recovery. Full bacteriological findings are published for the first time in three cases treated with this drug. In one, the apparent effect was to cause the rapid disappearance of pneumococci from the sputum, in the others, the loss of capsules and consequently the type-specificity of the pneumococci; these were restored by repeated mouse passage. The incidence, etiology and pathology of massive pulmonary collapse occuring in lobar pneumonia are discussed; it is suggested that this rare complication may be caused by intense oedema of the bronchial mucosa.—M. TELLING and W. A. OLIVER. *Lancet*, 234 (1938), 1391. (W. H. H.)

Antiscorbutic Properties of Pine Needles. VIII. Determination of the antiscorbutic activity of concentrated pine-needle extracts obtained on a semi-commercial scale confirmed the results of laboratory investigations, according to which the minimum prophylactic dose of concentrate corresponds to 12 to 13 cc. of a thousandth-normal solution of 2,6-dichlorophenolindophenol. Therapeutic effects are noted on guinea pigs even with doses corresponding to 7 to 9 cc. of the dichlorophenolindophenol solution, showing that for guinea pigs the minimum therapeutic dose is smaller than the prophylactic dose.—N. CHEPILEVSKAÏA. *Voprossy Pitania*, 5 (1936), 81-84; through *Chimie & Industrie*, 39 (1938), 319. (A. P.-C.)

Barberry and its Value in German Medicine. A discussion.—GG. SCHWEIZER. *Deut. Apoth. Ztg.*, 53 (1938), 458-459. (H. M. B.)

Cancer—Experimental, Chemical Compounds That Produce. A review dealing with the relation between chemical constitution and cancerigenic activity, the experimental study of the production of cancer by chemical compounds, and the general biological importance of these recent discoveries.— RENÉ TRUHAUT. *Chimie & Industrie*, 39 (1938), 419-432. (A. P.-C.)

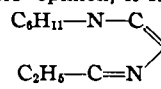
Cod Liver Oil—Prophylactic Effect of, in the Treatment of Influenza. Cod liver oil added to the diet exerts a positive action of the general condition of the organisms and decreases the frequency and severity of light colds. During epidemics of influenza, it was observed that cod liver oil exerted a prophylactic action on persons to whom it had been given preventively for 3 months.—M. S. MARCHAK, V. L. OSTROVSKI and E. N. BORINSKAÏA. *Voprossy Pitania*, 5 (1936), 35-42; through *Chimie & Industrie*, 39 (1938), 319. (A. P.-C.)

Cod Liver Oil Therapy in Experimental Tuberculosis. The vitamin fraction of cod liver oil contains an agent which exerts a favorable healing action in tuberculous ulcers. The substance is neither vitamin A nor D as proven by the use of other fish oils of definitely higher potencies than the cod liver oil used.—HORACE R. GETZ. *Proc. soc. exptl. biol. med.*, 38 (1938), 543. (A. E. M.)

Cold and Cough—Common. The use of vaccines for preventing or treating the common cold has been more or less disappointing. Formulas from the New Jersey Formulary are given for an isotonic aqueous solution of ephedrine compound, for an analgesic preparation containing aspirin, for an alkalizing cough sedative and for an expectorant. Statistics gathered by various investigators seem to show that most people have two or three colds a year, that there is a definite "cold susceptible" class, that office workers are nine times as susceptible to colds as taxi-drivers, that those who wear little underwear and take little exercise have the fewest colds, that temperature changes markedly affect the incidence of colds, and that smoking, taking cold baths and

breathing through the mouth have little influence.—C. I. ULMER and R. P. FISCHELIS. *J. M. Soc. New Jersey*, 35 (1938), 164; through *Squibb Abstr. Bull.*, 11 (1938), A-756. (F. J. S.)

Cyclohexyl-Ethyl-Triazol—Convulsion Treatment of Schizophrenia with. Cyclohexyl-ethyl-triazol appears to have several advantages over cardiazol in the convulsion treatment of schizophrenia; of these the chief are the lessened unpleasantness of the treatment to the patient; the smaller dosage and the ease with which failure to induce a fit can be rectified by a supplementary dose; the elimination of venous sclerosis; and the possibility of intramuscular use in cases where intravenous injections are impracticable. In the authors' opinion, it should be given an extended trial. The formula of the compound is as follows:



W. MAYER-GROSS and A. WALK. *Lancet*, 234 (1938), 1324. (W. H. H.)

Encephalitis Lethargica and Parkinson's Sickness—"Bulgarian Cure" for. A detailed discussion of the therapeutics involved.—ANON. *Deut. Apoth. Ztg.*, 53 (1938), 408–409. (H. M. B.)

Gonadotropic Substance in Treatment of Acne. Report of 39 students with acne, half of which were given intramuscular injections of antuitrin S, the other half sterile water. All used same local treatment of skin of face. Courses 3 times a week from 8 to 11 weeks. No local reactions. No effect on normal menstruation, and irregular periods became regular. Improvement in controls 78%; in those treated with antuitrin S, 85%. Difference hardly great enough to suggest deficiency of pituitary-like hormone as cause of acne. It would seem that local treatment is most important factor.—GRACE E. WILLIAMS and RUBEN NOMLAND. *J. Am. Med. Assoc.*, 109 (1937), 564. (G. S. G.)

Influenza—Progress in. Experimental influenza produced in ferrets, and serum from influenza patients used to neutralize virus. Effective antivirus titer does not appear till eighth day of infection. Vaccination not yet 100% effective. Complications exist in fact that not all strains of human influenza are identical, and animal serums also vary. EDITORIAL. *J. Am. Med. Assoc.*, 109 (1937), 1202. (G. S. G.)

Jaundice—Volhard's Test of Water Elimination. Induced diuresis by administering one liter tepid, slightly sweetened lemon flavored tea to bed patients, and determining quantity of urine passed. In all cases renal functions normal. Test has no clinical or prognostic value. Jaundice is an extrarenal factor in disturbing elimination of water.—TERESA MALAMUD. *Prensa Medica Argentina*, 24 (1937), 1469; through *J. Am. Med. Assoc.* 109 (1937), 995. (G. S. G.)

Liver Preparations—Constituent of, that are Highly Active in the Treatment of Pernicious Anemia. Effective treatment of pernicious anemia in man was obtained by a single administration of 10 to 20 mg. of a highly active liver preparation containing 3.8% of phosphorus, and a corresponding pentose and adenine content, indicating the probable presence of an adenine nucleotide.—P. KARRER, P. FREI and H. FRITZSCHE. *Helv. Chim. Acta*, 20 (1937), 662; through *Chimie & Industrie*, 39 (1938), 321. (A. P.-C.)

Mandelic Acid and Sulfanilamide—Comparison of, as Urinary Antiseptics. Mandelic acid given orally as ammonium salt, bactericidal if urine has p_H of 5.0 to 5.5. Will clear up infection with streptococcus fecalis after failure with sulfanilamide. Sulfanilamide by mouth makes urine bactericidal to *staphylococcus aureus, aerobacter, proteus*, etc. Urine usually alkaline in such cases. Report of cases confirming usefulness of two drugs in supplementing each other for varying types of urinary infection.—HENRY F. HELMHOLTZ. *J. Am. Med. Assoc.*, 109 (1937), 1039. (G. S. G.)

Measles—Glutathionemia in. The author studied the behavior of glutathionemia in measles. He finds constantly, in the babies examined, that there is hyperglutathionemia during the exanthematic period, in proportional to the intensity of the skin eruption.—E. MESSERI. *Biochim. terap. sper.*, 16 (1938), 227. (A. C. DeD.)

