PHARMACEUTICAL ABSTRACTS

EDITOR: A. G. DUMEZ, 32 S. Greene Street, Baltimore, Maryland.

ABSTRACTORS

CONTENTS

CHEMISTRY

ANALYTICAL (*Continued*)

β-Phenylisopropylamine—Physical and Chemical Properties of. Properties of β-phenylisopropylamine (benzidrine) are studied. The sp. gr. is 0.928–0.939, b. p. 204–205.0° C., index of refraction, 1.5190 (99.5%) and 1.5182 (99%). A graph shows the vapor pressure curve between 15° and 80° C. The dextrorotatory form is prepared from the bitartrate by fractional crystallization. The lævo form is obtained from the mother liquor of first crystallization of the bitartrate. Optical rotation *d*-β-phenylisopropylamine $[\alpha]_D^{20} = +35°$, optical rotation *d*-β-phenylisopropylamine sulfate $[\alpha]_D^{20} = +22.5°$. In solution the amine may be titrated directly with acid. Salts may be assayed by distilling off the amine as follows: 0.200 Gm. β-phenylisopropylamine sulfate is placed in a liter hard glass flask and dissolved in 250 cc. water and 80 cc. concentrated sodium hydroxide; two Gm. talcum are added and the flask attached to a Kjeldahl distillation apparatus. In a 250-cc. Erlenmeyer receiver is pipetted 20 cc. 0.1*N* hydrochloric acid and with vigorous boiling 150 cc. of distillate is collected. The condenser is washed down with 2 cc. water. Adding 10 drops of methyl red indicator solution the collected fluid is back titrated with 0.1*N* sodium borate to color change. A blank analysis of the reagent should be conducted. 1 cc. 0.1*N* hydrochloric acid ~ 0.01841 Gm. β-phenylisopropylamine sulfate. Identification may be made by benzoylation of the amine (Schotten and Baumann method). After two recrystallizations in 50% alcohol the benzoylated product should melt at 131–132° C. For identification of traces of the amine the derivative resulting from decomposition of the amine with potassium platinothiocyanate is useful. This melts at 121.5–123.5° C. The melting point of the chloride of β-phenylisopropylamine is 148–149° C.—J. HALD and I. GAD. *Dansk Tids. Farm.*, 12 (1938), 197. (C. S. L.)

Phosphoric Acid—Titrimetric Determination of, in Yeast. Sodium hydroxide decomposition of ammonium phosphomolybdate in the cold gives somewhat uncertain results. The conversion factor of 0.00030887 given by Kurzweil is too high; 0.0002842 is to be preferred, but accuracy depends on speed of working. Boiling decomposition is better, but takes much longer. Gravimetric determination gives the most satisfactory results.—F. WAGNER. *Z. Spiritusind.*, 61 (1938), 60, 62; through *J. Soc. Chem. Ind.*, 57 (1938), 571. (E. G. V.)

Potassium Cobalticyanide—Precipitation of Organic Bases in the Crystalline State by. Potassium cobalticyanide can be used as a reagent for detecting alypine, eucaine B, eumydrine, hexamethylenediamine, nycaine and nupercaine.—L. ROSENTHALER. *Mikrochem.*, 21 (1937), 218; through *Chimie & Industrie*, 39 (1938), 313. (A. P.-C.)

Sodium Sulfite—Determination of, in Sodium Sulfate. The sample is boiled with phosphoric acid and the vapors are passed through a dilute alkaline solution of iodine. The sulfur dioxide evolved is thereby oxidized to sulfate and can be precipitated as barium sulfate.—L. M. SOLTS. *Farm. Zhur.*, 3 (1936), 37; through *Chem. Abstr.*, 32 (1938), 3293. (F. J. S.)

Specific Gravity—Determination of, of Some Medicinal Preparations. Specific gravity is determined by a pycnometer at 15°, 20° and 25° and the concentration of solutions is computed from the tables, some of which are supplied. Hexamethylenetetramine, potassium bromide, chloral hydrate, copper sulfate, sodium iodide, ammonium bromide, thiocol, sodium bicarbonate and boric acid are among the compounds studied.—G. V. TSISINA and M. I. AL'SHITS. *Farm. Zhur.*, 1 (1937), 43; through *Chem. Abstr.*, 32 (1938), 3090. (F. J. S.)

Thiosulfate Solution, Tenth Normal—Standardization of. Comparisons are made of the results of standardization with iodine, potassium dichromate, potassium iodate, potassium bromate and potassium ferricyanide. Iodate was concluded to be the easiest to use. Notes, tables and titration curves are given for each method of titration and comparison is made of a number of different commercial preparations of each reagent, in some cases compared also with laboratory recrystallized preparations. In the titrations the effects of atmospheric oxygen dissolved in the water are considered. It is recommended that for each titer a fresh solution should be prepared from potassium iodate, *pro analysi* (purity requirements are cited), dried two hours at 105–110° C. About 0.1 Gm. of the potassium iodate is weighed with an accuracy of 0.1 mg. and dissolved in 25 cc. of water. Then 1–3 Gm. potassium iodide and 2–5 cc. of 2*N* hypochlorous acid are added. The mixture is titrated with the unknown thiosulfate solution. Toward the end of the titration about 1 cc. of starch solution is added. Use of bichromate is not recommended for the standardization. Potassium bromate may be used in place of the iodate.—N. THÖRN and E. OHLSSON *Farm. Revy*, 37 (1938), 189, 229, 249, 265, 281, 297, 318, 337. (C. S. L.)

Thiosulfate Solutions—Standardization of, by Means of Copper and Cupric Sulfate. Suitable amounts of copper sulfate, the copper content of which has been determined electrolytically is dissolved in about 25 cc. of water containing 2 cc. of concentrated hydrochloric acid and 3 Gm. of potassium iodide added. The liberated iodine is titrated in the usual manner nearly to the end-point as shown by starch solution. Approximately 2 Gm. of ammonium thiocyanate is then added to liberate adsorbed iodine. The end-point is sharp, the precipitate turning white. When using copper instead of copper sulfate, the metal (previously analyzed) is dissolved in nitric acid and evaporated with 5 cc. of 6*N* sulfuric acid. It is necessary to remove all of the nitric acid. To accomplish this, after nearly all the nitric acid is removed, add a little hydrochloric acid and evaporate again. After dissolving in water, the titration is carried out as before, however, without adding more hydrochloric acid.—H. W. FOOTE. *J. Am. Chem. Soc.*, 60 (1938), 1349.
(E. B. S.)

***o*-Tolidine as an Agent for the Colorimetric Determination of Silver.** As the limit for determining silver colorimetrically by this method is 0.0075 Gm. per liter, water sterilized by silver must first be concentrated.—L. M. KULBERG and S. B. SEREBRIANI. *Mem. Inst. Chem. Tech. Ukrain. Acad. Sci.*, No. 4 (1937), 37–42; through *J. Soc. Chem. Ind.*, 57 (1938), 463.
(E. G. V.)

Trichosanthes Dioeca—Indian Medicinal Plant, Chemical Examination of. Characteristic variations in the proportions of the mineral constituents occur in the various parts of the plant. The tuber has high potassium oxide and phosphoric acid contents, the stem high calcium oxide, potassium oxide and sodium oxide contents, the leaf a high silicon oxide and calcium oxide content and the fruit a high potassium oxide content, fairly high calcium oxide and phosphoric acid content, but only traces of silicon oxide. The roots contain 0.9 and the leaves more than 4% of nitrogen. The type of soil suitable for the growth of this plant is examined.—N. C. NAG. *Trans. Bose Research Inst., Calcutta*, 10 (1934–1935), 113; through *Chem. Abstr.*, 32 (1938), 3085.
(F. J. S.)

Turpentine—Estimation of, in Medicinal Preparations. Turpentine is distilled with steam into a graduated tube with an overflow in an apparatus similar to that used in the A. O. A. C. methods of analysis.—M. Z. MINDLIN. *Farm. Zhur.*, 4 (1936), 66; through *Chem. Abstr.*, 32 (1938), 3089. (F. J. S.)

Water—Determination of Small Amounts of, by the Distillation Method. After reviewing several methods for determining water the authors describe in detail the distillation procedure used by them. A diagram of the distillation apparatus capable of determining amounts of water as small as 0.02 cc. accompanies the article. The error resulting from water condensing on the cool parts of the apparatus is reduced by a special type of distillation tube. The receiver is a leucocyte tube (Trommsdorff) which is marked at 5 and 10 cc. and at the bottom is fused to a capillary of 0.02 cc. capacity marked in thousandths of a cc. The distillation is carried out as follows: 3–5 Gm. of fat is placed in the distillation flask and 10–15 cc. of water-saturated xylol added. The stopper and delivery tube are rinsed with xylol and inserted. Two cc. of petroleum ether are put in the receiver and so placed that the delivery tube dips 1 mm. in the petroleum ether. The flask is heated until the condensing vapors just pass the second bend in the delivery tube and the burner is removed 10–20 seconds. The distillation is continued in this manner until the 5-cc. mark is reached, the receiver is lowered and the heating process repeated two times. The receiver is then centrifuged for 5 minutes and the amount of water read off. The amounts of water found in 13 samples by the distillation method gave good checks and were always far below the values obtained by the drying method. The procedure can be used to determine amounts of water of 0.5% or lower with considerable accuracy.—J. THOMANN and A. KALIN. *Pharm. Acta Helv.*, 13 (1938), 23–29. (M. F. W. D.)

PHARMACOGNOSY

VEGETABLE DRUGS

Active-Principle Content in Saponin Drugs—Diminution of, during Storage. The active-principle content of commercial senega, primula, saponaria roots and quillaja rind diminished during storage. For evaluation of the samples the method of L. Kofler and P. A. Adam was employed. In three years the hemolytic index (I) of senega had decreased from 2320 to 1750, that

of commercial primula from 1353 to 1249, indigenous primula from 4231 to 3500, saponaria from 1804 to 1666 and the quillaja rind from 1476 to 1400. Some freshly collected primula roots gave a I as high as 6875, which after four years of storage dropped to 3500. The foam-holding capacity (II) of the primula drug corresponded with the diminution in I. In the senega drug with a low I, the II was still high. Various ways of keeping the drugs during storage were tested but they did not affect the I within three years.—ALMA TOOMINGAS. *Pharmacia* (Estonia), 18 (1938), 35 (in Estonian and German); through *Chem. Abstr.*, 32 (1938), 3904. (F. J. S.)

Black Sea Algæ, Phyllophora Nervosa—Complex Utilization of. The dried plants are treated with dry steam at 2.5 atmospheres pressure for 15–60 minutes and then extracted with water at 40–60°. The extract, which contains up to 0.02% of iodine, serves as a source of iodine, and the residue yields about 12% of agar, suitable for bacteriological purposes.—A. KORENTZVIT. *J. Appl. Chem. Russ.*, 10 (1937), 2064–2067; through *J. Soc. Chem. Ind.*, 57 (1938), 588. (E. G. V.)

Cannabis Indica—Detection of. A New Test. *p*-Dimethylaminobenzaldehyde promises to be a specific reagent for cannabis preparations and products. The best concentration is 1 Gm. dissolved in 5 cc. concentrated sulfuric acid; 1 cc. water is added and the solution cooled. A petroleum ether extract is made of the material under examination and evaporated to dryness. The cold reagent is added and on addition of a little water, an indigo or starch-iodide blue appears which persists in proportion to the amount of cannabis present. It is sensitive to a fraction of a milligram of hashish and is negative to over 60 other drugs tested.—M. A. GHAMRAWY. *J. Egypt Med. Assoc.*, 20 (1937), 193–208; through *Chem. Abstr.*, 32 (1938), 4724. (F. J. S.)

Datura Stramonium—A Study of. Report is made of a study conducted to determine whether poor environment caused decrease in alkaloidal content and also the distribution of alkaloids in the plant. Material was collected from uncultivated plants which grew in unusually poor soil. Specimens were assayed by the U. S. P. XI process. Alkaloidal content was not materially affected and observation of growing plants indicated that growth was not retarded.—FRANK H. EBY, FREDERICK M. SCHOLL and DAVID J. PHILLIPS, *J. Am. Pharm. Assoc.*, 27 (1938), 474. (Z. M. C.)

Drugs—Storage and Shipment of. Among the requirements for the successful storage of crude drugs may be mentioned dry rooms (by means of quick lime), whereby development of bacteria and molds and enzymic action are lessened; material containing volatile substances like essential oils should be kept in closed metal containers.—H. Kühl. *Pharm. Ztg.*, 81 (1936), 1153–1155; through *Chimie & Industrie*, 39 (1938), 509. (A. P.-C.)

Hydnocarpus Alcalæ DC.—Pharmacognostical Study on the Fruit and Seed of. Of the six identified species of *Hydnocarpus* in the Philippines, *H. alcalæ* is the only one yielding oil in commercial quantities. The seed of *H. alcalæ* contains 65% of oil; *H. alpina*, 63%; *H. subfalcata*, 35.9%; *H. wightiana*, 32.4%; *Taraktogenos kurzii*, 30.9%; *H. venenata*, 23.1%; *H. hutchinsonii*, 22.9%; *H. anthelmintica*, 16.3%; and *H. woodii*, 11% of oil. H. alcalæ was collected by T. Alcala in 1914 under the name "dudu-dudu," growing wild in the Philippines. The alcalæ fruits are the largest of the fruits yielding oil. They average 8 to 15 cm. in diameter and 15 to 31 cm. in length, and contain 80 to 110 seeds. The seeds vary from 3 to 5 cm. in length. The dioecious plant blooms throughout the year. Fruit appears only on the female trees and matures within about 1 year. The seeds contain 65% of oil as esters. The esters of chaulmoogric acid comprise more than 90% of the total esters, with esters of palmitic acid and traces of oleic acid. Little or no hydnocarpic acid has been obtained. Macroscopic and microscopic studies are reported on the pericarp, placenta, arillus, testa, tegmen, endosperm and embryo. The fixed oil is found only in the kernel, in colorless globules between 0.0036 mm. and 0.036 mm. in diameter. Polyhedric aleurone grains between 0.011 mm. and 0.036 mm. in diameter occur with the oil globules and are insolublc in 0.3% potassium hydroxide, 1% ammonium chloride, 3% sulfuric acid, 20% magnesium sulfate or concentrated hydrochloric acid. Lignin was demonstrated in the stone cells of the pericarp and testa, and the vessels. The pericarp, placenta and arillus contained tannin, a yellowish brown resin, staining greenish black with ferric chloride, and a red resinoid, insoluble in 90% ethyl alcohol and giving no color with ferric chloride. Thirty-four references and sixty-nine figures.—MARIA TOLENTINO-VALLARTA. *Univ. Philippines Nat. and Applied Sci. Bull.*, 5 (1936), 27; through *Chem. Abstr.*, 32 (1938), 3904. (F. J. S.)

Ipomœa Pes-Capræ—Study of the Leaves of. Report is made of an investigation of plants collected in Florida. Preliminary examination indicated no alkaloid, no saponins no glucoside. Ointments were prepared from the following extracts: petroleum benzin, alcoholic, ethereal, aqueous and petrolatum. The agar plate method of the U. S. Department of Agriculture was used and *Staphylococcus aureus* was the organism. None showed antiseptic action. Neither leaves nor extracts of leaves have noticeable pharmacological activity. The most important constituents found were nucilage, volatile oil, complex resin, fat, phytosterol, bitter substances and red coloring matter.—B. V. CHRISTENSEN and J. A. REESE. *J. Am. Pharm. Assoc.*, 27 (1938), 195. (Z. M. C.)

Orchis Purpureus Huds. and Platanthera Bifolia (L.) Rchb.—Mucilaginous Principle in the Tubers of. Vegetable mucilaginous principles may be subdivided into three classes: intercellular gums, membrane gums and intracellular gums. Salep belongs to the latter class. The difficulty of observing the nature and nurture of this gum microscopically arises from the facts that aqueous sections cause swelling of the cells and tissues, while alcoholic sections exhibit other artifacts. The development of modern microscopic technic as well as contrast staining for plasma and nucleus have already yielded a deeper insight into the intraplasmatic process of the formation of the membrane gums in flaxseed and marshmallow root. A solution containing 30% alcohol, 10% formol and $^1/_2$% acetic acid was used effectively to fix the cells of *orchis* and *platanthera*. As a contrast stain, trypan blue dyes the gum sky blue, the nucleus dark blue and the nucleolus red. The starch grains remain colorless and must be stained with alcoholic iodine. Photomicrographs of secondary tubers of each of the plants exhibit the effectiveness of this method. Observations over a period of several months indicate that the gum in the tuber is a reserve material which will be consumed by the blossoming of buds and the establishment of filial tubers. Starch is also present but is not utilized as long as any of the gum is present. It is postulated that the gum serves in the storage and accumulation of water which makes possible development during the winter months or else serves as a protective agent against cold.—R. JARETZKY and E. BERECK. *Arch. Pharm.*, 276 (1938), 17. (L. L. M.)

Psoralea Corylifolia L.—Components of. From the pericarp, by extraction of the entire seeds with ether, were obtained an alkali-soluble resin, volatile essential oil and non-volatile terpenoid oil and from the crushed kernel, by extraction with light petroleum, a mixture of psoralen and isopsoralen and a fixed oil from which a sterol (probably phytosterol), melting at 126–128°, was isolated as acetate.—T. R. SESHADRI and C. VENKATARAO. *Proc. Indian Acad. Sci.*, 5A (1937), 351; through *Chem. Abstr.*, 32 (1938), 3549. (F. J. S.)

Quince Seed. The seeds are used in preparing mucilages and are often adulterated with apple or pear seeds. Two samples, one from Switzerland and one from either Spain or Russia, were analyzed and the results tabulated both for the seeds and the air-dried material. In the literature, the ash was reported to contain 42% P_2O_5 but the authors could not confirm this figure. The ash was predominantly alkaline. Both quince and apple seeds were treated by the method of Griebel to isolate the pectin. The quince seed extract was very mucilaginous and thick but contained no pectin while the apple seed extract was thin and contained pectin. The isolation of pectin is an easy method for detecting adulteration with apple or pear seeds. The two samples of quince seeds were also tested for mucilage by reported methods and about 4% found.—J. PRITZKER and R. JUNGKUNZ. *Pharm. Acta Helv.*, 13 (1938), 29–34. (M. F. W. D.)

Red Pepper Pericarp—Nitrogen-Containing Organic Bases in. Ten Kg. of the red pepper pericarp contain 0.5 Gm. of adenine, a trace of histidine, 0.3 Gm. of betaine and 0.8 Gm. of choline.—F. NARITA. *J. Med. Coll. Keijo*, 7 (1937), 181–192; through *Chem. Abstr.*, 32 (1938), 3909. (F. J. S.)

Saccharase—Influence of High Temperatures on the Activity of, in the Process of Drying Plant Materials. Geranium dried at 85° maintained the highest saccharase activity. At 150° the inactivation is at a maximum.—P. I. PLATONENKO. *Vsesoyuz. Nauch.-Issledovatel. Inst. Tabach. Makhoroch. Prom.*, 118 (1935), 77–80; through *Chem. Abstr.*, 32 (1938), 3903. (F. J. S.)