Organotherapy—Recent Advances in. A discussion on organotherapy, for which the following postulates are laid down: (*a*) The gland in question forms an internal secretion; (*b*) the active principle or principles of this secretion can be extracted; (*c*) a method of administration of this extract is available which will admit of its utilization by the body. If and when these postulates have been fulfilled, organotherapy may be employed in the following ways: (1) As substitution therapy. (2) As pharmacological agents. (3) As an antagonist to another hormone. (4)

To influence general metabolism. (5) As an attempt to utilize antihormonal activity. (6) Employed empirically. Routes of administration of glands are briefly discussed. It is said that the only effective route for the majority of hormones is the subcutaneous. In emergencies, intravenous use is favored, such as in diabetic coma.—W. LANGDON-BROWN. *Pharm. J.*, 141 (1938), 93. (W. B. B.)

Sulfanilamide and Thermotherapy in Gonococcic Infections. Preliminary report on patients in whom thermotherapy and sulfanilamide had failed separately, but simultaneous administration was effective. Tests for gonococci in urethral discharge made regularly during course of treatment. Elderly patients with cardiac involvement or those with impaired renal or hepatic function do not tolerate well either artificial fever or sulfanilamide.—EDGAR G. BALLENGER, *et al. J. Am. Med. Assoc.*, 109 (1937), 1037. (G. S. G.)

Sulfanilamide—Hypersensitivity to. Report of a case of urethritis due to gonorrheal infection treated with sulfanilamide. Rash and other allergic symptoms developed, though there was no family history of allergy. Patch tests later proved patient sensitive to sulfanilamide.—MONTE SALVIN. *J. Am. Med. Assoc.*, 109 (1937), 1038. (G. S. G.)

Sulfanilamide—Ineffectiveness of, in the Treatment of Trichiniasis in the Rat.—O. R. MCCOY. *Proc. soc. exptl. biol. med.*, 38 (1938), 461. (A. E. M.)

Sulfanilamide—Inefficacy of, in Experimental Tuberculosis.—KENNETH C. SMITHBURN. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 574. (A. E. M.)

Sulfanilamide—Treatment of Meningococcus Meningitis with. Therapeutic value of sulfanilamide (para-amino-benzene-sulfonamide) in infections due to beta-hemolytic streptococcus. Also useful against meningococcic infections in mice. Report of use in ten cases of meningococcic meningitis and one of septicemia, ranging from moderate to severe illness, and one to 34 years. Intraspinal and subcutaneous injections daily, subcutaneous being continued longer in some cases, till definite improvement was evident. No untoward effects noted. Sulfanilamide appears to have value comparable to antimeningococcus serum, without irritation due to foreign protein. But more extensive use necessary to prove absolute value.—FRANCIS F. SCHWENTKER. *J. Am. Med. Assoc.*, 108 (1937), 1407. (G. S. G.)

Sulfonamides. Sulfanilamide may be prepared by the interaction of aniline, sulfuric acid and ammonia in a series of stages. It is a white, crystalline product, possesses a bitter taste, no smell, is slightly soluble in cold, but more soluble in hot water. It melts at 165° C. The theoretical sulfur content is 18.6%. Some of the conditions which have responded favorably to the use of the sulfonamides are puerperal fever, acute follicular tonsillitis, erysipelas, streptococcal pneumonia and empyema, streptococcal meningitis, gonorrhea, *B. coli* infections and meningococcal meningitis.—ANON. *Pharm. J.*, 140 (1938), 78. (W. B. B.)

Theelin in Oil—Effective Clinical Dosages of. Tests on 16 castrate women with uteri intact to determine dosages of theelin in oil (1) to relieve symptoms of castration, (2) to relieve symptoms and not cause of uterine bleeding, (3) difference between effective dosages of theelin in oil and in aqueous solution and (4) effects on external genitalia and endometrium. Methods: preliminary curettement and vaginal smears. Test period with intramuscular saline injections. Injections of theelin, curettement and vaginal smears before and after. Results: development of sex related structures, and growth of endometrium. Vaginal smears a less delicate index. Dosages of 5,000 units of theelin in oil mitigate symptoms of castration, more effective than aqueous solution.—AUGUST A. WERNER, *et al. J. Am. Med. Assoc.*, 109 (1937), 1027. (G. S. G.)

Thyroid—Radioactive Iodine as an Indicator in the Study of. Radioactive iodine was applied by intravenous injection. It is taken up selectively by the thyroid under normal conditions in a definitely measurable amount. In hyperplasia, the collection in the same time is increased several fold. Strongly active material may be of therapeutic significance in case of neoplastic thyroid.—S. HERTZ, A. ROBERTS and ROBLEY D. EVANS. *Proc. soc. exptl. biol. med.*, 38 (1938), 510. (A. E. M.)

Vitamin C Deficiency—Effect of Absolute and Partial, on Healing Wounds. Experiments on guinea pigs support the view that vitamin C deficiency in man, even when partial, may be one of the major causative factors in those cases of wound disruption where there is no evidence of infection and where the patient has been on an inadequate dietary régime.—MAX TAFFEL and SAMUEL C. HARVEY. *Proc. soc. exptl. biol. med.*, 38 (1938), 518. (A. E. M.)

Vitamin P—Therapeutic Effect of, in Schönlein-Henoch Purpura. A woman of twenty-two had suffered from Schönlein-Henoch purpura for eight years, with symptoms involving her bowels, skin, joints, and urinary organs, and reduced capillary resistance. Treatment with ascorbic acid for one week (2,400 mg. in all) did not affect the course of the disease. Injections of vitamin P (citrin) brought about the complete disappearance of all symptoms, even aborting a severe joint affection which had crippled the patient for eight years. The purpura relapsed when the administration of citrin was stopped. Administration of citrin kept the patient free from symptoms even when ascorbic acid had been omitted from her diet for five months. It is suggested that Schönlein-Henoch purpura is caused by deficiency of vitamin P.—T. JERSILD. *Lancet*, 234 (1938), 1445. (W. H. H.)

NEW REMEDIES

SYNTHETICS

Bisteril (Chem. Fabrik J. Blaes & Co., G.m.b.H., München) is marketed as dragees, each containing 0.1 Gm. phenylazodiamino-pyridine hydrochloride, and in the form of ampuls, each containing phenylazodiamino-pyridine 0.055 Gm., benzyl alcohol 0.055 Gm. and ethylene glycol, a sufficient quantity to make 1.1 cc. It is recommended in the treatment of nephritic disturbances. —*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Carbantren contains iodochloroxyquinolin-bismuth 10%, pectin 20% and charcoal 70%, in the form of granules for the treatment of gastro-intestinal affections of a dyspeptic nature, enteritis and diarrhoea. Carbantren is claimed to be an efficient intestinal antiseptic due to the iodochloroxyquinoline. The pectin acts as a hemostatic, and by its power of expansion prevents the absorption of toxic substances. Carbantren contains a large proportion of active charcoal, which absorbs toxins and other irritant substances. The dose is 2 to 3 teaspoonfuls twice a day with meals. The granules should be taken in a quarter or half a glass of water or other suitable liquid. Carbantren granules are supplied in 50 Gm. packages.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 332. (S. W. G.)

Chemodyn (Nordmark-Werde, Hamburg) contains 0.4 Gm. benzylamino-phenylsulfamide in each tablet. It is used in the treatment of gonorrhoea and streptococcic infections.—*Pharm. Zentrahalle*, 79 (1938), 544. (N. L.)

Citrosodine (Bengue and Co. Ltd., London) is trisodium citrate. It is used for dyspepsia, stomachic irritation, gastro-enteritis, viscosity of the blood. The dose for adults is 4–8 tablets three times daily; for children: 2–4 tablets three times daily; for babies: 1 tablet two to six times daily.—*Australasian J. Pharm.*, 19 (1938), 802. (A. C. DeD.)

Cormed (Dr. Rudolf Reiss, Rheumasan u. Lenicet-Fabrik, Berlin) is pyridine-β-carbonic acid-diethylamide in the form of a 25% solution. It is marketed in the form of ampuls and drops. —*Pharm. Zentralhalle*, 79 (1938), 577. (N. L.)

Cycliton is the diethylamide of 3:5-dimethylisoxazol-4-carboxylic acid. It is a pale yellow, odorless, oily substance, soluble in water and in lipoids, giving solutions with a neutral reaction. Cycliton is an analeptic having a stimulating effect upon the central nervous system. It stimulates respiration and circulation in a similar manner to camphor, to which it is nevertheless unrelated, cuts short artificially produced narcotic sleep and reanimates a respiratory center previously paralyzed with morphine. Pharmacologically, 5 mg. per Kg. of body weight produces the desired effect, while 100 to 150 mg. per Kg. is required to produce a lethal effect. Cycliton is indicated in any condition where circulatory or respiratory efficiency is impaired as a result of disease of the respiratory tract, and in surgical shock. The dosage as a life saving measure in gas or hypnotic poisoning is 4 to 6 cc. given intravenously, repeated if necessary after one and a half to two hours; in respiratory and circulatory collapse, up to 1 cc. of oral solution in children, or 2 cc. to adults, or alternatively, 2 to 5 tablets may be given. Cycliton is packed in bottles containing 15 cc. of a 25% solution for oral use; in boxes of 20 and 250 tablets containing 0.1 Gm., in boxes of 6 and 50 ampuls each containing 0.5 Gm. in 2 cc.; and in 2 cc. ampul-syringes containing 0.5 Gm. of cycliton in single tubes and boxes of six.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 669. (S. W. G.)

Destron (Chem. Fabrik Promonta, G.m.b.H., Hamburg) is bis-phenylpropylethylamine. It is marketed in ampuls, each cc. representing 0.04 Gm. and as capsules, each containing 0.08 Gm.

of the amine. It is recommended in the treatment of muscular cramps.—*Pharm. Zentralhalle*, 79 (1938), 577. (N. L.)

Diucal (Nordmark-Werke, G.m.b.H.) is a 23% solution of the calcium salt of glutamic acid. It is recommended as a diuretic.—*Pharm. Zentralhalle*, 79 (1938), 577. (N. L.)

Dormovit (Chem. Fabriken Dr. J. Wiernik & Co., Berlin-Waidmannslust) is furfuryliso-propylbarbituric acid supplied in the form of tablets. It is recommended as a soporific.—*Pharm. Zentrahalle*, 79 (1938), 544. (N. L.)

Ethidol (Burroughs Wellcome and Co., London and Sydney) is ethyl iodo-ricinoleate. It is used in cases of subcutaneous inflammation; dispersion of induration following inflammation; in joint and muscle traumata; in enlarged cervical glands, in orchitis after the inflammation has subsided; and in lumbago and other myalgias; also after the aspiration of small abscesses. As an inunction it is rubbed lightly into part until absorbed. For intra-glandular injections use 1–2 to 1 cc. on alternate days. It is supplied in bottles of 1 and 4 fluid ounces.—*Australasian J. Pharm.*, 19 (1938), 908. (A. C. DeD.)

M. and B. 693 (Pharmaceutical Specialties (May and Baker) Ltd., Dagenham, London) is 2-sulfanilyl-amino pyridine. It is used for the treatment of pneumococcal infections. It is supplied in containers of 25 and 100 x 0.50 Gm. tablets and boxes of 6 x 2.5 ampuls.—*Australasian J. Pharm.*, 19 (1938), 1010. (A. C. DeD.)

Neptal (Pharmaceutical Specialties (May and Baker) Ltd., Dagenham, London) is mercuramide. It is a potent diuretic by intravenous, intramuscular or rectal administration. It is particularly indicated in cardiac dropsy and hydraemic nephritis. The initial dose is 1 cc., but may be increased to 2–3 cc. Injection may be repeated daily or at longer intervals, according to the needs of the patient. Solution: each cc. containing 0.092 Gm. of active product; boxes of 6 and 20 x 1 cc. ampuls, and 6 and 20 x 2 cc. Suppositories: boxes of 6, each containing neptal 0.50 Gm.; theophylline, 0.025 Gm.—*Australasian J. Pharm.*, 19 (1938), 1010. (A. C. DeD.)

Ormalon Tablets (I. D. Riedel-E. de Haën A. G., Berlin-Britz) contain the sodium salt of chloro-oxyquinoline sulfonic acid.—*Pharm. Zentralhalle*, 79 (1938), 577. (N. L.)

Pervitin Tablets (Temmler-Werke, Berlin) contain in each tablet 0.003 Gm. of 1-phenyl-2-methylaminopropane. It is recommended in the treatment of mental depression, psychoses, etc. —*Pharm. Zentralhalle*, 79 (1938), 595. (N. L.)

Rivanules (Bayer Products Ltd., London) is 2-ethoxy, 6.9-diamino-acridine lactate. The peroral form of "Rivanol" is used for amebic dysentery and other infections of the intestinal tract. It is used for diarrhoea in children; colitis; has a disinfectant, antispasmodic and anesthetic action on the intestine. The adult dose is 2 pellets three times a day. It is supplied in pellets for adults in tubes of 30 x 0.025 Gm.; children, tablets of 30 x 0.1 Gm.—*Australasian J. Pharm.*, 19 (1938), 1010. (A. C. DeD.)

Rubiazol (Roussel Laboratories, London) is carboxy-sulfamido-chrysoidine. It is used in cases of puerperal sepsis, erysipelas, scarlet fever, measles, influenza and empyema. The dose is 4–10 tablets daily (4–8 as prophylactic). Ampuls: 2–3 of 5 cc. in 24 hours, intramuscularly. It is marketed in quantities of 20 and 250 tablets each containing 0.20 Gm. Ampuls 5 cc., boxes of 5 and 25.—*Australasian J. Pharm.*, 19 (1938), 707. (A. C. DeD.)

Sedicyl and Ovo-Sedicyl (Veritas Drug Co. Ltd., London). Each tablet of sedicyl contains $^3/_{10}$ Gm. double compound of choline ester and benzyl ester. Each tablet of Ovo-Sedicyl contains above and $^4/_{10}$ grain ovar. sicc.; 20 international units of ovarian follicular hormone. They are used for the therapy of climateric disturbances. The dose is 1–2 tablets three times a day until cure is effected, then 1–2 tablets a day—all after meals. Sedicyl is supplied in boxes of 25 tablets and Ovo-Sedicyl 20 and 50 tablets (s. c.).—*Australasian J. Pharm.*, 19 (1938), 1010. (A. C. DeD.)

Thionaiodine is a complex iodine-sulfur-magnesium combination supplied in two strengths, A, for intramuscular injection, B, for intravenous injection in the treatment of chronic rheumatism, and for the relief of pain in neuralgia, neuritis and sciatica. Thionaiodine A contains stabilized sodium iodide, 2%, and magnesium tetrathionate (MgS_4O_6) in 5-cc. and 10-cc. ampuls for slow intramuscular injection. Each 10 cc. represents iodine 0.168 Gm., sulfur 0.05 Gm. and magnesium 0.0096 Gm. Thionaiodine B ampuls, contain 5% each of sodium iodide and magnesium tetrathionate, representing iodine 4.023 Gm., sulfur 0.25 Gm., magnesium 0.048 Gm., in 10 cc. 5 to 20 cc. can be given daily by intramuscular injection, until relief from pain is obtained. The

injections are painless if made slowly. Intravenous injections of 10 to 40 cc. daily can be given in acute and persistent painful conditions. Thionaiodine should be administered with care in cases of pulmonary congestion, tuberculosis and Bright's disease, and it is contra-indicated in cardio-renal subjects, and hypertension of old age. Thionaiodine A is supplied in boxes of six 5-cc. or 10-cc. ampuls. Thionaiodine B is issued in boxes of six 10-cc. or four 20-cc. ampuls.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 335. (S. W. G.)