Salicaceæ—Biochemical Study of. The leaves of *Salix daphnoides* contain sucrose, salicoside and a flavonolic heteroside, named daphneflavonoloside. It is obtained as a crystalline yellow precipitate by shaking the aqueous extraction liquid with ether; the yield is 0.5% from fresh leaves. It forms yellow needles that melt at 285° C. (Maquenne block), and has a specific rotatory power of −79° in 85% alcohol. Dilute acids hydrolyze it into *d*- glucose and daphneflavonol,

which melts at 323° to 325° C. The branches contain sucrose, salicoside and populoside. The golden-yellow color of the bark is caused by a nonidentified glucide different from iso-salipurposide.—J. RABATÉ. *J. Pharm. Chim.*, 24 (1936), 303–400; through *Chimie & Industrie*, 39 (1938), 510. (A. P.-C.)

Seseli Indicum—Crystalline Constituents of. Two colorless substances were isolated from the fruit: 1.3% of a neutral unsaturated lactone, $C_{14}H_{12}O_3$, melting at 117–118° free from OH and OMe groups, and 0.6% of a compound, $C_{11}H_6O_3(OCH_3)$, melting at 183–184°, probably a furocoumarin, isomeric with bergaptene.—P. K. BOSE and N. C. GUHA. *Science and Culture*, 2 (1936), 326; through *Chem. Abstr.*, 32 (1938), 3361. (F. J. S.)

Spring Herbs—Microscopical Examination of. II. Microscopical characters of the buttercup (*Ranunculus bulbosus*) and wood-sorrel (*Oxalis acetosella*) are described.—V. MOUCKA. *Z. Untersuch. Lebensm.*, 74 (1937), 412–420; through *J. Soc. Chem. Ind.* 57 (1938), 444. (E. G. V.)

Taxonomical Classification of Plants and Their Constituents—Relation between the. This address read at the Pharmaceutical Congress at Groningen November 26, 1937 discusses the constituents of plants in relation to plant families. The author points out cases of close agreement such as the *Cruciferae* all of which contain cyanogen glucosides, the *Labiatae* which contain similar volatile oil combinations, the *Papaveraceæ* which contain similar alkaloids and many others. He also cites cases where similar compounds occur in widely separated families such as the glucosides of digitalis and convallaria.—TH. WEEVERS. *Pharm. Weekblad*, 75 (1938), 118. (E. H. W.)

Vanilla Bean—Curing of. A discussion of gathering, sorting and "sweating" of vanilla beans.—MARION DE BEAUCHAMP. *Am. Perfumer*, 36 (1938), 28–29. (G. W. F.)

Vegetable Fragments—Medico-Legal Examination of, on Clothes. A general discussion with a number of examples taken from actual cases in France, showing the value of careful microscopical examination of vegetable fragments in tracing crimes.—PIERRE DUQUÉNOIS. *Ann. Méd. Légale Criminol. Police Sci.*, 18 (1938), 104–123. (A. P.-C.)

White Mustard—Analysis and Evaluation of. The content of *p*-hydroxybenzyl mustard oil in 5 samples of Hungarian *Sinapis alba* L. varied from 1.81 to 2.12%. To determine the mucilage, shake 20 Gm. of seed with 100 cc. water for 2 hours, filter through glass wool until clear and determine the absolute viscosity of the filtrate with a Höppler viscometer. In general the mucilage content was approximately 2.7%.—KÁROLY SZÁHLENDER. *Ber. ungar. pharm. Ges.*, 14 (1938), 22; through *Chem. Abstr.*, 32 (1938), 3088. (F. J. S.)

Yagé. A complete botanical and chemical study of *Banisteria caapi*, which has been used as a hypnotic since the time of the Incas. The active substance of this plant, yageine, is an alkaloid ($C_{13}H_{12}ON_2$), which is soluble in alcohol but not in water, crystallizes in prisms and melts at 206° C. It had been recovered from viscera, even when the latter are in a state of advanced decomposition. It is specific in diseases of the nervous centers.—O. A. COSTA and L. FARIA. *Rev. Assoc. Brasil. Farm.*, 17 (1936), 265–309; through *Chimie & Industrie*, 39 (1938), 511. (A. P.-C.)

PHARMACY

GALENICAL

Anesthetics—Stable Aqueous Solutions of. Aqueous sterilized solutions are prepared having a p_H of about 6 to 7 and comprising urea in small proportion and a salt of an ester of an aminobenzoic acid having an anesthetic effect, such as *p*-aminobenzoyldiethylaminoethanol.—ADOLF KIRCHER and MAX SIENZ, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,103,160, Dec. 21, 1937. (A. P.-C.)

Calcium Gluconate—Stable Supersaturated Solutions of. Various methods have been developed to render supersaturated solutions of calcium gluconate stable and the products have been used to some extent. Observing that the calcium salt of methane disulfonic acid stabilized such solutions led to the preparation and testing of a number of soluble calcium salts of sulfonic acid. The appropriate halide was heated with an alkali sulfite and the product then converted to the calcium salt. Salts of the following were prepared: methane disulfonic acid, ethyl sulfonic acid ethane 1,1-disulfonic acid, ethane 1,2-disulfonic acid, propane 1,2-disulfonic acid, propane 1,2,3-trisulfonic acid and benzene sulfonic acid. Moisture content and calcium content

were determined. Toxicity, hypercalcemia and irritant action as compared to calcium gluconate lactate and chloride were determined. Calcium methionate was found to be the best salt studied. Solutions of calcium gluconate and calcium methionate were prepared and kept under different conditions. Observations were made daily for 21 days and then at 7-day intervals for six months. It was found that solutions containing an amount of methionate equal to or greater than gluconate yielded relatively stable solutions containing from 7 to 70% of gluconate.—GLENN L. JENKINS. *J. Am. Pharm. Assoc.* 27 (1938) 484. (Z. M. C.)

Cinchona—Extract of, Dry Standardized. Three hundred parts of the powdered bark (No. 5 mesh) is extracted in three successive percolators with 45% alcohol at 30° after 30–40 hours of soaking. Percolation is stopped when 375–85 parts of solvent is collected, filtered, vacuum evaporated and diluted with dextrin, so that one part of extract corresponds to three parts of bark.—N. M. L'VOV. *Farm. Zhur.*, 4 (1937), 240–244; through *Chem. Abstr.*, 32 (1938), 3905. (F. J. S.)

Diacolation. The diacolator described by Breddin for the preparation of tinctures and extracts by a method of percolation under pressure has been modified by the substitution of a suitable screw-capped metal tube in place of the original Pyrex column. The construction of this modified diacolator and its application to the preparation of fluidextracts of belladonna, digitalis, quinine, polygala and tincture of laudanum are discussed in detail.—C. MASINO. *Boll. chim.-farm.*, 76 (1937), 333–4, 337–8; 341–4; through *Chem. Abstr.*, 32 (1938), 4721. (F. J. S.)

Digitalis Pills. Digitalis pills keep longer when compounded with oleum cacao than with unguentum glycerini.—T. MALMSTRÖM. *Svensk Farm. Tid.*, 41 (1937), 557–560; through *Chem. Abstr.*, 32 (1938), 4282. (F. J. S.)

Ethylene and Propylene Glycol—Preservative Properties of. A comparison of the preservative properties of ethylene and propylene glycol is made. Solutions of tannic acid, syrup, gelatin and tragacanth were prepared and used in the tests. The results are given in table form, and are summarized as follows: *Tannic Acid*—Both the glycols tested are superior to glycerin and alcohol, as the latter, while preserving the solution from the growth of mould, did not prevent deposit forming on storage. Propylene glycol is slightly better than ethylene glycol. *Syrup*—Both glycols in the lowest concentration used, namely 10%, were effective preservatives. Glycerin in this strength did not prevent a slight growth of mould. *Gelatin*—Ethylene glycol in a concentration of 30% was satisfactory. Propylene glycol when present to the extent of 20%, while preventing mould, caused precipitation of the gelatin. Alcohol 10% was also satisfactory. *Tragacanth*—A concentration of 10% of both glycols was effective, also alcohol in the same concentration. Glycerin even when present in a strength of 40% did not prevent the growth of mould.—J. RAE. *Pharm. J.*, 140 (1938), 517. (W. B. B.)

Extract of Egg, Lecithin and Lutein—Preparation of Ampuls of, for Intramuscular and Intravenous Use. Tabulated data and graphs indicating the solubility of egg-yolk oil (freezing point 16–18°, d^{15} 0.918, saponification value 199.5–200.5, iodine value 69.8–70.3; contains 67.7% of oleic acid) and of lecithin in water-ethyl alcohol mixtures are given and the preparation of steril suspensions (5 – 5.5%) of lecithin + lutein for parenteral administration is described.—G. VITA and L. BRACALONI. *Boll. Chim. farm.*, 77 (1938), 73–86; through *J. Soc. Chem. Ind.*, 57 (1938), 588. (E. G. V.)

Ipecac Preparations—Stability of. Reference is made to an earlier paper on ipecac preparations. The present paper covers work done on those preparations after ageing. Results are tabulated and discussed. Preparations made by percolation with U. S. P. X and U. S. P. XI menstrua show little loss of alkaloids after sixteen months. They deposited a small amount of sediment during the first two months. Preparations made by percolation with 9% acetic acid are not as stable as those prepared with hydroalcoholic menstrua and should be used only in manufacturing processes.—SAMUEL W. GOLDSTEIN.—*J. Am. Pharm. Assoc.*, 27 (1938), 482. (Z. M. C.)

Liquor Antisepticus. N. F. VI specifications about limit of residues has been criticized. In the present study, the nine lots tested met official standards but results were too variable to be satisfactory. Variations are probably due to effect of heat on boron compounds. An adaptation of the tumeric test for boric acid has been developed so that it serves for both qualitative and quantitative determinations. It is accurate to at least 96% of the theoretical content and is more accurate and a better indication of boric acid than the residue test in the monograph now. The

incompatibility of thymol and chlorthymol with eucalyptol was studied and it seems to be physical in nature, occurring when eucalyptol above 0.02% is added to the aqueous-alcoholic solution of thymol or chlorthymol or both. The A.O.A.C. tentative assay for thymol was used on solutions of thymol and adapted to solutions of chlorthymol and liquor antisepticus. A new formula for liquor antisepticus was worked out. Ingredients are the same as in N. F.VI but proportions are changed. There are no incompatibilities, it is more highly antiseptic, is not so acid or pungent in taste, has the same aroma, is less difficult to compound and is less expensive.—H. S. HOWELL, LOUIS GOLDBERG, R. K. SNYDER and E. N. GATHERCOAL. *J. Am. Pharm. Assoc.*, 27 (1938), 471. (Z. M. C.)

Methoxymethyl Salicylate—Decomposition of. On prolonged storage in a closed vessel methoxymethyl salicylate decomposes even in the absence of water with formation of crystals of free salicylic acid and of 3-hydroxymethyl salicylic acid. Formaldehyde is formed at the same time. It is this ease of decomposition that is responsible for the rapid therapeutic action (suppression of rheumatic pains) of the product; it can, however, produce local skin irritations.—V. A. IZMAILSKI and B. M. BOGOSLOVSKI. *J. Obchtch. Khim.*, 6 (1936), 1193–1197; through *Chimie & Industrie*, 39 (1938), 510. (A. P.-C.)

Physostigmine Salicylate—Stable Non-Irritating Solution of. Solutions of eserine in a phosphate buffer solution at p_H 6.2, to which sodium formaldehydesulfoxylate (concentration of 1:5000) has been added, have been kept for six months without developing a pink color. This solution is non-irritating to the conjunctiva and has been effective in producing miosis and in reducing the tension in cases of glaucoma which would not respond to treatment with solutions of pilocarpine.—A. M. HICKS. *Am. J. Ophthalmol.*, 20 (1937), 1040; through *Squibb Abstr. Bull.*, 11 (1938), A-710. (F. J. S.)

Sterile Solutions—Preparation of. Detailed methods of procedure are given for preparing sterile solutions of many inorganic and organic pharmaceutical products including those practically insoluble in water; those rapidly decomposed in solution by light or heat; substances yielding colorless or faintly colored solutions; colored products and those forming strongly colored solutions.—E. CHIERICI. *Boll. chim.-farm.*, 77 (1938), 177–186, 189–192; through *Chem. Abstr.*, 32 (1938), 4721. (F. J. S.)

Syrupus Ferri Chlorati—Stability of Bivalent Iron in. Syrupus Ferri Chlorati kept in the light is fairly stable. To test the sample kept in the light acidify 5 Gm. of syrup with 1 cc. of dilute hydrochloric acid, add 1 cc. of a 20% solution of NH_4CNS, make up to 15 cc. and shake. The solution thus obtained should not be colored more intensively than the solution prepared from the 2 cc. of ferric chloride solution (1:1000), 1 cc. of dilute hydrochloric acid, 1 cc. of 20% solution of NH_4CNS, 5 Gm. of syrup simplex mixed and diluted to 15 cc. with distilled water.—F. TOMIČEK. *Časopis Československ. Lékárnictva*, 18 (1938), 45–48; through *Chem. Abstr.*, 32 (1938), 4723. (F. J. S.).

Tinctures—Concentrated. Concentrated tinctures (two parts of roots to five parts of alcohol) may be prepared and later diluted to the required pharmacopœia concentration instead of percolating the full amount of solvent. This is illustrated with tables.—I. MARSHAK, A. MALKINA and M. KAHAN. *Farm. Zhur.*, 4 (1937), 244–247; through *Chem. Abstr.*, 32 (1938), 3905. (F. J. S.)

Tinctures—Relation between the Method of Preparation and Properties of. Extracts by eight different methods were made for each of the following: *Lobelia inflata, Cinchona, Atropa belladonna, Valeriana officinalis, Convallaria majalis* and *Cannabis sativa* L. Absolute alcohol gave a weaker tincture than when a more dilute alcohol was used in all cases except with valerian. Prolonging the time of extraction gave a stronger menstruum in all cases. When alcohol of less than the specified strength was used a stronger menstruum resulted in the case of drugs containing cardiotonic glucosides (strophanthus, squill, etc.) whereas with the drugs named above, weaker solutions resulted. Storing the solutions in diffused light weakens all, but the solutions in absolute alcohol are more stable than those in dilute alcohol.—M. COVELLO. *Ann. Chim. Applicata*, 26 (1936), 409–414; through *Chimie & Industrie*, 39 (1938), 511. (A. P.-C.)

PHARMACOPŒIAS AND FORMULARIES

Drugs—Storage of, in Accordance with Drug Regulations and Pharmacopœial Specifications. The drug regulations give a general statement as to the storage of drugs whereas the pharmacopœia

gives specific directions for individual preparations. The author enumerates nearly all the factors involved in the preparation of drugs and pharmaceuticals for storage and the precautions necessary for the storage of all types of pharmaceuticals, pointing out improvements and also excessive stipulations. No references other than the pharmacopœias are given.—A. MAYERHOFER. *Scientia Pharm.*, 9 (1938), 1. (M. F. W. D.)

Pharmacopeia—New Finnish. A description is given of the Finnish Pharmacopeia VI appearing in 1937. It consists of a general part (definitions, reagents, indicators, atomic weights, etc.) and a special part containing 718 articles (compared with 443 in Finnish Pharmacopeia V) on medicaments and aids in the preparation of medicaments. Among the newly included drugs are benzoic acid, camphor, barbituric acid preparations, neoarsphenamine, pentamethylenetetrazole, etc. The number of plant drugs increased from approximately 75 to 140. Examples of items from the Pharmacopeia are given.—H. SALASOO. *Pharm. Ztg.*, 82 (1937), 1221; through *Squibb Abstr. Bull.*, 11 (1938), A-695. (F. J. S.)

NON-OFFICIAL FORMULÆ

Cleansing Pads—Facial. Two formulas are given for liquids used to wet cleansing pads. (1) A clear lotion consisting of alcohol 5%, glycerin 5%, detergent 1%, water 89% with q. s. preservative and perfume. (2) A milky lotion consisting of glycol stearate 1.5%, triethanolamine 0.3%, glycerin 3%, mineral oil 2%, alcohol 5%, wetting agent 0.2%, oleic acid 0.7%, spermaceti 0.5% and water to make 100% with q. s. perfume and preservative.—R. J. MAIKI. *Am. Perfumer*, 36 (1938), 27. (G. W. F.)

"Therapeutic" Ingredients—French Cosmetician Gives Tips on. A recent article in *La Parfumerie Moderne* suggests that one can introduce into powders such substances as powdered cetyl alcohol, lanolin, vitamin F incorporated in kaolin, crystallized carotene, etc., previously used as constituents of face creams. A formula is given for a powder for a very dry skin or for children, consisting of talc, kaolin, magnesium stearate, titanium oxide and cetyl alcohol or "cholesterinated lanolin." Acid powders for very alkaline skins can be obtained by addition of boric acid or sodium acid phosphate in amounts varying from 0.5–1%. Certain inventors have suggested powders containing small amounts of mildly radioactive substances, *e. g.*, 10–30% strontium sulfate or strontium carbonate; however, it is doubtful whether such products would be acceptable by health authorities anywhere. Deodorizing and antisunburn powders are discussed and formulas are given for so-called liquid powders. New potential cosmetic ingredients are provided by the oxides and salts of certain rare metals, *e. g.*, beryllium, lanthanum, cerium and zirionium.—*Drug Trade News*, 13 (1938), 31; through *Squibb Abstr. Bull.*, 11 (1938), A-588. (F. J. S.)

DISPENSING

Adrenaline Solutions—Drawbacks of Too Great Acidity in. Adrenaline solutions that are too acid can cause serious accidents. The two following formulas are recommended for hypodermic and ordinary use, respectively. (1) Adrenaline 1 Gm., pure dessicated sodium chloride 7.50 Gm., official solution of sodium bisulfite 5 cc. and distilled water 1000 cc. Fill into 1-cc. ampuls immediately after preparing the solution, and sterilize by tyndallization at 70° C. on three consecutive days. (2) Adrenaline 1 Gm., pure dessicated sodium chloride 7.50 Gm., normal hydrochloric acid 10 cc., neutral sodium sulfite 0.80 Gm. and distilled water 1000 cc.—A. GORIS and L. LEGROUC. *Bull. Sci. Pharmacol.*, 43 (1936), 494–503; through *Chimie & Industrie*, 39 (1938), 118–119. (A. P.-C.)

Ammonium Carbonate—Excess, for a Clear Syrup Mandelate. Saphiro has found that the formation of a precipitate on addition of licorice fluidextract to syrup of ammonium mandelate may be avoided by using a fairly large excess of ammonium carbonate or by neutralizing the mandelic acid with ammonia water prior to the addition of the other ingredients. The excess ammonium carbonate breaks up in the stomach to form ammonium chloride, which is essential for the therapeutic action of the mandelate.—I. A. SAPHIRO. *Drug Topics*, 54 (1938), 36; through *Squibb Abstr. Bull.*, 11 (1938), A-849. (F. J. S.)

Diethylbarbituric Acid—Variations in p_H of Solutions of, due to Pyrazolone Compounds. The variations of p_H with concentration of aqueous solutions of veronal, antipyrine, pyramidone and their mixtures are tabulated and discussed.—P. ANTONIO. *Boll. Chim. farm.*, 77 (1938), 1–8, 11–14; through *J. Soc. Chem. Ind.*, 57 (1938), 455. (E. G. V.)

Diuretic—Little-known. The leaves of *Orthosiphon stamineus*, also known as *Orthosiphon grandiflorus* are used in Malay and Chinese medicine as diuretics, being commonly given in the form of an infusion. The crude herb, whether fresh or dried tends to cause vomiting, wherefore Attendoli recommends that linseed and sugar be added to the infusion, or else that it be given in powder form in cachets. The dosage is unknown, also the active principle. The French name is barbiflore, the Dutch-Malay, koemis koetjing.—R. ATTENDOLI. *Le Phare Med.*, (1937); through *Squibb Abstr. Bull.*, 11 (1938), A-710. (F. J. S.)

Divalent Cations—Isotonic Solutions of Sulfates of. In the preparation of isotonic solutions of uni-univalent electrolytes for injection purposes it is customary to assume complete ionization of the salt used. Since the degree of ionization of such electrolytes approaches 100% at the concentration at which they are required, no appreciable error is introduced. If this assumption is made in the case of the sulfates of divalent cations, *e. g.*, $MgSO_4.7H_2O$, $FeSO_4.7H_2O$, $CuSO_4.5H_2O$ and $ZnSO_4.7H_2O$, the results show a considerable divergence from true isotonicity. It is possible to calculate the concentration of these salts, necessary to produce solutions closely approximating to isotonicity with blood serum, by employing the following simple expression which assumes that the degrees of ionization of these salts are the same: $W = \frac{M_1}{M_2} \times 6.35$, where W = mass of electrolyte per 100 cc. of solution, M_1 = molecular weight of substance used, M_2 = molecular weight of magnesium sulfate crystals and 6.35 = concentration of magnesium sulfate solution isotonic with blood serum. This expression was applied to zinc sulfate, copper sulfate and ferrous sulfate, and the results were found to differ very slightly from those calculated above. A table is given whereby freezing point depressions of solutions thus calculated were determined. Two other tables are given which show, respectively, the depression produced by 1 % solution of the salts named above along with the percentage concentration of an isotonic solution, and the concentration percentage and its effect on blood vessels. One of the latter tables shows that although a 3% solution is definitely hypotonic it can be injected without serious effect upon the blood corpuscles.—W. NIXON and R. C. A. CULBERT. *Pharm. J.*, 140 (1938), 411. (W. B. B.)

Ephedrine Composition. A nasal douche adapted for dilution with four parts of water before use consists of an aqueous solution containing approximately 7 Gm. of ephedrine hydrochloride, 22 Gm. of sodium chloride, 0.52 Gm. of methyl *p*-hydroxybenzoate, 17 Gm. of borax, 16 Gm. of sodium bicarbonate and 22 cc. of glycerin, per liter of water.—DUDLEY H. GRANT, assignor to STANCO INC. U. S. pat. 2,115,848, May 3, 1938. (A. P.-C.)

Formulæ—Useful. Formulæ for the following titled preparations are given: Tannic Acid Jelly, Vitaminized Dextrose with Calcium and Phosphorous, Iron and Vitamin Tonic Syrup, Ammonium Mandelate, Calcium Mandelate, Acriflavine Emulsion, Picric Acid Emulsion, Sodium Hydrochlorite Emulsion, Hydrogen Peroxide Emulsion. Directions for the preparations above are given in detail.—W. A. Woodard. *Pharm. J.*, 140 (1938), 435. (W. B. B.)

Lanolin. A good grade of lanolin should, in addition to complying with the U. S. P. requirements, contain 1% of free cholesterol with 13% of combined cholesterol.—M. G. DENAVARRE. *Am. Perfumer*, 36 (1938), 40. (G. W. F.)

Parenteral Solutions—the Pharmacist and. Consideration is given to tonicity especially as to blood and lymph. Small amounts of solution injected into the blood stream cause little pain but with large amounts equilibrium is not quickly established and there is pain. Occasional systemic reactions are unavoidable. Survey of the literature reveals five main causes for systemic reactions: foreign protein, speed of injection, temperature of the solution, individual susceptibility and disease, p_H of the solution. Speed of injection, temperature of solution, individual susceptibility and disease are not considered in this paper. Water should be exposed to air as little as possible, sterilized immediately after distillation. Bacteria are killed by sterilization but protein from the dead bodies remains in solution. The p_H should be close to 7. Only insoluble glass should be used. Style of container may suit individual preference. All new rubber needs to stand 24 hours in 2% sodium hydroxide solution, washed and sterilized. Filtering media is very important. Solutions must be sterilized immediately after preparation. Hermetically sealed solutions remain stable for long time. Solutions of sodium chloride, dextrose, magnesium sulfate, physiological buffer salts and Fischer's solution can all be prepared and each is discussed individually, with formulas for some. The cost of commercial products and the cost of solutions

prepared by the pharmacist are compared.—SISTER RESCENTIA WISE. *J. Am. Pharm. Assoc.*, 27 (1938), 490. (Z. M. C.)

Simple Ointment, U. S. P.—Why? A comparison of pharmacopœial ointments with regard to the constituents of their bases and the proportions has been made. Of the ten ointments six use yellow petrolatum in place of white and seven use yellow wax in place of white. The proportions of wool fat and wax does not vary more than 1.5% and that of petrolatum not more than 3%. Color of product differed but consistence was satisfactory in all. Just as satisfactory ointments can be made with simple ointment as a base.—WILLIAM A. PROUT and JAMES R. ADAMS. *J. Am. Pharm. Assoc.*, 27 (1938), 495. (Z. M. C.)

Soap—Ether. The proposed formula is a modification of that given in the Australasian Pharmaceutical Formulary for ethereal soap, the percentage of alcohol having been increased from 20 to 25%: oleic acid 35.00, alcohol (90%) 25.00, potassium hydroxide 7.00, distilled water 7.00, oil of lavender 0.20, solvent (X40 or X222) to 100.00. Mix the oleic acid with the alcohol; slowly add to this the potassium hydroxide dissolved in the distilled water; mix well; allow to cool; add the oil of lavender and a portion of the solvent, test a few drops of the product with solid phenolphthalein on a white tile, and if found alkaline, add oleic acid gradually until neutralized; finally make up to volume with the solvent. The solvent consists of light petroleum.—H. FINNEMORE. *Aust. J. Pharm.*, 19 (1938), 19; through *Pharm. J.*, 140 (1938), 441. (W. B. B.)

Tincture of Belladonna—Preparation of. Ignited aluminum hydroxide is recommended to absorb and remove the chlorophyll from the tincture. Aqueous tincture of belladonna as used in the old pharmacopœia was prepared by percolation with acidified water, and found satisfactory.—R. M. ZAITSEVA. *Farm. Zhur.*, 1 (1937), 52; through *Chem. Abstr.*, 32 (1938), 3090. (F. J. S.)

PHARMACEUTICAL HISTORY

Pharmaceutical Commercial Relations between The Netherlands and Russia in the 17th and 18th Centuries. The History of the Dutch Apothecaries and Alchemists in Russia. The History of Tinctura Bestuchewii. Under this composite title the author discusses the drug trade relations between the Netherlands and Russia from 1600 to 1800. The inventories of several shipments of drugs are given as well as an interesting account of the Russian rhubarb monopoly. Several of the Dutch apothecaries who went to Russia to practice in the courts of the Czars or who became famous in Russian pharmaceutical and alchemistic practice including Arent Claessen, Zacharias Arentsen, Conrad Bussow and others are discussed. The article concludes with an extensive history of Tinctura Bestuchewii made famous by Count Alexis Petrovitch Bestuchew-Riumin. The article is of historical value.—I. VAN ESSO. *Pharm. Weekblad*, 75 (1938), 90. (E. H. W.)

Pharmacy and Medicine—Separation of. A historical review of the duties of pharmacists and physicians from the time of Kaiser Frederick II to about 1700. Several documents are quoted including what is perhaps the oldest, the "Statuta sive Leges Municipales Arelatis" (1162 and 1202) and the London Apothecaries Charter of May 30, 1695. The article is of historical interest.—P. VAN DER WIELEN. *Pharm. Weekblad*, 75 (1938), 317. (E. H. W.)

PHARMACEUTICAL EDUCATION

Hospital Pharmacy's Opportunity. The author stresses the trend toward hospitalization, the lack of recognition of hospital pharmacists, lack of training for the work. One of the most important functions of hospital pharmacists should be the teaching of internes to write prescriptions. Effort should be made to have hospital pharmacy included in the rotating services of a hospital.—W. WILSON MCNEARY. *J. Am. Pharm. Assoc.*, 27 (1938), 335. (Z. M. C.)

Materia Medica—Motivating the Course in. A student has a right to know why any course is in the curriculum. The author proposes a method by which the student can find out for himself. Details of the procedure do not lend themselves to abstracting. It involves making records concerning purchases one observes in a store and aims to convince the student that theoretical subjects are valuable and gives impetus to his study.—VICTOR LEWITUS. *J. Am. Pharm. Assoc.*, 27 (1938), 517. (Z. M. C.)

Psychologist—Must a Pharmacist Be a. The author points out a number of reasons why the public avoids some stores.—ALICE ESTHER GARVIN. *J. Am. Pharm. Assoc.* 27 (1938), 506. (Z. M. C.)

Pharmaceutical Economics

Fair Trade—Past, Present. The author analyzes how the fair-trade movement is operating, the part of manufacturer, wholesaler and retailer. The sub-headings indicate scope of the discussion: past is cited, N.R.A. era, supreme court decision, artificial picture, manufacturer's attitude, domestication not necessary, Dr. West's case, fair-trade contract, Miller-Tydings bill, coöperation essential, retailers' duty and enforcement.—Samuel Shkolnik. *J. Am. Pharm. Assoc.*, 27 (1938), 512. (Z. M. C.)

Professional Services—Importance of the Allied, to the Pharmacist and to the Community. The pharmacist's first duty is to supply drugs and medicaments to the public. He should also be able to give information on public health questions. The scope of a pharmacist's service is discussed under the following heads: preventive medicine, antivenereals, biologicals, treatment of sick, neglect, sick room supplies, baby supplies, diabetes, vitamins and foods, public health activities.—John N. McDonnell. *J. Am. Pharm. Assoc.* 27 (1938), 507. (Z. M. C.)

Miscellaneous

Acne Lotions. The p_H of fresh Lotio Alba was 6.8–6.9 when undiluted or diluted with one or two volumes of water; lotions one year old had a p_H of 4.8 undiluted, 4.3 diluted with one volume and 3.9 diluted with two volumes of water.—F. Gustafson. *Am. Perfumer*, 36 (1938), 31. (G. W. F.)

Agents Protecting Against Light—Spectrophotometric Investigation of. Recognizing that sunburn and sun erythema are caused by ultraviolet rays of wave-length between 290 mμ and 320 mμ with the maximum effect at 300 mμ, the authors utilized a mercury arc in an evaluation of various commercial preparations. Mathematical derivations indicate the formulas $E = c.d.k.$, in which: E = extinction coefficient, c = concentration in grams per hundred cc., d = thickness of layer in mm., k = characteristic constant for each particular material and $E = -\log D$, where D = permeability. Examination of five commercial transparent "suntan" oils indicates an effectiveness for four of them of 50% to 60%, while one was wholly ineffective. Eight commercial emulsion salve-type of sunburn preventives exhibited a much higher effectiveness, up to 99% of the light rays being absorbed. The third and last class of commercial preparations examined, three fat-free solutions, exhibited a degree of efficacy of from 85 to 99%.—Horst Boehme and Benno Reichert. *Arch. Pharm.*, 275 (1937), 437. (L. L. M.)

Avocado Oil and Its Pharmaceutical Action. The amount of solid matter ("Stearin") in the expressed oil is greater in oils extracted by means of light petroleum. Four samples of the liquid portion of the latter extracted from Panama fruits had acid values 0.9–1.7, saponification values 186–196, iodine values (Wijs) 71–77, Reichert-Meissl value (one sample only) 2.9. The oil showed no tendency to promote the growth of hair on shaved mice or healthy human scalps, but it displayed a definitely beneficial action on the skin in cases (preliminary tests) of parasitic skin disease and exema. Subcutaneous injection into mice of 0.15 cc. of the oil every fourth day for a month produced no ill effects, and the oil seems eminently suitable for cosmetic and pharmaceutical purposes.—L. S. Malowan. *Seifens-Ztg.*, 64 (1937), 908–909; through *J. Soc. Chem. Ind.*, 57 (1938), 319. (E. G. V.)

Calcium Arsenate Insecticide. Calcium arsenate (I) of low water-soluble arsenic content is obtained by spraying arsenic acid into rapidly agitated aqueous calcium hydroxide. Imperfect stirring leads to increased water-solubility. Slow addition of dilute solutions of arsenic acid (free from arsenic trioxide) is essential and calcium oxide must be slaked 3–4 hours before use. Toxicity of such preparations to plants is determined rapidly with cranberry bean plants grown under controlled greenhouse conditions. The toxicity of I preparations is substantially the same irrespective of the water-soluble arsenic contents (within commercial limits).—H. Waters and E. Witman. *J. Econ. Entom.*, 30 (1937), 204–210; through *J. Soc. Chem. Ind.*, 57 (1938), 565. (E. G. V.)

Corn Beetles and Other Vermin—Exterminating. Vermin and their larvæ are exterminated in grain by packing a metal phosphide in a gas-previous packing and inserting the packing without addition of a reagent into a heap of grain.—Werner Freyberg and Walter Haupt, assignors to Ernst Freyberg Chemische Fabrik Deltitia. U. S. pat. 2,117,158, May 10, 1938. (A. P.-C.)

Deodorant Creams. Newer Deodorant creams consist of a vanishing cream base with antioxidant, antiseptic and/or astringent action. Antiseptics used are sodium benzoate, benzoic acid, and methyl and propyl esters of *p*-hydroxybenzoic acid, *o*-phenyl phenol and sodium derivative, zinc peroxide, methenamine, formaldehyde and similar substances. The astringent may be aluminum chloride, sulfate, acetate, aceto-tartrate, alum, aluminum beta-naphthol sulfonate and some zinc salts such as the chloride and phenolsulfonate. The base may be a stearic acid-alkali, a glycol or glycerol stearate or similar type. It is recommended to run cream tests on cloth to determine harmlessness to both the dyestuff and the fabric.—R. J. MAIKI. *Am. Perfumer*, 36 (1938), 35–36. (G. W. F.)

Emulsions—Pharmaceutical, Analysis of. Emulsions are broken with alcohol-ether-hydrochloric acid mixture, repeatedly extracted with ether, dried with anhydrous sodium sulfate, filtered and the fats weighed. Reactions of Millon and Sakagushi distinguish the oil emulsions from those of sweet almond and gum acacia emulsions from gelatose.—Y. A. FIALKOV and S. Y. BABICH. *Farm. Zhur.*, 4 (1937), 235–9; through *Chem. Abstr.*, 32 (1938), 3905. (F. J. S.)

Emulsions Such as Cosmetic Creams. Polyhydric alcohols partially esterified with fatty acids of high molecular weight, such as monostearyl glycerol, are emulsified with water or aqueous solution of suitable substances in the presence of substances having an alkaline reaction such as ammonia. BENJAMIN R. HARRIS. U. S. pat. 2,109,842, March 1, 1938. (A. P.-C.)

Fungicide. A fungicide for agricultural use contains a reaction product of urea and an aldehyde.—JOHN P. REMENSNYDER. U. S. pat. 2,110,943, March 15, 1938. (A. P.-C.)

Glass Bottles For Drugs. A general description of various types of glass and information on their suitability for storing different drugs are given.—S. MOZSONYI. *Magyar Gyogyszeresztud. Tarsasag Ertesitöje*, 14 (1938), 109–124; through *Chem. Abstr.*, 32 (1938), 3901. (F. J. S.)

Glycerin—Decolorization of, with Bleaching Earths. 36–62% decolorization of Twitchell crude glycerin (I) could be effected by treatment with (up to 8% of) various bleaching earths, but the bleaching was insufficient for commercial purposes, even when active carbon was added to the earths. Different active carbons (applied alone) showed enormous differences in bleaching power for the crude I.—E. ERDHEIM. *Ole, Fette, Wachse*, 2, No. 8 (1937), 2–3; through *J. Soc. Chem. Ind.*, 57 (1938), 548. (E. G. V.)

Glycerol in Cosmetic Preparations. Freedom from undesirable effects due to the presence of glycerol in cosmetic preparations is dependent upon a definite limiting content and upon its compatability with the other basic materials used from dermatological, physiological and chemical standpoints.—T. RUEMELE. *Deut. Parfum.-Ztg.*, 22 (1936), 197–198; through *Chem. Abstr.*, 32 (1938), 4280. (F. J. S.)

Hair Coloring with Oxidation Dyes—Theory and Use of. Shampoo hair dyes such as 2,5-diaminomethoxybenzene in combination with *p*-aminophenol, pyrogallic acid, para compounds of certain amines with hydrogen peroxide or other oxidizing agents and their properties, the effect of the introduction of the sulfo- group in the molecule and the toxic action of methyl-*p*-aminophenol are discussed.—WELWART. *Riechstoff-Ind. u. Kosmetik*, 13 (1938), 34–37. (H. M. B.)

Hard Soaps—Preparation of. Leimdorfer's measurements and practical observations of the effect of changes in concentration of soap and electrolytes on the viscosity of the soap in the pan, and the questions of the "limiting concentration" of salt for salting-out are discussed. Some practical hints on crutching practice are prefixed.—ANON. *Seifens Ztg.*, 64 (1937), 822–824, 843–844; through *J. Soc. Chem. Ind.*, 57 (1938), 296. (E. G. V.)

Honey—Purification of Extracted. Filter aid is freed from air by boiling water and then from free water by honey syrup (1 of water: 4 of honey); the filter aid is then mixed with raw honey and the mixture heated and filtered.—R. E. LOTHROP and H. S. PAINE. U. S. pat. 2,070,-171; through *J. Soc. Chem. Ind.*, 57 (1938), 587. (E. G. V.)

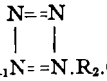
Insecticidal Oil Composition. There is dissolved in mineral oil less than about 3% of alkali salts of petroleum sulfonic acids, together with a sufficient amount of an oil- and water-soluble organic compound of low molecular weight to reduce the interfacial tension between the solution and water to the point that emulsification may be effected without additional emulsifying agent. About 1% of acetone is suitable for the purpose.—WM. HUNTER VOLCK, assignor to CALIFORNIA SPRAY-CHEMICAL CORP. U. S. pat. 2,109,095, Feb. 22, 1938. (A. P.-C.)

Insecticidal Powder. The product consists of a mixture of sugar, borax, chalk and a neutral filler.—R. FOUTRY. Belg. pat. 422,366, July 31, 1937. (A. P.-C.)