Veritol (Knoll Ltd., London) is oxyphenyl-isopropyl-methylamine. It is used in circulatory debility and acute cardiac insufficiency. It is supplied in ampuls, 0.02 veritol sulfate; dose, intravenously, $^1/_4$–$^1/_2$ ampul. Tablets, 0.05 Gm. veritol sulfate; dose, *per os*, 1–2 tablets. —*Australasian J. Pharm.*, 19 (1938), 707. (A. C. DeD.)

Specialties

Acetylarsan (May and Baker Ltd., Dagenham, London) is given as an intramuscular injection in all stages of syphilis. For adults (23.6 % solution), initial small doses to test tolerance, then 3 cc. twice a week over course of eight weeks. For children (9.4% solution), according to weight. The ampuls are supplied in packages of 10 x 3 cc. and 1 x 5 cc. for adults; and 10 x 2 cc. for children.—*Australasian J. Pharm.*, 19 (1938), 908. (A. C. DeD.)

Adreno-Cortin is a biologically standardized suprarenal cortex extract, in soft gelatin capsules each containing 5 minims, equivalent to 5 Gm. of suprarenal cortex tissue. The capsules are intended for the oral treatment of syndromes induced by adrenal insufficiency. Adreno-cortin is indicated in hyperemesis gravidarum, toxemia of burns, hay fever, urticaria in prolonged convalescence and as an adjuvant to the parenteral administration of cortical extracts in Addison's disease. The dose is 1 to 2 capsules three or four times daily with, or immediately after, food. Adreno-cortin is supplied in boxes containing 30 capsules.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 332. (S. W. G.)

Aflukin (C. F. Boehringer & Sohne, G.m.b.H., Mannheim-Waldhof; Chininfabriken-Braunschweig, Vereinigite Chininfabriken Zimmer & Co., G.m.b.H., Mannheim) is quinine sulfate in the form of pills.—*Pharm. Zentralhalle*, 79 (1938), 577. (N. L.)

Agomensin (Ciba Ltd., London) is a hydrosoluble ovarian substance. Provokes hyperemia of the female sexual organs, stimulates ovarian functions and activates menstruation, functional amenorrhoea, hypoplasia of the uterus, etc. The dose is 1–3 tablets three times a day or 1–4 ampuls injected deeply subcutaneously or intramuscularly two or three times a week. It is supplied in bottles of 20 and 100 tablets of $^1/_3$ gr. (0.02 Gm.) and in boxes of 5 and 20 ampuls of 1.1 cc., containing $^2/_3$ gr. (0.04 Gm.), in sterile aqueous solution.—*Australasian J. Pharm.*, 19 (1938), 908. (A. C. DeD.)

Ana-Hepol (Allen and Hanburys Ltd., London and Sydney) is the anti-anemic principle of liver in high concentration with a minimum of inactive matter. It is used in cases of pernicious anemia. The dose is 2–4 cc., in one or more doses. It is marketed in ampuls of 2 cc. in boxes of 3 and 6.—*Australasian J. Pharm.*, 19 (1938), 802. (A. C. DeD.)

Angiospray (Dr. Madaus & Co., Radebeul, Dresden) is a combination of plasmolytic constituents of arnica and chamomile. It is recommended in the treatment of follicular angina and diphtheria.—*Pharm. Zentralhalle*, 79 (1938), 639. (N. L.)

Angioxyl is an insulin-free pancreatic extract prepared from ox pancreas. It regulates arterial tension, and vascular tonicity and so can be physiologically standardized by its hypotensive action. It is suggested for the treatment of angina pectoris, arterial hypertension, arteriosclerosis, arteritis, hemiplegia and atonic varicose ulcers. It is supplied in ampuls for intramuscular injection, and as a syrup for conservative treatment between two courses of injections, and as a basic treatment in vascular disturbances of old age, and in climacteric hypertension, vertigo and amnesia. The dose recommended by intramuscular injection is 1 ampul morning and afternoon for a period of nine days. Two teaspoonfulls of the syrup should be given daily during the interval between injections. The ampuls contain 2 cc. (20 hypotensive units) and are supplied in boxes of 10. Angioxyl syrup is issued in 150-cc. bottles.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 332. (S. W. G.)

Bärlauch-Reinecke (G. Reinecke, Fabrik pharm. Präparate, Hannover) consists of an extract of the fresh plant of *Allium ursinum*. It is recommended in the treatment of dyspepsia, etc.—*Pharm. Zentralhalle*, 79 (1938), 639. (N. L.)

Cantan (Bayer Products Ltd., London) is chemically pure vitamin C. It is used in scurvy hemorrhagic diathesis, anemia in children, catarrhal infections, intestinal toxemia, disturbances in mineral metabolism. The dose for adults is one tablet three times daily; for children: $^1/_2$ tablet two or three times daily. In severe cases 2–6 ampuls daily, intravenously. Prophylaxis: $^1/_2$ to one tablet daily. The tablets (0.025 Gm. ascorbic acid) are supplied in tubes of 10 and bottles of 100. The ampuls 1 cc. (0.025 Gm. of ascorbic acid), are supplied in boxes of 5 and 25. —*Australasian J. Pharm.*, 19 (1938), 802. (A. C. DeD.)

Collozin, a lotion containing colloidal zinc hydroxide, is less irritating and gritty than the usual calamine lotion, and possesses a greater penetrative power. The lotion possesses mild astringent and antiseptic properties and assists tissue granulation, and the maximum therapeutic effect is assured by its gentle, consistent and prolonged action. The lotion is indicated in all cases where calamine lotion is suitable, especially in inflammatory conditions, sunburn and as a protection after shaving, as it leaves no deposit upon the skin. For acne the lotion should be well massaged into the affected area. Collozin is supplied in bottles of 4, 8, 16, 40 and 80 fl. oz.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 332. (S. W. G.)

Embryonin (The Bioglan Laboratories, Hertford, England) is human placental extract. It is used for measles. One injection of 2 cc. into the buttocks. For a child over four years old or an adult a second injection of 2 cc. to be given three or four days later. Prophylaxis: Two injections of 2 cc. each intramuscularly after a four-day interval between them. It is marketed in ampuls of 2 cc. and rubber-capped vials of 12 and 30 cc.—*Australasian J. Pharm.*, 19 (1938), 802. (A. C. DeD.)

Entacarb (Coates and Cooper Ltd., London) contains in each teaspoonful approximately, in grains: calcium carbonate 15, magnesium carbonate 6, sodium bicarbonate 3, potassium bicarbonate $^1/_2$, colloidal aluminum silicate 12 and bismuth subcarbonate 2. It is used in gastric distresses due to hyperacidity. The dose is one heaping teaspoonful stirred in half glass of water after meals, or at intervals of 2 to 4 hours. It is supplied in powders of 1 and 3 ounce sizes and also in enteric coated tablets.—*Australasian J. Pharm.*, 19 (1938), 1009. (A. C. DeD.)