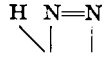
Insecticidal Spray Oils. A method of preparing a spray oil suitable for control of "red scale," etc., comprises extracting a mineral oil distillate fraction with a solvent to remove substantially all constituents soluble in liquid sulfur dioxide, separating the extract from the raffinate, treating the extract to remove therefrom substantially all constituents soluble in sulfuric acid under mild conditions in the order of 95 to 98% concentration at a temperature of about 15° to 30° C., and separating the sulfuric acid-removable constituents from the resultant raffinate.—ULRIC B. BRAY, assignor to UNION OIL CO. OF CALIFORNIA. U. S. pat. 2,111, 581, March 22, 1938. (A. P.-C.)

Insecticide. The essential active ingredient is a pyrazine, such as phenazine.—DONALD L. VIVIAN and HERBERT L. HALLER, dedicated to the free use of the people of the U. S. A. U. S. pat. 2,110,614, March 8, 1938. (A. P.-C.)

Insecticide. 2,110,896—The product comprises a compound of the general formula



$CH_3.R_1N=\!=N.R_2.OH$, in which R_1 and R_2 are interchangeable homocyclic aryl nuclei, R_1 being a single benzene ring and R_2 a naphthyl nucleus. 2,110,897—The product comprises a compound



of the general formula $R.N=N.R_1(OH)$, in which R and R_1 are interchangeable homocyclic aryl nuclei, R being a single benzene ring and R_1 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. pats. 2,110,896 and 2,110,897, March 15, 1938. (A. P.-C.)

Insecticide—Process for Making. Peat is treated with a mineral acid or with acetic acid and washed to remove soluble matter. The treated peat is brought into intimate contact with an aqueous solution of nicotine, and after allowing the mixture to react the water-insoluble portion is recovered.—LOUIS N. MARKWOOD, dedicated to the free use of the public. U. S. pat. 2,107,058, Feb. 1, 1938. (A. P.-C.)

Insecticides. The material consists of the reaction products of nicotine and a readily water-soluble petroleum hydrocarbon sulfonate of ammonium. A suitable formula is: hydrocarbon ammonium sulfonate (50%) 1 quart, nicotine sulfate (40% solution) 1 pint, Volclay or Wilkinite containing 3% of calcium chloride 4 to 8 lb., copper sulfate 4 oz., water 100 gallons.—WARREN MOORE and ROBERT B. ARNOLD, assignors to TOBACCO BY-PRODUCTS and CHEMICAL CORP. U. S. pat. 2,110,608, March 8, 1938. (A. P.-C.)

Lecithin—Manufacture of Preparations of. Lecithin, after drying in thin layers (to 1% of water), is mixed with ethyl alcohol (5%) and formed into balls, rods, etc., which are then coated with a water-repellent, for example, beeswax.—C. H. BUER. Brit. pat. 472,138; through *J. Soc. Chem. Ind.*, 57 (1938), 457. (E. G. V.)

Mixtures of Materials—Separation of. Commercial apparatus is described.—ANON. *Reichstoff-Ind. Kosmetik*, 13 (1938) 53–56. (H. M. B.)

Nicotine in Oil. Promising Insecticide for Horticultural Purposes. The preparation, insecticidal and phytocidal properties of atomized oil-nicotine sprays are recorded. A suitable atomizer is described.—P. O. RICHTER and R. K. CALFEE. *J. Econ. Entom.*, 30 (1937), 166–174; through *J. Soc. Chem. Ind.*, 57 (1938), 565. (E. G. V.)

Nicotine-Peat Insecticide—Semi-Commercial Manufacture of. Reed peat is screened, dried to a water content of 10%, soaked in 2% hydrochloric acid, washed free from soluble matter, and treated with nicotine in presence of water. The product is finally dried and ground, and contains 10% of nicotine of which 88% is insoluble.—L. N. MARKWOOD. *J. Econ. Entom.*, 30 (1937), 648–651; through *J. Soc. Chem. Ind.*, 57 (1938), 565. (E. G. V.)

Pharmaceutical Products-Injectable, and Methods of Preparing Same. An injectable product suitable for the treatment of hernial and other physical defects is obtained by forming an aqueous suspension of the fatty acids of psyllium seed oil, and then converting these acids into water-soluble salts by adding a soluble basic ingredient. 2,115,491 covers the method of preparation and 2,115,492 covers the products.—PHILIP A. KOBER, assignor to G. D. SEARLE & CO. U. S. pats. 2,115,491 and 2,115,492, April 26, 1938. (A. P.-C.)

Pine Needle Bath Balsam. The balsam is prepared as follows: Stir well 400 Gm. uranin A with 10 Kg. turkey red oil (100%) and then add 10 Kg. more of the turkey red oil, stirring

vigorously. Store in zinc containers and shake well before using. Place 2100 Gm. of the color solution in an enamel vessel and with stirring add successively 300 Gm. terpene-free pine needle oil, 150 Gm. bornyl acetate and isobornyl acetate and finally 140 Gm. ammonia (sp. gr. 0.91); stir the mass until smooth and then add further 1200 Gm. pine needle oil as well as 600 Gm. bornyl acetate or isobornyl acetate and finally 6800 Gm. turkey red oil (100%), stir again until smooth; use about 30 cc. at a time.—ANON. *Riechstoff-Ind u. Kosmetik*, 13 (1938), 46. (H. M. B.)

Soap—No Sunshine in. Claims of manufacturers to value of Vitamin D soaps refuted chiefly by fact that soap or lather is in contact with skin too brief a time for absorption.—EDITORIAL. *J. Am. Med. Assoc.*, 109 (1937), 509. (G. S. G.)

Suntan Preparations. The following oils are mentioned as being suitable for the "screens" in suntan preparations: liquid paraffin, cocoanut oil, poppyseed oil, olive oil, cottonseed oil, sesame oil. Oils that have a low acid value should be used; they are not so irritating to the skin as those of a high acid value, nor do they turn rancid so quickly. Oil of Ben (*Moringa* sp.) is regarded as a good vehicle. The addition of mineral oil to the vehicle is recommended because vegetable oil alone is rapidly absorbed by the skin, the protective film disappearing too quickly. Two formulas for suntan creams are given. Suitable volatile oils for perfuming are suggested as follows: lavender, geranium, cedar of Lebanon, sandalwood, and in general, terpeneless and sesquiterpeneless oils. Those essential oils that are not prepared by distillation (*e. g.*, oil of bergamot) are not recommended for use.—ANON. *Pharm. J.*, 140 (1938), 569. (W. B. B.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY

Acetylcholine—Influence of Various Esterase-Inhibiting Agents on the Pharmacodynamic Activity of. The cholinesterase-inhibiting actions of eserine, geneserine, ephedrine, antipyrine and choline were compared by determining their sensitizing action on the effects of acetylcholine on the dorsal muscle of the leech, the rectus abdominalis of the frog and the production of hypotension in the dog. The three methods gave widely divergent results.—E. KAHANE and JEANNE LÉVY. *Compt. Rend. Soc. Biol.*, 125 (1937), 252–256; through *Chimie & Industrie*, 38 (1937), 1142–1143. (A. P.-C.)

Adrenaline—Action of, upon the Coronaries and General Circulation after Diethylaminomethylbenzodioxan (883F). The authors studied, on a dog anesthetized with luminal, the action of adrenaline before and after 883F upon the coronaries and other vessels. One part of the study was made upon the heart lung preparation; another part upon the entire animal, recording simultaneously the coronary venous debit, the femoral venous debit and the blood pressure. It was found that 883 F diminishes the coronary venous debit by vasoconstriction of the coronaries, augments the femoral venous debit by vasodilation in the general circulation. 883F attenuates considerably the vasoconstrictor action of adrenaline (and by consequence, its hypertensive action), also the vasodilating action of adrenaline on the coronaries.—D. DANIELOPOLU and I. NARCON. *Presse Medicale*, No. 27 (1938), 513. (W. H. H.)

Adrenaline and Piperidomethylbenzodioxane. During perfusion of the isolated hind legs of frogs, F. 933 exerts a vasoconstrictor action at higher concentrations from 0.05% upward. The vasoconstrictor response to adrenaline is suppressed under the influence of F. 933, and reappears under the influence of very great doses of adrenaline. Similar phenomena are observed in the perfused isolated rabbit's ear. In both preparations no reversal of the response to adrenaline could be observed under the influence of F. 933. It was possible to wash F. 933 out of the rabbit's ear; at that time the sensitivity to adrenaline reappeared. During perfusion of the isolated rabbit's head preparation with increasing concentrations of F. 933 several degrees of influence can be observed. The slightest concentrations which produce any effect depress the response to adrenaline with retention of the response to sympathetic stimulation (relative dissociation). The effect of stronger concentrations is the suppresion of both responses. No reversal of the response to adrenaline could ever be observed under the influence of F. 933 in the cephalic circulation of a rabbit. The paretic action on the sympathetic at lower concentrations is probably of peripheral origin, but at higher concentrations the action of this drug on ganglionic synapses or on the preganglionic fibers is not excluded. The vasomotor tone of the hind legs of the dog estimated by means of recurrent blood pressure shows, after F. 933, an active reversal of the normal response

to adrenaline, the blood pressure dropping pronouncedly either as much as the general blood pressure, or even more. At the same time the intact or only slightly depressed activity of the vasoconstrictor action of the sympathetic is tested by means of faradic stimulation of the lumbar sympathetic chain and by means of the carotid sinus reflex, producing a vasoconstrictor effect in the limbs. The sympathetic denervation of the limb does not influence its response to adrenaline. Thus a complete dissociation of the sympathetic activity and of the response to adrenaline was obtained. During the perfusion with saline of a loop of small intestine of a dog *in situ* (some blood vessels of the loop remaining in connection with the general circulation), after F. 933 injection the intestinal blood vessels respond to adrenaline by dilation showing thus a reversal of reaction. This local reversal of the response to adrenaline precedes the reversal observed in the general circulation. The reversal in the important area of intestinal blood vessels added to the reversal in the limbs may explain to some extent—or perhaps completely—the reversal in the general blood pressure. When the influence of F. 933 passes off a diphasic response to adrenaline appears, beginning with contraction of the blood vessels and ending with dilation. This shows that the reversal of response to adrenaline becomes in time a composite process, in which on the onset of the response some other factors play a greater part than at the end.—M. WIERZUCHOWSKI. *Arch. intern. Pharmacodyn. et Therp.*, 59 (1938), 1. (W. H. H.)

5-Androsten-17-ol-3-one, an Isomer of Testosterone. This compound was prepared as acetate, but the free androstenolone could not be obtained. The acetate is physiologically active; the unit, in the cock's comb test, corresponds to about 125γ, as compared with 50γ in the case of testosterone acetate. The displacement of the double bond from the Δ^5 to the Δ^4 position therefore increases the physiological activity in the cock's comb test by 150%.—A. BUTENANDT and G. HANISCH. *Ber. Deut. Chem. Ges.*, 69 (1936), 2773–2775; through *Chimie & Industrie*, 39 (1938), 123. (A. P.-C.)

Anticonvulsant Drugs—A New Series of, Tested by Experiments on Animals. The amount of electric current, passing through the head, required to produce a convulsion in cats, *i. e.*, the convulsive threshold was increased greatly by all drugs tested which produced complete narcosis. The drugs in this group which were relatively ineffective as anticonvulsants in subnarcotic doses were alcohol, sodium amytal, amytal, sodium pentobarbital, *N*-phenylethylpropylbarbital, acetophenetidine and phenyl urethan. Marked anticonvulsant action was shown by subnarcotic doses of phenobarbital, sodium phenobarbital, diphenylhydantoin, acetophenone, benzophenone and acetophenone oxime. The convulsive threshold was not increased appreciably by other drugs tested of widely varying constitution.—H. H. MERRITT, T. J. PUTMAN and D. M. SCHWAB. *Trans. Am. Neurol. Assoc.*, 63 (1937), 123–8; through *Chem. Abstr.*, 32 (1938), 3902. (F. J. S.)

Bio-Assaying in the Dutch Pharmacopœia with Especial Reference to the Standardization of Insulin. An address delivered at the Pharmaceutical Congress at Gronningen, November 26, 1938. The author concludes his address on biological standardization in the Dutch Pharmacopœia with the following summary: (1) It appears that the British Pharmacopœia and the United States Pharmacopœia contain more items which are biologically standardized than does the Dutch Pharmacopœia and its Supplement. (2) This arrearage especially concerns vitamins. The bioassay of sera was established in the act of '27. (3) When it comes to hormones the Dutch Pharmacopœia compares favorably with both of the above mentioned pharmacopœias, but it is recommended that the number of hormones be increased in the second Supplement of Edition V or in the next Pharmacopœia. A lengthy discussion of the standardization of insulin is given. In summarizing, it may be said that although it is by no means binding, it is nevertheless desirable that the directions for the insulin assay be improved as follows: (1) The use of rabbits of one breed is desirable. (2) The injected doses depend upon the concentration work curve. (3) The number of animals used be increased. (4) The influence of variation in normal blood sugar content be considered.—R. W. SPANHOFF. *Pharm. Weekblad*, 75 (1938), 190. (E. H. W.)

Bothrops Atrox Venom—Use of Dilute Solutions of, as Hemostatics. The injection of 1 cc. of a 1:5,000,000 solution of the venom into a 2-kilo rabbit causes a marked decrease in clotting time. The plasma from oxalated blood from a rabbit so treated will clot in one-half to several hours without the addition of calcium ions. If 1 cc. of a 1:500,000 solution of the venom is injected into the rabbit the fibrinogen is removed from the blood *in vivo* without any apparent toxic effects and the blood is rendered incoagulable. It is believed safe to try small doses in human hemophilia. Properly proportioned mixtures of the venom and its antiserum are nontoxic in the

rabbit and accelerated blood clotting.—CH. J. HANUT. *Compt. Rend. Soc. Biol.*, 123 (1936), 1232–1235; through *Chimie & Industrie*, 38 (1937), 1142. (A. P.-C.)

Castor Oil—Causes of the Laxative Action of. Sodium ricinoleate has no influence on the intestine deprived of its nervous and vascular connections. The purgative action of the oil is exerted on the intestinal mucosa and is independent from the absorption of its constituents. The action of the alkaline ricinoleates can be attributed to their high cytolytic properties; the latter may be caused by a dissolving effect on the cellular lecithin.—G. VALETTE and R. SALVANET. *Bull. Sci. Pharmacol.*, 43 (1936), 696–708; through *Chimie & Industrie*, 39 (1938), 514. (A. P.-C.)

Castor Oil—Purgative Constituent of. Two lots of ricinoleic acid prepared by two different methods had the same purgative activity toward mice, rats and cats. The unsaponifiable matter of the oil, containing a sterol and a constituent uncrystallizable in alcohol, exerted no action on the digestive tract.—G. VALETTE and R. SALVANET. *Bull. Sci. Pharmacol.*, 43 (1936), 289–292; through *Chimie & Industrie*, 38 (1937), 1137. (A. P.-C.)

Choline and its Derivatives—Effect of, on Perspiration. Choline, acetylcholine and "lentin" in moderate doses increase sweating in the rabbit. Eserine also stimulates sweating glands and increases six-fold the action of acetylcholine.—A. GASNIER and A. MAYER. *Ann. Physiol. physiochim. biol.*, 13 (1937), 579; through *Squibb Abstr. Bull.*, 11 (1938), A-609. (F. J. S.)

Croton Oil—Biological Method for Determining, in Other Oils. Tests carried out on white mice showed that croton oil added to other oil at the rate of 1 drop per 15 Gm. of oil (about 0.13%) rapidly kills all the animals; injection is followed immediately by torpor. At the rate of 0.1% croton oil produces torpor accompanied by trembling, followed by death in most cases. If the dose does not exceed 0.066%, the same intoxication phenomena are observed, but all the animals survive. A content of 0.04 to 0.06% represents the lower limit at which no effects are observed. An analytical method for the determination of croton oil in castor oil can be based on these data.—G. RIZZOTTI. *Atti. Soc. Med. Chir. Padova*, 14 (1936), 536–538; through *Chimie & Industrie*, 38 (1937), 1142. (A. P.-C.)

Diethylaminomethylbenzodioxan—Action of the Two Optical Isomers of, on Water Diuresis. Both isomers decrease the aqueous diuresis after ingestion of water in dogs; but the levo compound has a much more powerful action than the dextro compound.—E. ZUNZ and O. VESSELOVSKY. *Compt. Rend. Soc. Biol.*, 124 (1937), 276–279; through *Chimie & Industrie*, 38 (1937), 1143. (A. P.-C.)

Diethylstilboesterol—Biological Effects of. The synthetic oestrogenic substance 4:4′-dihydroxy-α: β-diethylstilbene has been found to have an action similar to oestrone on the uterus of ovariectomized rats, on the mating reaction, vagina and uterus of immature rats, on the uterus of immature rabbits, and on the feathers of capons. By vaginal smear assay on ovariectomized rats under the conditions described, the synthetic substance was approximately two and one-half times as active as oestrone. Nipple growth in the guinea pig was produced, similar to that caused by oestrone. Preliminary observations indicate that the synthetic substance has appreciably less stimulating action on the mammary tissue than oestrone.—E. C. DODDS, W. LAWSON and R. L. NOBLE. *Lancet*, 234 (1938), 1389. (W. H. H.)

Digitalis Bradycardia and Blood Pressure. In normal persons the administration of *g*-strophanthin in therapeutic doses causes definite bradycardia, but no variations in the blood pressure neither is this the case if the bradycardia be prevented or discontinued by administration of atropine. It is presumed that the bradycardia following poisonous doses of digitalis at any rate in part is due to a rise in the blood pressure, while the bradycardia following therapeutic doses is not due to any change in blood pressure.—N. A. Nielsen. *Arch. intern. Pharmacodyn. et Therp.*, 58 (1938), 478. (W. H. H.)

Emetamine and Methylpsychotrine—Pharmacological Actions of. Mouse median lethal doses are: emetamine 230, methylpsychotrine 350 mg. per Kg., as hydrochlorides. In isolated preparations or *in situ* the heart and conducting tissue are depressed and the coronary vessels dilated; the isolated intestine is relaxed. Blood pressure is lowered with small doses and respiration depressed with larger. Lethal doses produce tremors, restlessness and clonic and tonic convulsions of the trunk and hind limbs.—N. SAPEIKA. *S. African J. Med. Sci.*, 2 (1937), 10; through *Squibb Abstr. Bull.*, 11 (1938), A-631. (F. J. S.)

Epinephrine—Slowly Absorbed Preparation of. Sterilized suspensions of two mg. epinephrine base per cc. purified olive oil, with or without supersonic radiation for 7 to 14 minutes were capable of rendering chronic asthmatics free from symptoms for periods of eight to sixteen hours. Supersonic radiation gave better and more stable suspensions but had no effect on clinical efficacy. The dosage varied from 0.4 to 2 cc. Some patients were kept entirely free from symptoms for twenty-four hours by a morning and an evening injection of slow epinephrine. The immediate response to this solution was less rapid than when solutions of the hydrochloride were used. With subcutaneous injections there was no discomfort other than local tenderness for 24–48 hours, but repeated injections became definitely irritating. Consequently, intravenous injections in the buttocks were substituted and caused no discomfort or nodules with frequent injection. More recently suspensions of epinephrine have been made with peanut oil with no discomfort whatsoever from numerous injections.—E. L. KEENEY. *Bull. Johns Hopkins Hosp.*, 62 (1938), 227; through *Squibb Abstr. Bull.*, 11 (1938), A-619. (F. J. S.)

F. 933 and Yohimbine on Heart Fibrillation. Administration of intravenous adrenaline to the chloroformed dogs which have been affected by either the F. 933, the F. 883 or the yohimbine is followed by a hypotension or a hypertension of small magnitude. In any and every instance, the chloroform-adrenaline ventricular fibrillation is prevented by abolishing the vasopressor action of adrenaline by means of either the dioxane derivatives or the yohimbine.—T. C. R. SHEN. *Arch. inter. Pharmacodyn. et Therp.*, 59 (1938), 243. (W. H. H.)

Gastric Juice—Reticulocyte Response in Albino Rats After Injection of. The albino rat responds to the injection of gastric juice from subjects not suffering from pernicious anemia with a rise of reticulocytes within three to five days. Gastric juice from the same subjects, in which Castle's intrinsic factor is destroyed by heating or boiling, causes a similar reticulocyte response. Gastric juice from patients suffering from pernicious anemia causes a similar but usually delayed reticulocyte response in the rats. The occurrence or non-occurrence of a reticulocyte response in rats receiving injections of human gastric juice is of no value in the diagnosis of pernicious anemia.—G. PLAUT. *Lancet*, 234 (1938), 1272. (W. H. H.)

Gelsemine—Action of, on the Isolated Frog's Heart. Gelsemine exerts a reversible depressive muscular action upon the isolated frog heart and which is not modified by atropine. It appears to be neither parasympathomimetic nor parasympatholytic. Barium chloride and adrenaline provokes a starting of the heart arrested by gelsemine.—E. MOISSET. *Presse Medicale*, No. 37 (1938), 737. (W. H. H.)

Gelsemine—Cardiovascular Action of. Gelsemine upon the chloralized dog exerts successively two series of effects modifying namely the hypertension produced by adrenalin: in the beginning it diminishes, then it augments in presenting the characteristic aspect that is observed after atropinization or bivagotomy. Gelsemine diminishes and provokes the inexciteability of the vagus and carotid sinus.—M. E. MOISSET. *Presse Medicale*, No. 29 (1938), 554. (W. H. H.)

Glycosides—Cardiac, Significance of Sugar Component in the Molecule. Five aglycones, strophanthidin, digoxigenin, digotoxigenin, calotropagenin and scillaridin A, have been studied. Experimental procedure is given and results of tests are tabulated. They have a higher emetic action than the parent glycosides. Each is less powerful on the heart than its parent glycoside, more pronounced in frogs than in cats. If the aglycone undergoes chemical changes during hydrolysis the cardiac action is still further reduced. All are rapidly elimated from circulation, particularly digitoxigenin. It caused a brief initial stimulation as shown by convulsions, followed by marked depression of central nervous system in cats and dogs.—K. K. CHEN, E. BROWN ROBBINS and HAROLD WORTH. *J. Am. Pharm. Assoc.*, 27 (1938), 189. (Z. M. C.)

Gonadotropic Activity of Pregnancy Serum. A large number of samples of serum were obtained from pregnant women and assayed for gonadotropic activity, a bulk preparation from pooled samples being used as a standard of comparison and for determining the general gonadotropic properties. It is shown, in contrast to pregnant mare serum extract, that extracts of human pregnancy serum behave similarly to extracts of urine of pregnancy, in that (*a*) they cause only a limited response in the rat ovary, judged by increase in ovarian weight and (*b*) they produce no follicular growth in the ovary of the hypophysectomized rat. Assays on the individual samples of serum taken at different stages of pregnancy show that the concentration of gonadotropic substance rises rapidly from the sixth week, is at a maximum from the eighth to the twelfth week, and thereafter declines to a low level, which is fairly constant, from the twentieth

week to the end of pregnancy. By the technique of assay employed no gonadotropic activity could be detected in the serum of non-pregnant women. The significance of the presence of the gonadotropic substance is discussed in relation to the luteal activity of the placenta.—M. Boycott and I. W. Rowlands. *Brit. Med. J.*, 4037 (1938), 1097. (W. H. H.)

Heparin—Blood Transfusion with. Experiments are described in which the delaying action of heparin on the coagulation of blood *in vitro* and in man is investigated, particularly with a view to simplifying the method of blood transfusion. By adding heparin to the blood after withdrawal, or by injecting it into the donor before transfusion, a sufficient delay in coagulation can be achieved to enable a successful transfusion to be carried out. The problem of controlling the delay of coagulation requires further investigation. Heparinization of the donor has no ill effects on him or the recipient. The method is carried out as follows: heparin is injected into the donor, the blood is withdrawn after some minutes and collected in an unparaffined syringe or bottle and injected directly into the recipient. This method makes it possible to carry out a transfusion without special operative procedures, apparatus or trained staff, since all that is necessary is a venous puncture.—H. Knoll and O. Schürch. *Lancet*, 234 (1938), 1387. (W. H. H.)

Histamine Intoxication—Protective Action of Phenolic Ethers in. Adult guinea pigs received 40 mg. per kilo of the compound subcutaneously, then, 30 minutes later, 0.5 mg. per kilo of histamine hydrochloride intravenously. Thymoxyethyldiethylamine (929F) completely protected the animals from shock and death. Phenoxyethyldiethylamine (928F), *p*-methoxyphenoxythyldiethylamine (940F), *β*-naphthoxyethyldiethylamine (939F), diethylaminomethylbenzodioxane (883F) and diphenyldioxyethyldiethylamine (12171F) save 30 to 60% of the animals from death. *α*-Naphthoxyethyldiethylamine (937F), diphenyloxyethyldiethylamine (1306F) and piperidinomethylbenzodioxane (933F) slightly delayed but did not prevent death.—D. Bovet and Melle. A. M. Staub. *Compt. Rend. Soc. Biol.*, 124 (1937), 547–549; through *Chimie & Industrie*, 39 (1938), 514–515. (A. P.-C.)

Insecticides—Laboratory Methods for Biological Testing of. I. Testing Ovicides. Appropriate technic is described.—W. Steer. *J. Pomology*, 15 (1938), 338–355; through *J. Soc. Chem. Ind.*, 57 (1938), 567. (E. G. V.)

Levulinic Acid—A Chloral Derivative of. Reference is made to the lack of hypnotic action of lactic chloralide and the fact that chloralose is more active and less toxic than chloral but lacking in solubility, reliability and taste. Probability of its uncertainty being due to the unchanged aldehyde group, the author thought joining it to an acid group might give stability and, by means of a sodium salt, solubility also. Chloral-levulinic acid and seven nitrogen derivatives were prepared. Experimental work is given in detail. The acid and its sodium salt were found to be non-toxic and non-hypnotic when given orally to rats.—Harold W. Coles. *J. Am. Pharm. Assoc.*, 27 (1938), 477. (Z. M. C.)

Male Hormone-Like Substance of Musk. The methanol estract of 1 Gm. of musk was diluted to 10 cc. with olive oil; application of 0.2 cc. (equivalent to 20 mg. of musk) to a cock's comb produced about the same amount of growth as 100 *γ* of *trans*-deshydroandrosterone.—T. Sano. *J. Pharm. Soc. Japan*, 56 (1936), 171–172; through *Chimie & Industrie*, 39 (1938), 122. (A. P.-C.)

Mitrinermine—Hypothermizing Action of. Mitrinermine, injected in doses of 0.1 mg per Gm., causes in guinea pigs a reduction of temperature of 2° to 3° C. Paramecium is killed within 6 minutes by a 1:1000 solution, as compared with about 2 minutes for quinine at the same dilution. Further investigations are required before mitrinermine can be assumed to be a satisfactory substitute for quinine.—E. Perrot, Raymond-Hamet and L. Millat. *Bull. Sci. Pharmacol.*, 43 (1936), 694–696; through *Chimie & Industrie*, 39 (1938), 514. (A. P.-C.)

Morphine and Respiration. From the experiments conducted, the authors have been able to show that morphine is capable of acting directly upon the respiratory center, rendering it more sensitive to the deprivation of oxygen, and diminishing also the resistance of the animal to anoxemia.—L. Binet and M. V. Strumza. *Presse Medicale*, No. 39 (1938), 769. (W. H. H.)

Nicotinic Acid and Pellagra. This compound and its action are described.—A. Richard Bliss, Jr. *Drug Cosmetic Ind.*, 42 (1938), 578–579. (H. M. B.)

Oestrin Therapy—Clinical Experiment in. Administration of oestrin in quite small doses by mouth was effective in controlling symptoms. The level of oestrone threshold bleeding was found to be between 6000 and 5000 I. U. by injection and 25,000 and 30,000 I. U. by mouth,

suggesting a peroral/intramuscular ratio of 5:1. A 14 mg. tablet of crystalline oestrone was implanted subcutaneously, and was effective in controlling symptoms for four or five weeks.—P. M. F. BISHOP. *Brit. Med. J.*, 4034 (1938), 939. (W. H. H.)

Ouabain—Action of, upon Oral Administration for Insufficiency of the Left Ventricle of the Heart. To obtain an action from ouabain by oral administration which would be comparable to the intravenous action would require thirty-five to forty times as much. In man the dose is 0.01 to 0.02 Gm. per day. Also, the action fails to appear for about two days. This consequently is contra-indicated when a rapid action is necessary. Seventeen observations were made and it was found to be very valuable in cases of left ventricular insufficiency. No serious accidents have been observed. It is promptly eliminated and does not accumulate even when doses of 2 ctg. are administered over a long period of time.—J. LUCQUIN. *Presse Medicale*, No. 30 (1938), 576. (W. H. H.)

***p*-Oxy-Ephedrine and Ephedrine—Comparison of Action of, upon Cardiac and Respiratory Debt.** The comparative study of the action of *p*-oxy-ephedrine and ephedrine hydrochloride upon the cardiac debt, systolic debt and pulmonary ventilation of both animal and man showed that *p*-oxy-ephedrine and ephedrine hydrochloride, upon subcutaneous injection of doses of 2 ctg. in the non-anesthetized dog and 5 mg. in man increased the cardiac debt, systolic debt, pulmonary ventilation and the percentage of CO_2 in the expired air. In the animal it was found that *p*-oxy-ephedrine upon the cardiac debt is more precocious than that of ephedrine hydrochloride under the same experimental conditions. The elevation of the cardiac debt is maximal thirty minutes after the injection of the two products (140% after *p*-oxy-ephedrine and 64% after ephedrine). The increase in pulmonary ventilation is greater after the injection of *p*-oxy-ephedrine than after ephedrine. In man, a dose of 5 mg. of *p*-oxy-ephedrine raises the cardiac debt to a higher value (2.8 to 6.5) than that obtained by ephedrine hydrochloride in the same dose (2.8 to 3.3), ten minutes after the injection. The increase of pulmonary ventilation obtained ten minutes after the injection of 5 mg. of *p*-oxy-ephedrine (38%) is much greater than that produced by the same dose of ephedrine (4.5%). In the animal the duration of the modifications of cardiac debt, systolic debt and pulmonary debt produced by these doses of *p*-oxy-ephedrine and ephedrine slightly exceeds forty-five minutes. In man the modification of cardiac debt observed after *p*-oxy-ephedrine and ephedrine in a dose of 5 mg. by subcutaneous administration, was noted in the absence of important variations in arterial pressure.—J. OREMUS. *Arch. intern. Pharmacodyn. et Therp.*, 59 (1938), 30. (W. H. H.)

Phenethylamines—Physiologically Active. Hydroxy and Methoxy-β-methyl-β-phenethylamines, (β-Phenyl-*n*-propylamines). The *o*, *m*, *p*-monomethoxy—and corresponding *p*-hydroxyphenyl-β-methylethylamine hydrochlorides have been prepared for physiological testing. Preliminary pharmacological studies indicate lower toxicity for the β-methyl series than for the corresponding α-methyl compounds.—E. H. WOODRUFF and EARL PIERSON. *J. Am. Chem. Soc.*, 60 (1938), 1075. (E. B. S.)

β-Phenylisopropylamine—Determination of the Dose of, Delivered by Inhalors. The question is considered whether it is possible to absorb from an inhalor containing β-phenylisopropylamine (benzedrine) sufficient of the amine to produce other physiological effects besides the desired local action. A single treatment (two inhalations) amounts at most to 300 cc. of air. The quantity of the amine found in this volume of air pulled through an inhalor varied with the temperature and was 0.075 mg. at 15° C. and 0.201 mg. at 37° C. If the amine had been completely converted to its carbonate salt, the values obtained were 60–70% of the above values. If the temperature of the inhalor did not exceed 32° C. (considered as vest pocket temperature) the highest single dose (from 2 inhalations) was 0.15 mg. of the amine, corresponding to 0.20 mg. of the sulfate, and the greatest day dose (allowing for about 24 inhalations) was 1.84 mg. of the amine, corresponding to 2.5 mg. of the sulfate. According to the literature the smallest recommended single oral dose of benzedrine sulfate is 2.5 mg., or about ten times greater than that inhaled. In narcolepsy as high doses as 100–200 mg. of the sulfate have been used, and 10–20 mg. is the most generally accepted single dose. It is held that in the one hour periods between inhalations, usually recommended, the amine is destroyed or eliminated. Hence other effects than the local action are not to be expected when this amine is used in inhalors according to the directions. The content of benzedrine in air drawn through the inhalor was determined by absorption in *N*/200 sulfuric acid and back titration with *N*/200 sodium hydroxide (microburette,

methyl red indicator). The formula used was that of the Rhinodrin Inhalor (Medicinalco), which differs but slightly from the Benzedrine Inhalor formula. The Rhinodrin formula is: β-phenylisopropylamine, 0.30 Gm., oil of lavender, 0.10 Gm., menthol, 0.03 Gm.—J. HALD and I. GAD. *Dansk Tids. Farm.*, 12 (1938), 105. (C. S. L.)

Pilocarpine and Atropine—Antagonistic Action of, on the Perspiration of Rabbits. Effect of the State of Nutrition. Pilocarpine hydrochloride, injected intraperitoneally, increases the perspiration of the normally fed male adult rabbit; there is maximum perspiration for a dose of 0.6 mg. per kilo body weight, but the individual susceptibility varies widely. Atropine sulfate, on the contrary, when injected intraperitoneally, exerts an action that varies with the dose; weak doses decrease perspiration; strong doses produce a state of agitation which causes increase in the perspiration, but as soon as agitation ceases, perspiration decreases. It is possible to find injectable doses of pilocarpine and atropine such that their combined action on perspiration is nil. On the other hand, injection of a heavy dose of pilocarpine in a fasting animal cannot produce as intense perspiration as that produced in normally fed animals. Atropine sulfate still further decreases the perspiration which is already reduced by fasting.—A. GASNIER and A. MAYER. *Ann. Physiol.*, 13 (1937), 144–154; through *Chimie & Industrie*, 39 (1938), 514. (A. P.-C.)

Posterior Pituitary—Solution of, and Separation of the Active Components, α- and β-Hypophamine. Treat the acetone extract of posterior pituitary with water containing 0.25–0.50% acetic acid and remove protein by any of various methods. Separate α- and β-hypophamine by means of organic solvents (*e. g.*, ether or benzene) which dissolve them in different ratios. Standardize the finished preparation by (1) biological test on the surviving uterus of guinea pigs for α-hypophamine or increase of blood pressure in dogs for β-hypophamine, (2) measurement of the anti-diuretic effect or (3) observation of melanophore effect on frogs.—I. NOVAK. *Magyar Gyogyszeresztud. Tarsasag Ertesitöje*, 14 (1938), 73–80; through *Chem. Abstr.*, 32 (1938), 3901. (F. J. S.)

α-Pyridone Series—Relation Between Chemical Constitution and Physiological Action in. *N*-(β-hydroxyethyl)-α-pyridone has a slight hypertensive but not nicotinic action. It has a hypothermic action in rabbits made hyperthermic by injection of beer yeast. The benzoic ester and phenylurethan have no hypothermic action. *N*-(β-hydroxyphenethyl)-α-pyridone has a slight hypotensive action but does not affect respiration or temperature. *N*-(3-isoamyloxy-2-hydroxypropyl)-α-pyridone and *N*-(3-butyloxy-2-hydroxypropyl)-α-pyridone are hypotensive and accelerate respiration but have no hypothermic action.—J. A. GAUTIER and JEANNE LÉVY. *Compt. Rend. Soc. Biol.*, 123 (1936), 1103–1106; through *Chimie & Industrie*, 38 (1937), 1141. (A. P.-C.)

Rauwolfine—Effect of, on the Heart. The heart rate of frogs, cats and rabbits decreases after poisoning with rauwolfine (an alkaloid found in a tropical shrub, *Rauwolfia serpentia*). In the frog the refractory period of heart is increased and the intraventricular conductivity is delayed; the changes of heart rhythm noted are comparable with those following poisoning by digitalis compounds. Rauwolfine does not prevent auricular or ventricular fibrillation produced by faradic stimulation either in cats or in rabbits.—S. DE BOER. *Cardiologia*, 1 (1937), 1; through *Squibb Abstr. Bull.*, 11 (1938), A-611. (F. J. S.)

Rye Ergot Alkaloids—Action of Different, and their Constituents on Water Diuresis. The rye alkaloids can be divided into 3 classes. (1) Sympatholytic alkaloids. They comprise ergotoxine, ergotamine and ergosine, which stimulate the uterus when administered parenterally. Ergotoxine reduces water diuresis like ergotamine, which it resembles from a pharmacological standpoint. Ergotoxine, however, exerts an emetizing action in smaller doses than ergotamine. (2) This group comprises two isomers, ergometrine and ergometrinine which stimulate the uterus when administered orally and which seem to be devoid of all antiadrenergic or sympatholytic properties. Both these alkaloids increase water diuresis, ergometrine being the more active. (3) This group comprises a single alkaloid, ergomonoamine which, contrary to all the previously mentioned alkaloids, does not give the reactions characteristic of lysergic acid. Ergomonoamine produces a slight reduction in water diuresis; but it causes a very marked reduction in the chloride content of the urine during water diuresis, whereas all the alkaloids of groups (1) and (2) tend to prevent such decrease.—E. ZUNZ and OLGA VESSELOVSKY. *Compt. Rend. Soc. Biol.*, 126 (1937), 270–272; through *Chimie & Industrie*, 39 (1938), 516. (A. P.-C.)