Ermetrine (Ergometrine), (N. V. Organon, Oss.) The action of Extractum Secalis Cornuti Spirituosum is attributed to four alkaloids the properties of which vary considerably as does also the method of application. Parenteral injection causes strong contraction of the uterus while administration, *per os*, shows only uncertain and retarded action on the uterus muscle. In contrast with the alcoholic extract the water extract is always the same and this must be attributed to ergometrine, $C_{19}H_{23}N_3O_2$ (m. p. 155°) isolated by Moir and Dudley in 1935. Nearest to this water-soluble alkaloid, the alcoholic extract contains the alkaloids of the "ergotoxin group" ergotoxin, ergotamine, ergoclavine and sensibamine. Under the name ermetrine the N. V. Organon places on the market tablets containing 0.25 mg., suppositories containing 0.25 mg., ampuls for intramuscular injection containing 0.25 mg. and for intravenous injection 0.125 mg. —*Pharm. Weekblad*, 75 (1938), 29. (E. H. W.)

Femaloid (The Antigen Laboratories, London) consists of manganese, iron and copper, thyroid, trioxymethanthraquinone, magnesium hypophosphite, whole ovary and hyoscyamus. It is used for tonic restorative, catamenic disturbances and anemia. The dose is two tablets three times a day, after meals. It is supplied in bottles of 60 and 500.—*Australasian J. Pharm.*, 19 (1938), 802. (A. C. DeD.)

Filmaron (Coates and Cooper Ltd., London) is aspidinol filicin; constant only as a dry powder or in oily solution. It is used for the expulsion of all kinds of intestinal parasites. The dose for adults is 1 Gm., sometimes more; for children, 0.3 to 0.8 Gm., as to age. Filmaron oil 10% is supplied in bottles of 10 Gm. Filmaron Tapeworm Remedy: (*a*) Adults, boxes of 3 gelatin capsules, in all 1 Gm. Filmaron; (*b*) children, boxes of six smaller capsules, in all 0.72 Gm. Filmaron; (*a*) and (*b*) also supplied combined with 12 castor oil capusles; (*c*) for veterinary practice, boxes of five capsules of 0.2 Gm. Filmaron each; for veterinary institutes, boxes of 100 capsules of 0.2 Gm. Filmaron each.—*Australasian J. Pharm.*, 19 (1938), 1009. (A. C. DeD.)

Glanfel (Armour Laboratories, London) is the name applied to the bile salts, sodium glycocholate and sodium taurocholate, in the proportions existing in fresh bile. It is used for pancreatic digestion and normal peristalsis and provides powerful stimulant to the secretory activity of the liver. The dose is 2 to 6 grs. The enteric coated tablets are marketed in 1 and 3 grs.—*Australasian J. Pharm.*, 19 (1938), 706. (A. C. DeD.)

Heparin 318 (Roche Products Ltd., Welwyn Garden City, Herts) is a solution of pure heparin; 1 cc. contains 5 mg. = 2000 inhibiting units. It is used in all conditions in which retardation of blood coagulation is desirable. Employed in blood transfusion: (1) 0.75 cc. diluted with 5 cc. physiological saline is added to 100 cc. blood; (2) 30,000 to 60,000 units are injected into the donor and transfusion carried out within 15 minutes. Also used for the prevention of thrombosis, intramuscular or intravenous injection. It is marketed in 5 cc. rubber-capped phials, each of 25 mg. heparin equivalent to 10,000 inhibiting units.—*Australasian J. Pharm.*, 19 (1938), 908. (A. C. DeD.)

Immidiol is a gargle containing a mixture of selected anthraquinone glycosides in a salicylic acid alcoholic solution and possesses a marked effect upon inflamed mucous membrane. It is non-poisonous, and may therefore be used by children with safety. It is of value in anginas of the mouth and throat, and may be used successfully in diphtheria in conjunction with specific treatment. For use, half a teaspoonful of immidiol should be mixed with half a glass of warm water and used as a gargle every quarter to half hour, sustaining each gargling operation as long as possible; the mixture must be freshly prepared for each occasion. When necessary, undiluted immidiol may be sprayed or painted on the affected part.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 333. (S. W. G.)

Iodamelis (The Anglo-French Drug Co. Ltd., London) is the organic combination of iodine and hamamelidin. It improves circulation, removes conjestion, reduces arterial pressure and accelerates general nutrition processes. The dose is 20–50 drops daily. It is supplied in bottles of 25 cc., with dropper.—*Australasian J. Pharm.*, 19 (1938), 707. (A. C. DeD.)

Lepetin (Dr. C. Brunnen-Gräber, Chem. Fabrik & Co., G.m.b.H., Lübeck) is a stabilized lecithin-emulsion intended for the oral administration for phosphatide metabolism. It is recommended in the treatment of arteriosclerosis, tuberculosis, etc.—*Pharm. Zentralhalle*, 79 (1938), 595. (N. L.)

Naiodine (Logeais) (The Anglo-French Drug Co. Ltd., London) is a stabilized solution of sodium iodide in ampuls A and B for intramuscular and intravenous injections. It is used for the relief of pain and distress in neuralgia, neuritis, etc. The dose is from 10 to 20 cc. daily. It is marketed in boxes of six ampuls of 10 and 20 cc. of A and 10 and 20 cc. of B.—*Australasian J. Pharm.*, 19 (1938), 802. (A. C. DeD.)

Nestrovit (Chem. Fabrik Roche, Basel) is a vitamin preparation containing the purified vitamins A, B_1, C and D. It is marketed in the form of a tablet and solution.—*Pharm. Zentralhalle*, 79 (1938), 563. (N. L.)

Nicotinic Acid is stated to be the precursor of the pellagra-preventing factor of the vitamin B complex. Nicotinic acid, isolated from antineuritic concentrates, was found to have no antineuritic properties, but it cured black-tongue in dogs, a disease considered to be analagous to pellagra in man. Nicotinic acid was first tried on monkeys, and then on human pellagrins, and was found to rectify the deficiency in pellagra-producing diets. Though the pellagra-preventing factor may not be the only factor in human pellagra, it is suggested that nicotinic acid should be used in every case of pellagra. The dose suggested is 30 mg. orally twice daily after food, but this dose may be exceeded; 1500 mg. has been given daily without toxic symptoms. Nicotinic acid is issued as 30 mg. tablets in bottles of 100.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 334. (S. W. G.)

Painex tablets contain, in each, acetylsalicylic acid, 3 grs.; phenacetin, 2 grs.; caffeine, 0.5 gr., and phenolphthalein 0.2 gr. It is recommended for the relief of pain and feverish conditions. The tablets are mildly laxative to assist in the elimination of toxins from the system. Painex tablets are packed in bottles of 50 and 1000.—*Quart J. Pharm. Pharmacol.*, 11 (1938), 334. (S. W. G.)

Pantavene (The Anglo-French Drug Co. Ltd., London) is a neutral neuromuscular tonic, containing the active principles of oats (*Avena sativa*). It restores normal vitality and well-being, and is specially indicated in muscular and nervous asthenia, debilitated states, hypotensive and melancholic depression. The dose is two tablets three times a day before meals. It is marketed in boxes of 60 tablets.—*Australasian J. Pharm.*, 19 (1938), 707. (A. C. DeD.)

Paraphen (Evans, Sons, Lescher and Webb, Ltd., Liverpool) is an emulsion of liquid paraffin with phenolphthalein. It is used as an aperient. The dose for children is 1 to 2 fluiddrachms;

adults, 2 to 4 fluiddrachms. It is marketed in bottles of 4, 8, 16 and 80 fluid ounces.—*Australasian J. Pharm.*, 19 (1938), 908. (A. C. DeD.)