Solustibosan—Important Pharmaceutical Aspects of. Warm-blooded animals do not react locally to intramuscular or intravenous injection of normal doses of solustibosan. The

general tolerance is relatively high; in mice the minimum lethal dose is 615 mg. (as antimony) per kilo body weight, which represents 25% more of the metalloid than in the case of neostibosan. The other laboratory animals (rabbit, dog) reacted similarly. This higher tolerance is due to a more rapid elimination of the antimony. It is therefore possible to administer the doses of solustibosan at closer intervals. The product has only slight secondary effects; the systolic pressure is reduced slightly and the diastolic pressure remains unchanged. The eliminative organs do not show any lesions.—H. WEESE. *Chinese Med. J.*, 52 (1937), 421–424; through *Chimie & Industrie*, 39 (1938), 516. (A. P.-C.)

Spinal Anesthetic—Changes in Blood Pressure and Respiratory Volume Following a. The greater part of the fall in blood pressure is due to vasomotor paralysis. A minor cause is the diminished respiratory excursion, which is due to abdominal and intercostal paralysis rather than medullary ischaemia. The Trendelenburg position has an immediate definite effect in increasing the blood pressure but not the respiratory volume. The induction of hyperpnœa has a small delayed effect in increasing the blood pressure.—D. L. LEWIS and E. G. M. PALSER. *Brit. Med. J.*, 4039 (1938), 1202. (W. H. H.)

Trillium Erectum—Phytochemical and Pharmacological Investigation of. Little was known of chemical composition and physiological action, both of which should be known if trillium is to remain official. Hence the present investigation. Experimental work is reported in some detail. Petroleum-ether extract and alcohol extract were studied and pharmacological tests were made. Moisture and ash were determined. The fatty oil obtained contained free acids and some mono or diglycerides. Solid fatty acids were chiefly palmitic, probably some myristic and lauric acids. Iodine number would indicate some unsaturated acid other than oleic. Volatile fatty acids seemed to range between valeric and capryllic acids. Unsaponifiable matter showed a solid hydrocarbon pentatriacontane $C_{35}H_{72}$; liquid hydrocarbons ranging from undecane to hexadecane; volatile oil and a sterol. Sucrose was found. A glucoside, $C_{37}H_{59}O_{14}$, was found. The literature disclosed no such compound and it has been named "trillarin." Upon hydrolysis it yielded glucose and a genin which has been named "trillarigenin." Analysis gave the formula $C_{25}H_{39}O_4$. The glucoside is physiologically inactive. Some material gave precipitates with alkaloidal reagents but probably because of an amino acid or a coloring principle. A saponin was found. Preliminary pharmacological examination showed no action on a pregnant cat by large doses of a de-alcoholized tincture orally. Neither oral nor rectal administration affected anesthetized cats. Very small doses of de-alcoholized tincture injected into frogs or given intravenously to cats caused death, probably by anaphylactoid circulatory shock due to saponin-like or protein-like substance. Resin, starch, dextrin mucilage and oxalate are present but no tannin.—DONALD C. GROVE, GLENN L. JENKINS and MARVIN R. THOMPSON. *J. Am. Pharm. Assoc.*, 27 (1938), 457. (Z. M. C.)

Tri-Tetraethylammonio Phosphate (Edein)—Action of, on Phosphorus Exchange. The gastric or subcutaneous administration of edein into rabbits produced a diminished urinary and fecal elimination of phosphorus as great as that produced by doses of lecithin containing equal amounts of phosphorus.—M. CORAZZA and L. CERVELLATI. *Arch. Farm. Sper.*, 62 (1936), 117–130; through *Chimie & Industrie*, 38 (1937), 1142. (A. P.-C.)

Urines and Tissue Extracts—Pressor Effects from. Pigeons and chickens were found to react consistently with pressor effects to intravenous injections of padutin, human urine and urinary extract, which, in most mammals, produce depressor effects. In birds, Tissue Extract No. 568 acted as a depressor, as in mammals. Pigeon urine produced pressor effects in cats, dogs and rabbits, but depressor effects in birds. The pressor actions of padutin and human urine in pigeons are the result of a peripheral vasoconstriction counterbalanced to some extent by a splanchnic vasodilation; and the pressor action of pigeon urine in mammals is due to peripheral vasoconstriction. The depressor action of Tissue Extract No. 568 appeared to be the result of vasodilation in outlying organs and the splanchnic region. The seat of the pressor action of human urine and padutin in pigeons is in the sympathetic (splanchnic) ganglia, and that of the depressor action of Tissue Extract No. 568 is peripheral to the autonomic ganglia. Chemically, the vasomotor actions in the pigeon of padutin, Tissue Extract No. 568, and human, rabbit and pigeon urines do not correspond to the actions of known biogenous, pressor or depressor tissue constituents, such as epinephrine, post-pituitary extract, histamine, acetylcholine, adenylic acid or adenosine. At present, the evidences indicate complications, both physiological and chemical, in

the actions of the tissue extracts used in the treatment of vascular disease which makes them uncertain and irrational therapeutic agents of doubtful value.—W. VAN WINKLE and A. J. LEHMAN. *Arch. inter. Pharmacodyn. et Therp.*, 59 (1938), 133. (W. H. H.)

Zinc—Action of, upon the Effects of Oestrin and Folliculin on the Ovariectomized Rat. The influence of certain metallic ions upon the action of enzymic and vitamin phenomenas has been known for some time. However, this synergistic effect does not act in an equal manner for the hormones, as may be seen in the recent work upon the action of insulin, adrenaline, gonadotropic and upon the reproductive function. The authors have studied the modified action of zinc upon the effects of folliculin on the ovariectomized rat. One part concerns the intensity of oestrogenic effect, the other part their duration. Zinc chloride increases the intensity and prolongs the duration of the oestrogenic effects of folliculin upon the ovariectomized rat. To understand the reënforcing effect of folliculin, it is necessary that zinc be combined with the hormone in certain proportions; not less than 1.5 mg. of zinc for 2–4 γ of folliculin and 3 mg. of zinc for 2–7 γ of folliculin.—R. CAHEN and A. TRONCHON. *Presse Medicale*, No. 43 (1938), 855. (W. H. H.)

TOXICOLOGY

Acetyl-β-Methyl Choline Chlorides (Mecholyl)—Use of, as Diagnostic Test for Poisoning by Atropine Series of Drugs. 0.00065 Gm. of atropine are sufficient to inhibit effects of mecholyl; and absence of mecholyl effects (sweating, salivation, etc.) after atropine suggested its use as diagnostic of atropinism. Report of five cases with brief psychotic episodes after midriasis with scopolamine. Symptoms relieved by subcutaneous injection of mecholyl.—WM. DAMESHEK and OSCAR FEINSILVER. *J. Am. Med. Assoc.*, 109 (1937), 561. (G. S. G.)

p-Aminomandelic Acid and Related Compounds—Some Alkyl and Alkamine Esters of. A number of alkyl and alkamine esters of p-aminomandelic acid were prepared for the purpose of a comparison of toxicities and anesthetic efficiency with the novocaine type of compounds. Diethylaminoethyl p-aminomandelate, the analog of novocaine, showed slightly less anesthetic efficiency and much less toxicity than novocaine.—L. S. FOSDICK and G. D. WESSINGER. *J. Am. Chem. Soc.*, 60 (1938), 1465. (E. B. S.)

Arsonium Bases—Comparative Biological Activity of Aromatic *vs.* Heterocyclic. Dimethyldiphenylenearsonium hydroxide and dimethylphenoxarsonium hydroxide and their nitrates were synthesized. Toxicity studies showed that substitution of the diphenylene group for the diphenyl group in dimethyldiphenylarsonium hydroxide increased the minimum lethal dose fivefold; substitution of the phenoxarsonium group doubled it, but the phenazarsonium group reduced it to one-sixth. The nitrates were more toxic than the corresponding hydroxides, except with the phenazarsonium compounds, where the reverse was true. With the latter, the nitrate brought death within 1 to 4 minutes, compared with 24 to 48 hours required with the hydroxide.—V. KARASIK and M. LICHACEV. *Compt. Rend. Acad. Sci. U. R. S. S.*, 4 (1936), 319–321; through *Chimie & Industrie*, 39 (1938), 513. (A. P.-C.)

Benzene and Benzyl Alcohol Vapors—Intoxication with. A brief discussion of pathological manifestations and pathogenesis of troubles caused by benzene and benzyl alcohol in lacquers and dopes, and of the means of preventing or reducing such hazards.—R. GAULEJAC and P. DERVILLÉE. *Ann. Méd. Légale Criminol. Police Sci.*, 18 (1938), 146–152. (A. P.-C.)

Calcium—Toxic and Physiologic Effects of. The toxic effects of intravenous calcium chloride or calcium acetate in cats were augmented by simultaneous injection of equivalent amounts of sodium phosphate, and inhibited by simultaneous injection of equivalent amounts of sodium citrate. It is suggested that calcium ions only play a rôle in the physiological action of calcium, but that colloidal calcium, or larger particles, besides the ions, are responsible for the toxic effects of calcium and for many of the therapeutic effects, especially the antiphlogistic action.—W. HEUBNER. *Klin. Wochschr.*, 17 (1938), 557; through *Squibb Abstr. Bull.*, 11 (1938), A-925. (F. J. S.)

Dichloroethane—Three Cases of Acute Poisoning by. Dichloroethane has a slight narcotic action; it acts on the central nervous system and produces bradycardia. In the 3 cases under consideration, the intoxication was produced by the presence of considerable quantities of dichloroethane in the atmosphere of the factory.—E. GORELOVA. *Hig. Truda*, 15 (1937), 69–70; through *Chimie & Industrie*, 39 (1938), 675. (A. P.-C.)

Dimethylphenazarsonium Salts—Influence of the Anion of, on their Biological Activity. Dimethylphenazarsonium acetate and monosulfate were synthesized and toxicity tests made on

mice. The acetate is one-third as toxic as the nitrate, and the monosulfate one-quarter as toxic. The rapidity of toxic action is, in order of decreasing speed: nitrate, acetate, monosulfate, hydroxide.—V. KARASIK and M. LICHACEV. *Compt. Rend. Acad. Sci. U. R. S. S.*, 4 (1936), 322–324; through *Chimie & Industrie*, 39 (1938), 513–514. (A. P.-C.)

Diphenylamine—Occupational Intoxication by. Diphenylamine is used to a considerable extent for restoring the explosive and detonating power of powders which have been stored for several years. The symptoms of intoxication through the respiratory tract, the digestive tract or the skin are described. Prophylactic measures to eliminate or reduce this hazard are indicated.—ROBERT, DERVILLÉE and COLLET.—*Ann. Méd. Légale Criminol. Police Sci.*, 17 (1937), 968–974. (A. P.-C.)

Eupatorium—Chinese. Chinese eupatorium, *E. chinense*, Lan-t'-sao, differs from the American species, *E. urticaefolium* in not producing acetonuria or marked hyperglucemia. The amount of green plant readily consumed by rabbits or guinea pigs does not cause death but produces a chronic poisoning, showing necrotic degeneration of the liver, and tubular nephritis. Glucemia invariably occurs without albuminuria or hyperglucemia. The dried leaves are less toxic. The toxic substances are unstable to heat. They are easily excreted in the milk and produce similar toxic effects in sucklings. The volatile oil is mainly responsible for the chronic poisoning, being a mild renal irritant. The main toxic principle appears in the alcohol extract of both green and dried leaves. When isolated in crystalline form, it produces narcosis, cardiac and respiratory depression, fall of body temperature and glucosuria with tubular nephritis. The similarity of these toxic effects to those of coumarin is noted.—C. PAK and B. E. READ. *Chinese J. Physiol.*, 12 (1937), 263; through *Squibb Abstr. Bull.*, 11 (1938), A-731. (F. J. S.)

Eupatorium—Chinese, Toxic Principles of. The chief toxic principle has been isolated from the leaves in crystallized form, m. p. 67°. It resembles coumarin. On a dry basis 0.34% of phytosterol was isolated, m. p. 212–213°. Its acetate m. p. 230–231°. The plant contains alkaloid, tannin, sugar and solid and liquid fatty acids. The fresh leaves yielded about 1% of a volatile oil. Extracts prepared according to Couch's method did not give the reactions for tremetol which is believed to be the toxic principle of American *Eupatorium urticaefolium*.—H. L. LI and C. PAK. *Chinese J. Physiol.*, 12 (1937), 275; through *Squibb Abstr. Bull.*, 11 (1938), A-695. (F. J. S.)

Fatal Intoxication Caused by Ingestion of Caterpillars, Thaumetopœa Pityocampa, Schiff. A detailed description is given of the histological characteristics of the organs after death caused by ingestion of some 15 to 20 caterpillars. The toxic principle, which seems to be located in the hairs, acts in a manner very similar to cantharidin.—J. FUSTER. *Ann. Méd. Légale Criminol. Police Sci.*, 18 (1938), 188–197. (A.P.-C.)

Friedel-Crafts Reaction—Contribution to. I. Synthesis of New Pharmaceutical Compounds. Introduction of alkyl or cycloalkyl groups in an acridine by substitution in 2- or 3-position reduces to a great extent the initial toxicity of the product, but also reduces in most cases its disinfectant action. Thus, dimethylacridine is 20 times less toxic than acridine. These results confirm those of Kuhn relative to the rôle played by the position of the methyl groups on the activity of the vitamin.—P. KRÄNZLEIN. *Ber. Deut. Chem. Ges.*, 70 (1937), 1776–1787; through *Chimie & Industrie*, 38 (1937), 1146. (A. P.-C.)

Fungicides—Laboratory Method for Testing the Toxicity of Protective. A definite volume of spray fluid is placed on a glass slide, spread with a needle to cover a prescribed area and allowed to dry. A measured volume of a suspension of spores of *Venturia inœqualis* is placed on the spray residue, and numbers germinating after 24 hours in a moist chamber are examined. The toxicity of copper and sulfur sprays is thus compared. Among organic fungicides examined, tetramethylthiuram disulfide showed notably high toxicity.—H. B. S. MONTGOMERY and M. H. MOORE. *J. Pomology*, 15 (1938), 253–266; through *J. Soc. Chem. Ind.*, 57 (1938), 567. (E. G. V.)

Gas Masks and Gas-Proof Clothing. A review of this subject.—H. GERSONS and A. KEILHOLZ. *Pharm. Weekblad*, 75 (1938), 280. (E. H. W.)

Glutathione—Antitoxic Power of. Studies on Cobra Venom. Guinea pigs injected subcutaneously with mixtures containing a fatal dose of cobra venom and reduced glutathione, adjusted with trisodium phosphate to a p_H value of 7.4 to 8.4, survived. When injected with mixtures adjusted below p_H 7.4 the animals died more slowly than the venom controls.—L. BINET,

G. WELLER and C. JAULMES. *Compt. Rend. Acad. Sci.*, 204 (1937), 1513–1514; through *Chimie & Industrie*, 38 (1937), 1143–1144. (A. P.-C.)

Gossypol—Non-Toxicity of, to Certain Insects. Gossypol and dianiline gossypol are ineffective either as contact or stomach poisons to woolly aphids or Mexican bean beetles.—E. P. BREAKEY and H. S. OLCOTT. *Science*, 87 (1938), 87; through *J. Soc. Chem. Ind.*, 57 (1938), 567. (E. G. V.)

Hydroxyquinoline Sulfosalicylate—Toxicity of, Injected Intravenously in the Rabbit and Dog. Doses of less than 0.1 Gm. per kilo produced no serious effects; 0.2 Gm. per kilo usually produced death by respiratory paralysis.—M. LEVRAT, L. BESSOT and P. LAROUX. *Compt. Rend. Soc. Biol.*, 124 (1937), 657–659; through *Chimie & Industrie*, 39 (1938), 514. (A. P.-C.)

Lead Poisoning—Unusual Case of. A case is described of severe lead poisoning in a woman after the ingestion of 110 grains of acetate of lead, taken over the period of a month for purposes of criminal abortion. Hematological data, some points of which appeared atypical, are recorded. Results of "de-leading" measures using parathyroid extract parenterally are given and the effects of the use of the extract and varied calcium intake on the blood-lead content are described.—J. N. M. CHALMERS and S. L. TOMPSETT. *Lancet*, 234 (1938), 994. (W. H. H.)

Mercury Poisoning—An Efficient Antidote for. The Strzyzowski antidote for mercury poisoning is hydrogen sulfide in a stable solution consisting of a supersaturated solution of sodium hydroxide (2 Gm. per liter) with hydrogen sulfide, to which is added 2.5% W/V solution of magnesium sulfate crystals and 25 Gm. sodium bicarbonate. The hydrogen sulfide is again passed through this mixture at −2–3°. There were no signs of poisoning when 50 cc. of this antidote were taken two seconds after 0.20 Gm. mercuric chloride in 50 cc. water. The mercury is precipitated in a non-absorbable and non-toxic form. The antidote is effective, in some cases, even as long as two hours after ingestion of the poison.—L. MICHAUD. *Schweiz. med. Wochschr.*, 67 (1937), 818; through *Squibb Abstr. Bull.*, 11 (1938), A-833. (F. J. S.)

Molybdates—Alkaline, Toxicology of. When given intravenous to dogs, 10 mg. ammonium or sodium molybdate per Kg. is well tolerated and 100 mg. sodium molybdate per Kg. causes severe, but not fatal, toxic reactions. The molybdate is rapidly eliminated by the urine and the feces. In the course of acute intoxication, the molybdate localizes in the kidneys, the concentration in the other organs remaining lower than the concentration in the blood. The molybdic anion, thus, is characterized by its weak toxicity and the great rapidity of its elimination.—F. CAUJOLLE. *Soc. chim. France, Sec. Toulouse, proc.* (6/19/37); through *Squibb Abstr. Bull.*, 11 (1938), A-780. (F. J. S.)

Nicotine—Fatal Intoxication by. A boy 9 years of age died 20 minutes after receiving an enema prepared with an unknown quantity of tobacco. The viscera contained 0.72 Gm. of nicotine.—DETIS. *Ann. Méd. Légale Criminol. Police Sci.*, 17 (1937), 985–988. (A. P.-C.)

Phenyldichlorarsine—Toxicology of. Phenyldichlorarsine is used as a wood preservative in concentrations of 1% by weight in medium and heavy petroleum distillates. When exposed for 10–30 minutes to this arsine, guinea pigs die when 0.40 milligrams per liter concentration has been surpassed. Less than 0.02 cc. applied to the skin produces intense and fatal burns on normal rabbits, the M. L. D. being calculated to be 8–10 milligrams per kilogram. The petroleum mixture is extremely vesicant and approximately 0.02 cc. will produce burns on rabbits. Wood impregnated with this mixture is irritating only when excess oil remains on the freshly painted samples. The possibility of chronic intoxication from original irritant material, arsenic and other arsenic derivatives must be considered.—H. C. DUDLEY and B. F. JONES. *Pub. Health Reports*, 53 (1938), 338; through *Squibb Abstr. Bull.*, 11 (1938), A-628. (F. J. S.)

Potassium Permanganate—Intoxication by, and Its Treatment. The symptomatology is described, together with the antidotes and method of administering them. If the poison has been absorbed for not more than 20 minutes previously, sodium thiosulfate is the best antidote; if longer, abundance of orange or (preferably) lemon juice, or a suspension of cream of tartar and kaolin is given.—CASIMIR STRZYSOWSKI. *Ann. Méd. Légale Criminol. Police Sci.*, 17 (1937), 989–993. (A. P.-C.)

Propylene Glycol—Toxicity of. Reference is made to previous studies of propylene glycol. Experimental methods are reported, results are tabulated and discussed. Acute average fatal doses for rats were in agreement with those previously reported except the intravenous which was found to be about half as much. In rabbits, acute average fatal dose intravenously was found

to be 6.5 Grm. per Kg. Chronic toxicity was studied by administering it in water. Three per cent caused no appreciable change in rate of growth; 10% caused a temporary slowing which lasted for 10 days. After this it became normal. No significant change was found on examination of organs at the end of ten days. Hematuria was observed following intravenous administration of sublethal doses to rats. Hemolysis was produced *in vitro* by both diethylene glycol and propylene glycol in concentrations greater than 0.14 molar. This seems to be due to dilution of isosmotic sodium chloride solution with osmotically inactive glycol solution.—J. H. WEATHERBY and H. B. HAAG. *J. Am. Pharm. Assoc.* 27 (1938), 466. (Z. M. C.)

Renghas Fruits (Semecarpus heterophylla Bl.)—Toxic Principle of. The toxic principle of the fruit of *Semecarpus heterophylla* Bl. has been isolated in the pure state and identified as 3-Δ^{10}-pentadecenyl-pyrocatechol. This compound, which Becker and Haack propose be named renghol, is related to urushiol of Japanese lac. Its vesicant action is attributed to the two hydroxyl groups in the *o*-position. The structure of the dimethyl ether of dihydrorenghol, m. p. 36.5–37°, was confirmed by synthesis. The position of the bouble bond in the aliphatic chain of renghol was established by ozonization of its dimethyl ether; this reaction yielded valeric aldehyde, identified by its 2,4-dinitrophenylhydrazone, m. p. 106.5–107°.—H. J. BECKER and N. H. HAACK. *Rec. trav. chim.*, 57 (1938), 225; through *Squibb Abstr. Bull.*, 11 (1938), A-747. (F. J. S.)

Rue as an Abortefacient and Poison. The abortive effects of rue are due to its direct action on the uterine muscular fiber. The active principle of the plant is the essential oil, which is found in all the organs of aborted animals. Its presence can be detected by determining the refractive index of the oil extracted by steam distillation from the viscera, placenta and embryo.—MARIE PAPAVASSILIOU and C. ELIAKIS. *Ann. Méd. Légale Criminol. Police Sci.*, 17 (1937), 993–999. (A. P.-C.)

Seaweeds—Unsaponifiable Matter of. III. Toxic Component. The unsaponifiable matter was separated from the algæ such as *Alaria crassifolia* Kjellm, *Cystophyllum hakodatense* Yendo and *Laminaria ochotensis* Miyabe. It was extracted with 80% methyl alcohol. A characteristic cramp or narcotic symptom was observed in rats on subcutaneous injection of 0.25–0.50 Gm. of the extract. However, the toxicity was very weak. The toxic substance in the fish liver oil may come from the algæ.—K. SHIRAHAMA. *J. Agr. Chem. Soc. Japan*, 13 (1937), 705; through *Squibb Abstr. Bull.*, 11 (1938), A-731. (F. J. S.)

Sulfanilamide Rash. A generalized maculopapular eruption occurred in three adults during treatment with sulfanilamide for gonorrhea or streptococcic infection. The rash occurred on the second, ninth and tenth day of treatment, respectively, and disappeared in about a week after discontinuation of the drug.—F. S. MAINZER. *Pennsylvania M. J.*, 41 (1938), 386; through *Squibb Abstr. Bull.*, 11 (1938), A-596. (F. J. S.)

Thallium Compounds—Morphogenetic and Toxic Activity of. The object of the present work was to study the correlation which exists between the chemical structure of thallium compounds and the pilotropic and toxic actions. It was carried out in order to find a way for thallium detoxification. The authors studied the biological action of 27 mono- and trivalent thallium compounds, among which 16 were synthesized for the first time. The authors demonstrated the great value of the angora rabbit as a test subject for the activity of thallium compounds and its advantage in comparison with other kinds of laboratory animals. All the monovalent thallium compounds tested, namely: nitrate, chloride, iodide and acetate of thallium, thallium alum, thallous salt of glycine, of arsanilic and anthranilic acids, hexathallous mannite and thallous albuminate—are capable of inducing experimental moult. The nature of the pilotropic action of the different monovalent thallium compounds is similar to that of thallium acetate described in former works on "experimental moult" of angora rabbit. The threshold of moult doses (the minimal epilatory doses) as well as the minimal lethal doses of the different monovalent thallium compounds studied contain, respectively, the same quantities of this element. The thallium content of the threshold doses is 6–10 mg., while that of the lethal dose is 14–18 mg. per kilo weight of the rabbit. Hence the degree of the pilotropic and toxic action of the monovalent thallium compounds studied depends upon the quantity of thallium but does not depend upon the chemical structure of the compound. The cause of the similarity in the biological action of different monovalent thallium compounds when used in doses with equal thallium content may lie in the supposed ultimate chemical transformations of these substances into thallium chloride inside the body of the animal. In contrast to previous work the authors found that almost all the triva-

lent thallium compounds investigated produce pilotropic effect expressed, as in the case of monovalent thallium compounds, by the experimental moult of animals. The degree of pilotropic and toxic effect of trivalent thallium compounds evidently depends upon the chemical structure, in particular upon whether the compound is a salt, a primary or secondary compound. For secondary compounds it depends upon: (1) the presence of a fatty or aromatic radical in the organometallic compounds, (2) the length of the chain of the hydrocarbon radical, (3) the type of aromatic radical, (4) the presence of different substituents in the aromatic radical and (5) the acid residue. The salts of trivalent thallium possess the highest biological activity. The activity of the primary compounds is somewhat lower. The secondary compounds are the least active of all. The toxicity of some complex salts of trivalent thallium is higher than that of all other compounds studied. In secondary organo-metallic compounds of the fatty-series both the pilotropic action and the toxicity vary with the elongation of the carbon chain. Among the organo-metallic compounds of the aromatic series di-α-naphthylthalliumbromide is more toxic than diphenylthalliumbromide. The introduction of certain substituents as the toxiphores of the second order (CH_3-COOH) considerably increases the pilotropic and toxic action of aromatic organo-metallic thallium compounds. The pilotropic and toxic action of diethylthallium compounds depends upon the acid residue. A modification of the chemical structure does not always lead to a parallel modification in the degree of the pilotropic and toxic activity. Thus the formation of the complex of thallium bromide with phloroglucinol increases the toxicity of trivalent thallium salts without apparently increasing its pilotropic action. On the other hand the replacement of ethyl by phenyl increases the pilotropic action though it does not greatly influence toxicity. Consequently certain structural groups in the molecule of thallium compounds increase preferentially, selectively, the toxic, while other groups increase preferentially the pilotropic effect of these compounds. The pilotropic action is not a direct result of the toxic action of thallium. This fact opens the field for the possibility of a further dissociation of these two effects, in the future preparation of organothallium compounds.—N. A. Iljin, P. Hofman, N. N. Melnikov and A. M. Avetisian. *Arch. intern. Pharmacodyn. et Therp.*, 58 (1938), 371. (W. H. H.)

Ortho-Toluene-Azo-Beta-Naphthol—Study of Toxicity of. Used in processing citrus fruits. Studies on acute toxicity on dogs, rabbits, rats. Dye administered orally, intramuscularly, intravenously. All animals showed gastrointestinal irrigation and staining of adipose tissues; few fatalities except in massive doses. No significant pathologic lesions in studies of chronic toxicity. Comparative tests with yellow AB and yellow OB used in butter, give equivalent results.—D. and R. Climenko. *J. Am. Med. Assoc.*, 109 (1937), 493. (G. S. G.)

Therapeutics

Carrel-Dakin Treatment of Open Wounds. A very stable Dakin's solution can be prepared inexpensively and easily by adding 1 part of "hychlorite" (a commercial preparation containing 4.05% sodium hypochlorite) to 7 parts sterile hypertonic saline or sterile water. This gives a standard solution containing about 0.5% sodium hypochlorite, which need not be made up oftener than once a week. It is non-irritating, non-caustic, non-toxic and highly bactericidal. It aids materially in cleansing and sterilizing wounds by dissolving and washing away necrotic tissue and old blood clots, and does not harm normal granulation tissue. The technic of wound treatment by this solution is described in detail with a case report illustrating the excellent results.—J. C. Donchess. *J. Indiana M. A.*, 31 (1938), 173; through *Squibb Abstr. Bull.*, 11 (1938), A-749. (F. J. S.)

Cyclotron Against Cancer. Radioactive iodine, obtained from iodine by the cyclotron, when injected intravenously into rabbits makes its way almost exclusively into the thyroid gland, where it should act like radium needles or seeds. When greater supplies of radioactive iodine can be made, the material may prove useful in treating cancers of the thyroid and simple goiters.—S. Hertz and A. Roberts. *Federation Am. Societies for Exptl. Biol., meeting* (1938); through *Squibb Abstr. Bull.*, 11 (1938), A-784. (F. J. S.)

Gastric Ulcers—Histidine Treatment of. Of twenty-five gastric ulcer patients treated by intramuscular administration of histidine, one recovered completely, nineteen showed partial or complete symptomatic relief (temporary in most cases) without cure of the ulcers, and five obtained no relief. It is concluded that histidine treatment has little or no value.—C. E. Smith. *Malayan Med. J.*, 12 (1937), 19; through *Squibb Abstr. Bull.*, 11 (1938), A-836. (F. J. S.)

Gonorrhea—Treatment of, in Men by Silver Acetate. The theoretical basis of the silver acetate treatment of gonorrhea is explained, the chemistry and physics of the preparation discussed and the treatment of fifty male cases of gonorrhea described. Although silver acetate is not the therapeutic agent of choice, it is effective, well tolerated and cheap.—K. HERRNBERGER. Dissertation, Kiel (1935); through *Squibb Abstr. Bull.*, 11 (1938), A-592. (F. J. S.)

Kala-Azar—Treatment of, by Solustibosan, a New Antimony Compound. Solustibosan consists of a stable, colorless, sterile solution of pentavalent antimony hexonate. Its toxicity is smaller than that of "neostibosan." Statistical study of the cases of kala-azar treated with solustibosan showed a high proportion of permanent cures. Death during treatment or after cure are not due to the medicament, but to the seriousness of the lesions.—E. B. STRUTHERS and L. C. LIN. *Chinese Med. J.*, 52 (1937), 335–338; through *Chimie & Industrie*, 39 (1938), 516. (A. P.-C.)

Manganese Chloride in Tuberculus Meningitis. The author describes a new treatment of tuberculus meningitis with manganese chloride. The substance used is $MnCl.4H_2O$ in 0.2 molar solution, prepared under the trade name of "metallosal;" 1 to 2 cc. are given rectally twice daily for one to two weeks; 1 cc. may also be given by intrathecal injection; intravenous injections are not well tolerated. Seven cases are reported, in six of which the treatment led to recovery; in the one case in which it was not effective the patient had generalized miliary tuberculosis. The values for the chlorides and sugar in the cerebrospinal fluid are not given, but in one case with recovery, acid- and alcohol-fast bacilli were found in this fluid. The author considers that the drug leads to a stimulation of the formation of antibodies, either in the gut during absorption or in the meninges, and does not act directly on the bacillus. He also considers it possible that serous lymphocytic meningitis is a benign form of tuberculus meningitis, and in such cases the effect of manganese chloride is dramatic.—V. GORLITZER. *Med. Klinik*, March 11, 1938, 334; through *Brit. Med. J.*, 4042 (1938), 1406D. (W. H. H.)

Myotonic Dystrophy and Myotonia Congenita—Clinical Study of, with Special Reference to the Therapeutic Effect of Quinine. Eight cases of myotonia atrophica and one of myotonia congenita were studied clinically while under quinine sulfate (I) and other drug therapy. I abolished the myotonus but had no effect on muscular strength. The usual maintenance dose was 0.6 Gm. three times a day by mouth. The smallest effective dose was 0.3 Gm. three times a day in a patient with mild symptoms. Toxic symptoms were few. Tinnitus was invariably present but was not too discomforting and nausea only occurred in one case who was getting 0.6 Gm. I four times daily. There is no evidence that untoward actions of I may not follow later. The reduction in myotonus usually occurred within six to twenty-four hours and withdrawal was followed by reappearance of symptoms, sometimes of subjectively greater severity. It is possible that a dependence on I may develop. I counteracted the effect of prostigmin (II) in two cases of myasthenia gravis and increased the symptoms and signs of the disease. II increased myotonus and directly antagonized the full therapeutic effect of I. Kolb *et al.*, observed clinical improvement in myotonus only with the various salts of quinine; potassium chloride, parathyroid hormone and adrenal cortical extract were ineffective. There is doubt that I will have any influence on the wasting of the muscles in myotonia atrophica.—L. C. KOLB, A. M. HARVEY and M. R. WHITEHILL. *Bull. Johns Hopkins Hosp.*, 62 (1938), 188; through *Squibb Abstr. Bull.*, 11 (1938), A-609. (F. J. S.)

Narkolan, Tribromoethyl Alcohol. Acetaldehyde is brominated, and tribromoacetaldehyde is reduced with aluminum ethylate. It is very unstable, decomposing at 35–40° and under the influence of light. It is mostly used for rectal narcosis as a 3% solution.—Y. A. FIALKOV. *Farm. Zhur.*, 3 (1937), 184–5; through *Chem. Abstr.*, 32 (1938), 3905. (F. J. S.)

Pantocain Spinal Anesthesia. The author has found the 10% hypobaric solution of tropacocain satisfactory for operations below the umbilicus, though it cannot be safely used in the trendelenburg position and its effect lasts only about one hour. An excellent hypobaric solution effective up to three hours is pantocain L., the makers (I. G. Farben-industrie) of which have now produced a preparation of the dry salt in ampuls of 10 mg. This is dissolved in 3 to 4 cc. of cerebrospinal fluid obtained by puncture between the third and fourth lumbar vertebræ and reinjected; it is recommended that the injection be made rather quickly in order to mix the heavy solution with the cerebrospinal fluid. The patient is placed on his back with the head raised, and anesthesia is usually complete in fifteen minutes. Though the level may be controlled by altering the position of the patient, the author has not attempted to obtain anesthesia above the level of the

umbilicus. He reports favorably on sixty cases, aged from 40 to 85; his failures were in the younger persons, and he considers the method unsuitable below 40 years. Of sixty, fifty-three were completely successful and two total failures; in five supplementary anesthesia was required. Only one case of collapse occurred, and this responded promptly to coramine. Two cases of severe headache were successfully treated by the intravenous administration of 40% urotropin. An advantage of this method is that patients can get up on the day of operation.—H. ZUMFELDE. *Zbl. Chir.*, April 9, 1938, 791; through *Brit. Med. J.*, 4041 (1938), 1348D. (W. H. H.)

Pollen Solution—Intranasal, Application of, in Hay Fever. The advantages of intranasal inoculation in hay fever are that it can conveniently be used in conjunction with other methods, that it provides a means of giving relief to patients during an attack, and that it increases the resistance to pollen of patients who are intolerant of injection methods. While it is not asserted to be a method which by itself results in complete cure, it can often be advantageously employed in cases where other means have failed or have only been partly successful.—C. FRANCIS. *Brit. Med. J.*, 4040 (1938), 1263. (W. H. H.)

Quinine Derivatives—Effect of Some, on Auricular Fibrillation. Pure quinidine has no effect on auricular fibrillation in rabbits and cats; the effect of apoquinine is very slight; hydroquinidine, hydroquinine and epiquinine have a very marked action. The effect of quinidine is dependent on the amount of hydroquinidine present. Pure quinidine does not affect, and the other substances increase, the refractory period and conduction time. Extrasystolic rhythms are influenced by hydroquinine, hydroquinidine and epiquinine, but not by pure quinidine and apoquinine.—K. VAN DONGEN and A. J. R. SANCHES. *Acta Brevia Neerland. Physiol.*, 7 (1937), 25; through *Squibb Abstr. Bull.*, 11 (1938), A-761. (F. J. S.)

"SDT 561" in the Treatment of Kala-Azar. "SDT 561" is a pentavalent antimony preparation which has shown itself clinically very active in the treatment of kala-azar. Percentage of recoveries reaches as high as 95%; the medicament acts rapidly and the patients gain in weight during the very first weeks of treatment.—T. M. YATES. *Chinese Med. J.*, 52 (1937), 339–344; through *Chimie & Industrie*, 39 (1938), 516. (A. P.-C.)

Sodium Hexametaphosphate—Treatment of Burns by. A new chemical remedy for burns which may prove superior to tannic acid (I) is sodium hexametaphosphate (II). A solution of II prevents infection of burns and other tissue that has lost its skin because of injury. II combines with the fluid oozing from the skinned tissues to form a moist, firm, flexible film preventing growth of bacteria or disease germs. Islets of living skin in the midst of the burned area are not injured by II. Beneath the film, new normal-appearing skin grows, with a subcutaneous layer full of blood vessels, quite different from the undernourished tissue which regenerates when I is used.—K. K. JONES, R. W. VANCE and Q. DE MARSH. *Federation Am. Societies for Exptl. Biol., Meeting* (1938); through *Squibb Abstr. Bull.*, 11 (1938), A-782. (F. J. S.)

Sodium Iodide in Painful Conditions. Sodium in the form of French naiodine has proved efficient in the control of pain of undetermined origin, such as sciatica or arthritis for which no focus of infection can be found. This drug is also useful in relieving the severe pain of acute gonorrheal epididymitis, and in the control of migraine. The author has successfully used naiodine, which has been proved by animal experimentation to be nontoxic even if used in much greater amount than the recommended dosage. This drug comes conveniently packaged for both intravenous and intramuscular administration, making it at all times readily available. Sodium iodide injections are recommended as an efficient substitute for habit forming analgesics, and as a therapeutic aid in certain inflammatory conditions, notably gonorrheal epididymitis.—MIRON SILBERSTEIN. *Med. Record*, 148 (1938), 29. (W. H. H.)

Sucrose—Solution of, in the Treatment of Alcoholism and Confusional States. Good results were obtained in treatment of alcoholism and confusional psychosis by intravenous injection of 50% sucrose solution in 20 cc. amounts at four or eight hour intervals. This treatment lowers the intracranial pressure and probably relieves brain edema. It is probable that a patient can receive six or more injections consecutively without permanent kidney damage.—J. P. HILTON and D. M. ALDERSON. *Rocky Mountain M. J.*, 35 (1938), 227; through *Squibb Abstr. Bull.*, 11 (1938), A-686. (F. J. S.)