Piscin (Chem.-pharm. Fabrik Carl Müller, Apotheker, Göppingen) consists chiefly of iron phosphate, silica, thalattin and carbonates. It is marketed as a powder and tablet.—*Pharm. Zentralhalle*, 79 (1938), 596. (N. L.)

Pitupheen "Asid" Ampuls, (Anhaltische Serumwerk, Berlin) contain the extract of the posterior lobe of the pituitary with both hormone fractions (oxytocin and vasopressin). One cc. contains 3 Vögtlin units. "Pitupheen-Asid" Fortius contains 10 Vögtlin units per cc.—*Pharm. Weekblad*, 75 (1938), 30. (E. H. W.)

Proleucin Tablets (Chem.-pharm. Fabrik Carl Müller, Apotheker, Göppongen) consists chiefly of magnesium superoxide, iron phosphate, sodium chloride and sodium sulfate. It is recommended as a tonic.—*Pharm. Zentralhalle*, 79 (1938), 596. (N. L.)

Silextract (Chem.-pharm. Fabrik Carl Müller, Apotheker, Göppingen) consists chiefly of fluidextracts of galeopsidis and polygona with 0.1% of calcium glycerophosphate.—*Pharm. Zentralhalle*, 79 (1938), 596. (N. L.)

Sparheugin (Chem. pharm. Fabrik Carl Müller, Apotheker, Göppingen) consists chiefly of arnica, betula, juniper, pimpinella, sambucus, valerian, potassium sulfate, sodium phosphate and sodium sulfate.—*Pharm. Zentralhalle*, 79 (1938), 596. (N. L.)

Sparheugol (Chem.-pharm. Fabrik Carl Müller, Apotheker, Göppingen) consists chiefly of ethyl acetate, camphor, tincture of arnica and capsicum. It is recommended in the treatment of rheumatic conditions.—*Pharm. Zentralhalle*, 79 (1938), 596. (N. L.)

Theominal (Bayer Products, Ltd., London) is phenolbarbitone and theobromine. It is employed as an antispasmodic, sedative and vasoregulator, high blood pressure, arteriosclerosis and its sequalæ (insomnia, etc.), angina pectoris, spastic vasomotor disturbances. The dose is one tablet in water, one to three times a day. It is supplied as tablets in tubes of 20, bottles of 50, 250 and 1000, and lot of 500.—*Australasian J. Pharm.*, 19 (1938), 908. (A. C. DeD.)

Unden (Bayer Products Ltd., London) is ovarian hormone. It is standardized in international oestrone and oestradiol benzoate units, in dosage from 100 I. U. to 50,000. It is used for ovarian hypofunction. It is supplied in pellets, each 0.01 mg. oestrone = 100 international oestrone units; bottles of 15 and 100. Pellets, each 0.05 mg. oestrone = 500 international oestrone units; bottles of 15 and 100. Pellets, each 0.1 mg. oestrone = 1000 international oestrone units; bottles of 15 and 100. Ampuls (aqueous solution), each of 0.1 mg. oestrone = 1000 international oestrone units; box of 5 x 1 cc. Ampuls (oily solution), 10,000 international benzoate units; box of 1 x 2 cc. Solution (oily), 100,000 international benzoate units (10,000 international benzoate units per cc.); bottle of 10 cc.—*Australasian J. Pharm.*, 19 (1938), 707. (A. C. DeD.)

Unguentum Adjowii and **Pasta Adjowii** are prepared from cod liver oil together with vaseline and other hydrocarbons as binders and are used in burns and various conditions of eczema.—*Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Urandil is an ointment containing zinc oxide 12%, iodine 9.7% and uranium 9.2%. It is recommended as an antiseptic and anti-inflammatory ointment for the treatment of skin affections and injuries. It is claimed that its therapeutic action is due to a continual disintegration liberating iodine in an active nascent form, and to the radioactivity of the uranium, the alpha-rays having a regenerative and astringent effect on the injured tissues. Urandil is recommended for the treatment of many types of exzema, sycosis, infected wounds, burns and scalds. It should be applied directly to the affected part, and protected with gauze or an open wove bandage. The exhausted ointment should be removed with petrol or benzine before redressing. Urandil is supplied in tubes containing 1 oz.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 336. (S. W. G.)

BACTERIOLOGY

Bile and Bile Salts—Influence of, on Aerobacter Aerogenes. Pure cultures of *Aerobacter ærogenes* are not influenced by the presence of bile or bile salts in the culture medium.—James E. Fuller. *Proc. soc. exptl. biol. med.*, 38 (1938), 507. (A. E. M.)

Catgut—Bacteriologic Control of. The author states that the disinfectant remaining in the catgut keeps the spores in a latent state and that tests for their growth in nutrient media may be negative; although the spores may become virulent under proper conditions. The following outline is given of the proper preparation of the sample for testing: (1) Wash the catgut with

water; (2) Wash with a solution containing an antidote for the antiseptic used and also 1% of sodium carbonate; (3) Wash with water; (4) Place the catgut in nutrient medium and allow to stand in the incubator at 37° for ten to twelve days. A special apparatus is illustrated showing an arrangement of flasks, containing the solutions and water, connected to a common washing chamber. This arrangement allows the different washings to be carried out without handling and contaminating the sample in the washing chamber.—M. RUDERMAN. *Bull. sci. pharmacol.*, 44 (1937), 415–425. (S. W. G.)

Meningococcic Endotoxin—Properties of One, Obtained by the Method of A. Boivin. By the method of Boivin, precipitation with trichloracetic acid, extracts have been prepared from the three types of meningococcus A, B and C. This method permits not only the isolation of a specific endotoxin for meningococcus but for each variety. This endotoxin possesses, *in vivo*, some antigenic properties. Only the samples recently isolated from the organism have given a toxic extract.—JEAN CHEVE. *Compt. rend.*, 206 (1938), 1204. (G. W. H.)

Nicotinic Acid, Its Isomers and Related Compounds—Effect of, upon Nutrition of Staphylococcus Aureus. Picolinic and isonicotinic acids are not able to replace nicotinic acid in the nutrition of *Staphylococcus aureus*. Reduction of the activity of nicotinic acid was brought about by introduction of an ethyl group. Complete loss of activity was evident after introduction of two ethyl groups. Pyridine 2-3-dicarboxylic acid was negative also.—MAURICE LANDY. *Proc. soc. exptl. biol. med.*, 38 (1938), 504. (A. E. M.)

Oral Vaccines in "Cold" Season. Claims for efficacy of oral vaccines for colds are without justifiable foundation. Immunity of large groups has not yet been established by competent authority.—CURRENT COMMENT. *J. Am. Med. Assoc.*, 109 (1937), 1130. (G. S. G.)

Parasiticidal Drugs—Influence of Structure on the Action of. Methods of undertaking a chemotherapeutic investigation are described. The usual method is to attempt to discover some drug that was specific in its effect against a particular invading organism; a second method is an exploration of the effects of structural modifications on the therapeutic action of a particular drug. Structural changes are shown to produce changes in activity, but do not always follow the rule. Shifting of the double bond in position 11 of the quinine molecule to produce *iso*-quinine reduces the activity, whereas the same change in its stereoisomer quinidine produces increased activity. Other examples are given, and illustrated by structural formula. The newer drugs of the Prontosil type are discussed. It is said that 177 derivatives of *p*-aminobenzenesulfonamide have been prepared, and from a survey of their bacteriostatic properties certain general conclusions were deduced. Other topics touched upon include tha alkyl resorcinols, derivatives of harmol, the amino derivatives of acridine.—ANON. *Pharm. J.*, 140 (1938), 11, 32. (W. B. B.)

Pollution of the Atmosphere with Dust—New Method for the Determination of the Degree of. The method is based on the filtration of air through a collodion or acetylcellulose ultrafilter attached to a glass tube by means of a sodium silicate. These ultra-filters can also be used for the bacteriological analysis of air.—I. B. REZNIK. *Hig. Truda*, 15 (1937), No. 2, 51–57; through *Chimie & Industrie*, 39 (1938), 474. (A. P.-C)

Quinosol—Preserving Properties of. Quinosol (I) has many advantages over phenol as a preservative. It is less toxic, has a higher bactericidal capacity, does not coagulate proteins or combine with them and can be used in concentrations 1:10,000 to prevent the multiplication of saprophytes and pathogenic bacteria. Flasks filled with sera and exposed to the air for 300 hours show no development of mold, even when the concentration of I is only 1:20,000. I in sera in 1:1000 concentration destroys the spores of anthrax bacilli. Generally a concentration of 1:1000–1:5000 is used in serum preservation.—G. E. SMIRNOV. *Z. Mikrobiol. Epidemiol. Immunitätsforsch.* (U. S. S. R.), 19 (1937), 136–138 (in English 138); through *Chem. Abstr.*, 32 (1938), 6400. (F. J. S.)

Rinderpest Vaccine—Dry, Preservation and Purification of. Since dry rinderpest vaccine is *per se* a tissue derivative, the authors sought to improve its keeping quality by extraction of its fat content with ether. The best results were obtained by treating the vaccine with ether 1 to 3 times for 30 minutes each by simple decantation at room temperature, followed by drying at the same temperature. By this method of extraction the potency of the vaccines was not impaired and they remained active for from 3 months to $1^1/_2$ years at room temperature. Overtreatment or treatment at higher temperatures apparently had a deteriorating effect on the antigen. Extraction with alcohol or acetone or exposure to formalin destroyed the potency of the vaccine,

presumably due on the one hand to the complete removal of the antigenic lipoproteins by the solvents, and to the destructive effect of formalin on the other. Apparently the keeping quality at room temperature of potent vaccine treated with ether by simple shaking and decantation was enhanced 7 to 18 times over that of the untreated material. The authors believe that extraction in the refrigerator would further improve the purity and keeping qualities of the vaccine. Cattle and carabaos were used as test animals.—TEODULO TOPACIO, ANACLETO B. CORONEL and ABELARDO VALENZUELA. *Philippine J. Sci.*, 65 (1938), 129. (P. A. F.)

Sauer's Vaccine—Active Immunization of Tuberculosis Children Against Whooping Cough with. Sauer's Vaccine reported favorably in prevention of whooping cough. Test made in hospital for tuberculous children under adequate control conditions. Age range 3 to 16, and infants vaccinated with B. C. G. Study limited to small group of children known to have no past history of whooping cough; 101 children were vaccinated; 82 were designated as controls. Average age 3.1 years. Vaccinations were in winter months. Fifty-three per cent of vaccinated children and 58% unvaccinated showed symptoms of whooping cough. High incidence after exposure probably due to presence of active tuberculosis in children, or particularly virulent organism, or ineffective vaccine. But symptoms seemed on the whole to be milder and of shorter duration among vaccinated than unvaccinated children.—MORRIS SIEGEL and ESTHER E. GOLDBERGER. *J. Am. Med. Assoc.*, 109 (1937), 1088. (G. S. G.)

Silver Compounds—Germicidal Efficiency of Some, Tested by the Improved Tissue Culture Method. Non-colloidal silver lactate and citrate are of about the same toxicity against *Staphylococcus aureus*, being superior to nitrate. The effect on *E. typhosa* is about identical in the three compounds. Mild Silver Protein U. S. P. is unreliable to destroy *Staphylococcus aureus* in presence of organic matter. It rates well against *E. typhosa*. Silver Protein Strong, U. S. P. rated but slightly lower than the non-colloidal compounds.—D. C. FOORD, W. A. MCOMIE and A. J. SALLE. *Proc. soc. exptl. biol. med.*, 38 (1938), 572. (A. E. M.)

Sulfur Derivatives—Organic, Antistreptococcal Action of. Several phenylsulfonamide derivatives were tested for antistreptococcal activity and compared with *p*-aminobenzenesulfonamide (sulfanilamide). Dinitro-4,4'-diphenylsulfide was 25% as active as sulfanilamide in experimental hemolytic streptococcal injections. Dinitro-4,4'-diphenyldisulfide was 4 to 8 times as effective as sulfanilamide when used in streptococcal septicemia in mice; however, it is more toxic than sulfanilamide. Dinitro-4,4'-diphenylsulfone was 10% as active as sulfanilamide for streptococcus infections but gave more adequate protection than sulfanilamide in cases of pneumococcal septicemia.—E. FOURNEAU, J. TREFOUEL, F. NITTI, D. BOVET and MME. J. TREFOUEL. *Compt. rend. Acad. Sci.*, 204 (1937), 1763–1766; through *Chimie & Industrie*, 39 (1938), 320–321. (A. P.-C.)

BOTANY

Ions—Absorption of, by Plants. A lecture.—M. KORCZEWSKI. *Acta Biol. Exptl.* (Warsaw), 11 (1937), 332–347; through *Chem. Abstr.*, 32 (1938), 8471. (F. J. S.)

Oats and Oat Products. The cultivation, milling, botany and composition of are described, with a drawing showing microscopical structure.—H. L. BROWNLEE and F. L. GUNDERSON. *Cereal Chem.*, 15 (1938), 257–272; through *J. Soc. Chem. Ind.*, 57 (1938), 967. (E. G. V.)

Starch Granule—Structure of. A hypothesis for the structure of the starch granule is advanced. One hundred and twelve references are given.—C. L. ALSBERG. *Plant Physiol.*, 13 (1938), 295–330; through *Chem. Abstr.*, 32 (1938), 8475. (F. J. S.)

Weed-Killers—Chlorate. The chlorates have the following advantages over arsenicals as weed-killers: (1) They are, for all practical purposes, non-poisonous to animals, (2) they are toxic to vegetation and (3) areas treated with them for weed destruction can be cultivated within a few months after treatment. The efficiency of sodium chlorate as a weed-killer is considerably reduced when it is used under conditions of low humidity. This is due to the fact that when the water of the solution in which it is applied has evaporated the salt left in contact with the vegetation is in the form of minute crystals; these necessarily remain inactive unless, and until, rain again brings them into solution. Calcium chloride would probably be considered the ideal chemical for weed-killing if it were generally available. Sodium chlorate may be applied either in the solid state or in solution. Because it is readily soluble in water, an even distribution can be assured, the amount required per acre being dissolved in from 50 to 200 gallons of water and applied

as a coarse spray. The amount of water is unimportant The best time to apply sodium chlorate to pasture land is in dry sunny weather before the weeds reach the flowering stage. A solution should be used. After treatment, the grass may show a brown, scorched appearance, but if the solution is not too concentrated no permanent damage will result. Golf greens and approaches should never be sprayed with sodium chlorate solution or dusted with the powder. Each weed is treated by dipping a pointed skewer into a solution of sodium chlorate (2 lb. to 1 gallon) and with it piercing the crown of the plant or the roots. The skewer should be burned after it has served its purpose, because, if the solution is allowed to dry on it, it may start a fire. Land that is made into a lawn should be treated with sodium chlorate in the autumn before spring sowing at the rate of 4 to 8 oz. per 100 sq. feet.—ANON. *Pharm. J.*, 140 (1938), 381. (W. B. B.)

CHEMISTRY

GENERAL AND PHYSICAL

Caffeine and Sodium Benzoate—Physico-Chemical Study of Solubility of. The molecular relationship between caffeine benzoate and sodium benzoate in solid phase and in solution at different temperatures is reported.—M. CHAMBON, J. BOUVIER and P. DURON. *J. pharm. chim.*, 26 (1937), 216–230. (S. W. G.)

Cosmic Rays. A review, including description of three types of apparatus for detecting cosmic rays (the ionization chamber, the Geiger-Müller counter and the Wilson fog chamber) and the results obtained. Illustrated.—G. HERZOG. *Schweiz. Apoth.-Ztg.*, 76 (1938), 301–306. (M. F. W. D.)

Drops—Counting, with the Photoelectric Relay. The beam of light is modified by vertical slits 0.5 cm. wide by 1 cm. long. The beam runs horizontally across the source of drops and directly to the photoelectric cell, being interrupted as the drop forms and returning to normal after it has fallen. With the potentiometer set at 226 degrees and an electric relay counter operating on 18.6 volts direct current, it was found possible to count drops up to 478 per minute. Faster counts are difficult because of the tendency of the drops to lose their identity and form a continuous stream. Drops may be enclosed by transparent material, so that they are neither mechanically damaged nor chemically contaminated.—G. W. JOSTEN. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 353. (E. G. V.)

Methyl Magnesium Iodide in Pyridine Solution—Electrolysis of. Chemically pure pyridine was dried over potassium hydroxide for two weeks and distilled from barium oxide. The Grignard reagent was prepared in ether to which a small amount of pyridine was added to precipitate the addition compound. The ether was removed by vacuum. Electrolysis was carried out in a cylinder 6 x 14 cm. with platinum electrodes 1.5 x 2.5 cm. across which was 125 volts potential. Because a gummy substance, which was deposited on the cathode, reduced the flow of current, a divided cell was used in which the anode was placed in an alundum thimble containing pure pyridine. The cathode was a rotating spiral placed in a 1% pyridine solution of the Grignard reagent. Iodine was liberated at the anode. A brown powder containing magnesium was deposited on the cathode. The authors believe the pyridine is responsible for this and not the Grignard reagent for they obtained the same results with anhydrous magnesium chloride in pyridine. A gas was liberated at the cathode but was too small in quantity to be collected.—CLAUDE E. THURSTON and KENNETH A. KOBE. *Philippine J. Sci.*, 65 (1938), 139. (P. A. F.)

Mineral Waters—Measure of Electrical Resistance of. In order to be of value in detecting changes in mineral concentration, the conditions of determination must be standardized.—L. BLANQUET. *J. pharm. chim.*, 27 (1938), 49–53. (S. W. G.)

Resistance—New Set-Up for Measuring Electrical. A new set-up is diagrammatically illustrated and discussed.—G. BEAU. *J. pharm. chim.*, 27 (1938), 53–56. (S. W. G.)

INORGANIC

Copper Arsenate—Basic, Manufacture of. Fine-grained copper oxide is reacted with a solution containing arsenic pentoxide at the boiling point of the solution, and the latter is stirred vigorously until the reaction is substantially complete. Basic copper arsenate, $Cu(OH)_2.Cu(AsO_4)_2$ is obtained as particles having a diameter of about 0.0003 mm. and capable of being directly suspended in water to form a highly stable suspension having a neutral reaction.—EBERHARD KLUMPP. U. S. pat. 2,112,102, March 22, 1938. (A. P.-C.)

Hydrogen—Apparatus for Production of Pure. An apparatus for the electrolytic production of pure hydrogen is described and illustrated.—P. GESTEAU. *J. pharm. chim.*, 26 (1937), 11–17. (S. W. G.)

ORGANIC

Alkaloids

Aconite Research—Present Status of. The fundamental problem in aconite research is to find aconites that can be depended on to yield a definite alkaloidal entity. The author discusses the difficulties involved and some details of the problem to be solved.—WILLIAM J. BONISTEEL. *J. Am. Pharm. Assoc.*, 27 (1938), 480. (Z. M. C.)

Aconites—Indian Commercial. The sources, pharmacognostic characteristics and alkaloidal contents were determined for *Aconitum balfourii, A. deinorrhizum, A. ferox, A. laciniatum, A. heterophyllum* and *A. spicatum*. *A. napellus* is not found in India, the nearest approach being *A. soongarium* of Gilgit and Turkestan, whose chemistry and pharmacology are still unknown. *A. heterophyllum* is not poisonous. *A. napellus* contains 0.4–0.5% of aconitine; *A. balfourii* 0.40% of pseudoaconitine, *A. deinorrhizum* and *A. ferox* each 0.86% of pseudoaconitine. *A. chasmanthum* containing 4.20–4.80% of indaconitine is sold as a substitute for *A. napellus*. *A. laciniatum* and *A. spicatum* contain bikhaconitine. In animal tests pseudoaconitine was 150% of the potency of aconitine, indaconitine 70%. Although most of the commercial aconite grows wild, its cultivation is definitely indicated.—N. B. DUTTA. *Indian Med. Record*, 57 (1937), 292–293; through *Chem. Abstr.*, 32 (1938), 5580. (F. J. S.)

Alkaloids in Phytopathology. A discussion with 49 references.—J. STEPHAN. *Deut. Apoth. Ztg.*, 53 (1938), 248–251. (H. M. B.)

Alkaloids—Systematic Scheme of Identification of. Known reactions, modifications of known reactions, and new color reactions with simple reagents enable one to identify the following alkaloids: ephedrine, cocaine, procaine, colchicine, cotarnine, theobromine, arecoline, caffeine, nicotine, piperine, veratrine, quinidine, quinine, heroine, hyoscyamine, atropine, codeine, apromorphine, yohimbine, berberine, strychnine, brucine, physostigmine, pilocarpine, dilaudid, hydrastine, papaverine, thebaine, morphine, dionine, gelsemine, hexalupine, lupanine, lupinine, monolupine, trilupine, deltaline, narcotine, cinchonidine, emetine and scopolamine. Results are tabulated.—K. E. JACKSON. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 380–381. (E. G. V.)

Alkaloids—Use of White Mouse for Detection of Small Amounts of.—S. HASSKÓ. *Arch. wiss. prakt. Tierheilk.*, 72 (1937), 204–213; through *Chem. Abstr.*, 32 (1938), 5995. (F. J. S.)

Atropine—Adsorption and Destruction of, by Kaolin and Magnesium Oxide. Various authors have noticed in their studies of atropine-containing pharmaceuticals that some of the tablets contained little or no alkaloid. Such tablets usually contain magnesium oxide or sodium bicarbonate. It was assumed by earlier studies that saponification of the atropine took place during the preparation of the tablets or during their storage. A second factor was recognized in the adsorption of the alkaloid in the tablet mass. To establish this more clearly the author shook solutions of atropine sulfate for varying periods with varying amounts of white kaolin and determined the atropine content of the supernatant liquid biologically on the eyes of white mice. Atropine is slowly destroyed by small amounts of kaolin and more rapidly by large amounts. Ether extraction of the adsorbent established that the atropine is in part first adsorbed and then partly saponified on the surface of the kaolin. In similar studies with magnesium oxide, only a small portion of the atropine was saponified after adsorption and a much larger portion was saponified in the solution as the result of the alkalinity of the solution. In comparison, the less easily destroyed alkaloid strychnine was also studied. The quantitative determination of the strychnine solutions was carried out by measuring the increase in reflex activity of a species of carp and in frogs. Strychnine sulfate is adsorbed to an appreciable extent by both white kaolin and magnesium oxide.—G. SCHLOSS. *Naunyn-Schmiedebergs Arch.*, 188 (1938), 669; through *Scientia Pharm.*, 9 (1938), 36. (M. F. W. D.)