Sulfanilamide in Meningococcal Meningitis. Three cases of meningococcal meningitis have been treated with prontosil and anti-meningococcal serum. Greatly impressed with the rapidity in resolution of the pathological findings in the cerebrospinal fluid, together with the

dramatic clinical improvement in the patient's condition, and on comparing these cases with others treated in the past with anti-meningococcal serum alone the authors felt that the results obtained were largely due to prontosil. The object of pushing prontosil soluble during the first seventy-two hours is to sterilize the cerebrospinal fluid before morbid changes with their lasting sequelæ have time to occur. In the second case the eighth nerves were already involved when treatment commenced and an unfavorable prognosis as regard hearing was inevitable. In view of the American experience it is probably wise to give sodium bicarbonate grain for grain with sulfanilamide to combat acidosis. In the authors' opinion the use of sulfanilamide intrathecally is unnecessary. The use of prontosil album orally to combat the carrier problem opens a large field for experiment.—T. C. MORTON, V. S. EWING and J. D. EBSWORTH. *Brit. Med. J.*, 4042 (1938), 1362. (W. H. H.)

Sulfanilamide in Urology. Of seventy-five cases of gonorrhea, acute, chronic, simple and complicated, male and female, and vaginitis, about 50% were cured with sulfanilamide, with better results in private than clinic patients. In other bacterial genito-urinary infections the drug is worthy of a trial, and it is surprising to note the frequent excellent results obtained. This drug, though of great use, is a potentially dangerous one in the hands of those not acquainted with it, or the inexperienced. It has a definite but limited field, and never should be used carelessly. At the present time this drug should be used in its pure form, and only with careful supervision. The solutions in ampul form on the market to-day contain a related chemical which, when introduced into the system, has to be converted into sulfanilamide. The near future may reveal a solvent that is harmless, for the pure sulfanilamide, or an intravenous preparation that may be in part a realization of Ehrlich's dream.—J. L. WOLLHEIM. *Med. Record*, 147 (1938), 544. (W. H. H.)

Sulfanilamide—Serum and, in Meningitis. The treatment of one hundred and thirteen sporadic and seasonal cases of acute meningococcal meningitis is described. All other cases admitted during the period, but excluded from the series, are recorded. In thirty-eight cases treated with large doses of serum intravenously, combined with intrathecal serum twice daily during the first five days, the fatality-rate was 16%. There were no infants in this series. The method was relatively difficult and laborious, and the nursing complicated for several days. The cerebrospinal fluid was usually sterile within 24–48 hours, but in about a fifth of the cases contained meningococci for four or five days, or occasionally longer. In fifty-nine cases including ten infants treated with both serum and sulfanilamide, the fatality rate was 11.8%. Recovery was very rapid and the nursing relatively easy, the cerebrospinal fluid being usually sterile within 24 hours. The few exceptions to this rule, as well as 2 of the 7 deaths, could be explained on the basis of low dosage of sulfanilamide. In 16 selected cases of favorable age grouping treated with sulfanilamide alone, there were fifteen rapid recoveries. The age period, 5–20 years, is the most favorable. Among 113 cases there were 36 in this age group without a death. Sulfanilamide therapy marks an important advance. It has changed the treatment of meningococcal meningitis from a difficult to a relatively simple matter. The former high case mortality in infants appears to be yielding to this treatment. It is effective in Group II as well as in Group I infections. High initial dosage is advocated. The sulfanilamide level in the cerebrospinal fluid should preferably reach 5 mg. per 100 cc. in 24 hours and be maintained at this level for three days. Early cyanosis is not an indication for reducing dosage. The treatment is probably effective only in the acute stage. Two cases treated after the tenth day of the disease died. Experimental and clinical evidence so far is in favor of combined serum and drug therapy, especially in severe cases. This appears to be effective both in Groups I and II infections, and in certain anomalous types. Further experience with sulfanilamide alone in adequate dosage is desirable. Serum should be given in one or two large doses intravenously or intraperitoneally; given thus, a fraction of it penetrates rapidly to the cerebrospinal fluid and is maintained therein in small amount for many days. Drainage is seldom required apart from daily lumbar punctures for two or three days.—H. S. BANKS. *Lancet*, 235 (1938), 7. (W. H. H.)

Testicular Extract—Total, Treatment of Prostatic Hypertrophy with. The hormonal treatment of prostatic hypertrophy has been tried with success by different authors, inspired by various pathogenic conditions and by utilizing various products, all have confirmed the value of this method. The authors have utilized total testicular extract comparing their results to those obtained with synthetic hormones, when given in small doses. Its action is very clear upon the

functional trouble of prostatic hypertrophy, and it has seemed to the authors that its prolonged usage often produces a modification of the radiologic and physical signs of œdema. Its usage as indicated at the appearance of the signs of prostatism, a veritable prophylactic treatment, has been utilized the same as in the case of confirmed prostatic hypertrophy, again yielding very good results. The study of associated prostatic lesions and their treatment by the endoscopic method is indispensable if one desires to obtain from this method all the success that may be attended. It has been found that the administration of testicular extract to maintain treatment is indicated after endoscopic resection, for preventing recurrences. Upon this fact rests the principle of this method.—B. CUNEO and J. JOMAIN. *Presse Medicale*, 47 (1938), 913. (W. H. H.)

Vitamin A -Local, for Radiodermatitis. The authors report a case of severe ulcerative radiodermatitis which had resisted all forms of therapy for six years. The ulceration, which affected the epigastric region, supervened as a result of repeated radiographic examinations. Among the treatments unsuccessfully tried were diathermy, ultraviolet irradiation, heliotherapy, local serotherapy and all kinds of ointments and antiseptics. Infra-red irradiation had a definite analgesic effect. Insulin was applied locally with partial success. Vitamin A was then applied directly and caused rapid cicatrization and epithelialization of the ulcer.—H. SOHIER and L. GINIEYS. *J. Radiol. Electrol.*, March 1938, 112; through *Brit. Med. J.*, 4041 (1938), 1348D. (W. H. H.)

NEW REMEDIES

SYNTHETICS

Cyclopropaan, C_3H_6, is used in Canada for narcosis, in place of ether laughing gas, etc. Special apparatus and determined quantities are necessary for application.—*Pharm. Weekblad*, 75 (1938), 28. (E. H. W.)

Decicaine is a new name for pantocaine-hydrochloride. Pantocaine, the base, is *p*-butylaminobenzoyldimethylaminoethanol, $C_4H_9NH.C_6H_4COOC_2H_4N\text{-}(CH_3)_2$. It is a white crystalline salt easily soluble in water and in alcohol.—*Pharm. Weekblad*, 75 (1938), 28. (E. H. W.)

Dixanthal Tablets (Societeit voor chemische Industrie, Katwijk) contain 300 mg. theobromine (dimethylxanthine) and 30 mg. phenylethylbarbituric acid per tablet. The tablets are used in stimulating conditions (accompanied by cramp) of the circulatory system when circulation is insufficient. Dose $^1/_2$ to 2 tablets three times a day.—*Pharm. Weekblad*, 75 (1938), 29. (E. H. W.)

Esidrone is the sodium salt of pyridinedicarboxy-β-mercuri-ω-hydroxypropylamidetheophylline, and is a mercurial diuretic. Pharmacologically, esidrone exerts an extraordinarily pronounced diuretic action when administered to the rabbit or dog in a dose of 0.0085 Gm. per Kg. of body weight, whereas the lethal dose in the rabbit is 0.25 Gm. per Kg. subcutaneously and 0.1 Gm. per Kg. intravenously. Clinically, esidrone is well tolerated and is excreted rapidly, 91% of the mercury being eliminated within eight hours; there is thus little danger of toxic effects through cumulation when 1 ampul is administered three times weekly. Esidrone is indicated in cardiac edema, dropsy, ascites and for reduction of obesity, and is contraindicated in the presence of glomerulonephritis and severe nephrosis. The dosage is 1 ampul intramuscularly or intravenously twice or three times a week; the action is enhanced by a previous administration of an acidifying agent such as ammonium chloride. Esidrone is packed in ampuls of 1.1 cc., containing in 1 cc. 0.14 Gm. of esidrone equivalent to 0.043 Gm. of mercury, issued in boxes containing 5 ampuls.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 670. (S. W. G.)

Neo-Aktivarsan is the sodium salt of dioxy-diamino-arseno-benzoylmethylenesulfoxalate which is prepared in Japan by Nippon Soda Co., Ltd. of Tokio as a substitute for neosalvarsan.—*Pharm. Weekblad*, 75, (1938), 321. (E. H. W.)

Pentothal Natrium is the sodium salt of ethyl-*l*-methylbutylthiobarbituric acid. It is a yellow crystalline powder soluble in water. It is used intravenously as a narcotic in operations.—*Pharm. Weekblad*, 75, (1938), 30. (E. H. W.)

Quinolor ointment contains 10% of benzoyl peroxide and 0.5% of a new antiseptic consisting of a mixture of 5-chlor-8-hydroxyquinoline, 7-chlor-8-hydroxyquinoline and 5:7-dichlor-8-hydroxyquinoline resulting from the chlorination of hydroxyquinoline, in a base consisting of equal

parts of white vaseline and deodorized anhydrous lanolin. Benzoyl peroxide is included in the formula since it is a slow but continuous source of oxygen when in an oleaginous base and has been shown to possess tissue repair-promoting properties; it is also non-irritating and aids in relieving pain and itching. This ointment is intended to be applied to superficial lesions as a protective antiseptic dressing, especially in cases where a liquid dressing cannot be repeated at short intervals. The ointment is supplied in 1 oz. tubes and in 50 Gm. and 1 lb. jars.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 671. (S. W. G.)

Thiodacaine (Laboratoires Midy, Paris) contains, per ampul, 0.2 Gm. iodazine (the diiodo methylate of dimethyldiethylene diamine), 0.2 Gm. dunocaine (the phenylpropionate of para-aminobenzoyl-diethylamino-ethanol) and 0.02 Gm. thiocarbamide. Dunocaine is an anesthetic that is 17 times as powerful as novocaine. Iodazine $I_2C_4H_8N_2.(CH_3)_4$ is an easily resorbed iodine preparation that contains 65% iodine. It is designated as Iodazine M (methyl) to differentiate it from other members of this group which contain other alcohol radicles. Thiocarbamide $NH_2.CS.NH_2$ contains 42% sulfur. Because of its iodine and sulfur content thiodacaine is particularly favorable for the treatment of rheumatic conditions.—*Pharm. Weekblad*, 75, (1938), 30. (E. H. W.)

Thiodérazine (Laboratoires Midy, Paris) contains thiocarbamide 50 mg., iodazine 200 mg. and piperazine (diethylenediamine) 50 mg. Because of its sulfur and iodine content this medicament is also used in the treatment of rheumatism. The piperazine has the favorable property of aiding the solution of uric acid. Thiodérazine is used every day or every other day as an injection of 5 cc.—*Pharm. Weekblad*, 75 (1938), 31. (E. H. W.)

Triginta Tablets (E. Scheurich, Chem.-Pharm. Fabrik, Hirschberg i. Schles) contain aminophenazone and allylbutylmalonylureide. It is recommended in the treatment of nervous disorders.—*Pharm. Zentralhalle*, 79 (1938), 689. (N. L.)

Uliron (I. G. Bayer, Elberfeld) is a derivative of the prontosil series appearing to be very active in infections. Uliron is particularly efficient in combating staphylococcus-, gonococcus- and streptococcus-infections. Uliron is colorless, easily soluble in water and also in dilute alkalis. It is also soluble in acetone, and better yet in alcohol. The melting point is 184°; the taste slightly bitter. Uliron is 4-(4'-amino-benzolsulfon-amido)-benzolsulfondimethylamide. It is sold in tablets of 0.5 Gm. the dose being 1–2 tablets three times a day.—*Pharm. Weekblad* 75 (1938), 31. (E. H. W.)

Uliron Ointment contains 50% uliron. This concentrated ointment prepared by I. G. Bayer & Co. may be diluted with the customary ointment constituents found in the pharmacy. The 5% ointment is the one usually used. This uliron ointment is used in infected wounds, panaritia, furuncles, carbuncles, ulcus cruris, mastitis, etc.—*Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Veritol (N. V. Knoll & Co., Amsterdam) is *β-p*-oxyphenyl-isopropylmethylamine that is found on the market in ampuls, tablets, suppositories and in a 30% solution of its sulfuric acid salt. It promotes a rapid and prolonged return of the hemodynamic equilibrium in disturbed circulation by increasing the supply of fresh blood and increasing the circulation. The dose is; in Ampuls (1.1 cc.) intravenous $^1/_4$-$^1/_2$ ampul, subcutaneous or intramuscular 1–2 ampuls; liquid 20 drops, and tablets, $^1/_2$ tablet several times a day.—*Pharm. Weekblad*, 75 (1938), 31. (E. H. W.)

Specialties

Anti-bi-san is an antibacterial preparation of powdered polyvalent serum, made up into tablets which are coated with keratin. The source is beef blood serum and the composition is is stated as: antibodies of blood serum, 2.61%; manganese protein, 3.48%; calcium protein of polyvalent serum, 6.96%; vitamin A, 1.74%; excipient, 85.21%. The tablets are recommended for prophylactic treatment against influenza and the common cold, the antibodies, after absorption from the intestinal tract, conferring a passive immunity to pneumonic, influenzal and allied infections of the respiratory system. The presence of vitamin A increases the resistance to infection. The dosage recommended is: first day, 1 tablet; second day, 2 tablets; third day, 4 tablets, swallowed with a little cold water one hour before breakfast. It is claimed that seven days after the completion of this course, immunity is present, which lasts for three months. Special

tablets for children between four and fifteen years of age are available. Anti-bi-san must not be given to children under four years of age.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 668. (S. W. G.)

Bonalin (I. G. Farben) is a fuel which is prepared in tubes with a synthetic product and which burns without odor and the formation of soot.—*Pharm. Weekblad*, 75 (1938), 320. (E. H. W.)

Calmobrom is a new name for the product formerly called "Bromocalm" prepared by N. V. "Phia" of Amsterdam.—*Pharm. Weekblad*, 75 (1938), 320. (E. H. W.)

Crinex (Laboratoires Crinex, Paris) is a standardized ovarian extract. It is obtained by a new biochemical process, in which the hormones are brought into solution and can be administered by mouth or subcutaneously. It is free from albumin and contains the follicle hormone and other ovarian hormones in an unaltered state. It is found on the market in alcoholic solution in drops, of which 1 cc. is equivalent to 0.3 Gm. of fresh ovary (30 units).—*Pharm. Weekblad*, 75 (1938), 320. (E. H. W.)

Curcubile is the name used to designate Raaf's Temoelawak-Galpastilles by the firm, Boerrigter-Raaff.—*Pharm. Weekblad*, 75 (1938), 28. (E. H. W.)

Daucarysatum (Bürger) is obtained from *Daucus carota* and is employed as a non-toxic anthelmintic against *Oxyuris*.—*Pharm. Weekblad*, 75 (1938), 320. (E. H. W.)

Dysentery Vaccine (Behringwerke, I. G. Farbenindustrie, A. G., Leverkusen a. Rh.) contains in each cc., 500 million Shiga bacilli, 250 million Flexner bacilli and 250 million Y-bacilli. It is recommended in prophylactic bacillary dysentery therapy.—*Pharm. Zentralhalle*, 79 (1938), 672. (N. L.)

Esiderm is a paste containing zinc oxide 30, talc 20, terra silicea 10, glycerin 20 and water 20, prepared as a colloidal trituration. It is non-greasy, possesses marked absorptive properties and being free from fat, cannot cause irritation. Esiderm is indicated primarily in the treatment of eczema during the summer, but is also of value in many other dermatoses. It should be applied in a thin layer, when it quickly dries, and may then be covered with a thin piece of muslin; the application is generally required twice a day. Esiderm is supplied in tubes containing 1.5, 3 and 7 ounces, and in dispensing packages containing $^1/_2$, 1 and 2 pounds.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 669. (S. W. G.)

Euflamin-Adnexitis-Vaccine (Behringwerks, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) consists chiefly of puerperalis streptococci, gonoccoci, staphylococci and coli bacilli.—*Pharm. Zentralhalle*, 79 (1938), 672. (N. L.)

Ferrofax is a powder containing ferrous iron, vitamin B concentrate, and traces of manganese, copper and cobalt, which is also prepared in the form of capsules containing in the adult size, ferrous iron, 0.1 Gm., vitamin complex B_1 16.2 units, B_2 3.2 units, manganese as hydroxide 0.1 mg., copper as hydroxide 0.1 mg. and cobalt as hydroxide 0.1 mg. These capsules contain 5 minims; the children's size contains 3 minims of a mixture of the same composition and thus contain $^3/_5$ths of the above quantities. These preparations are primarily intended for the treatment of the nutritional anemias in young people, particularly of girls and of infants. Ferrofax powder is supplied in bottles containing 8 oz., children's size capsules in bottles of 25 and 100, and the adult size in bottles containing 50 capsules.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 670. (S. W. G.)

Flavolutan (C. F. Boehringer & Sohne, G. m. b. H., Mannheim-Waldhof) consists of progesterin (corpus luteum hormone) dissolved in wheat germ oil. It is marketed in ampuls containing 2 and 5 mg. of the hormone. It is recommended in the treatment of abortive conditions, menorrhagica and sterility.—*Pharm. Zentralhalle*, 79 (1938), 673. (N. L.)

Fortamine is a tonic prepared by Schering-Kahlbaum at Berlin which contains no strychnos preparation, no arsenic, glycerophosphates, etc., but which depends for its tonic properties on bitter principles which are separated in pure form by the method of Wiechowski and which are present in a constant combination in the preparation. These principles have an important influence on the vegetative nervous system especially on the sensitivity of sympathicotropic and vagotropic stimulation. These results affirm the practical value of the use of bitters, bitter wines, etc.—*Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Fragosa Sklerose Tablets (Dr. R. Mauch & Co., Köln) consists chiefly of arnica and glonoin. It is recommended as a vasopressor.—*Pharm. Zentralhalle*, 79 (1938), 673. (N. L.)

Frenovex (Laboratoires Crinex, Paris) is a complex of extracts of the pectoral gland and corpus luteum obtained by the same biochemical process as Crinex is obtained from ovary. It is used in uterine bleeding in doses of 60–300 drops per day.—*Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Grippe Vaccine Mixture (Behringwerke, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) contains in each cc., 400 million influenza bacilli, 80 million streptococci and 200 million pneumococci. It is recommended in the treatment of grippe.—*Pharm. Zentralhalle*, 79 (938), 672. (N. L.)

Hemochromin tablets contain 2.5 grains of liver fraction and exsiccated ferrous sulfate equivalent to 2.5 grains of ferrous sulfate and are covered with a special coating designed to protect the ferrous sulfate from air and moisture and to prevent oxidation to the ferric state. These tablets are indicated in the treatment of secondary, hypochromic, nutritional and iron deficiency anemias and in anemias following menorrhagia, hemorrhage and general debility. The dosage is 1 to 2 tablets daily. Hemochromin tablets are packed in bottles of 50.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 670. (S. W. G.)

Heparin is the blood anticoagulant prepared from liver, which is resistant to enzymes as well as oxidizing and reducing agents. It is the most active of all anticoagulates, and since it is completely non-toxic it may be administered intravenously in complete safety as, for example, in blood transfusions when it is injected into the donor, whose blood is rendered incoagulable for thirty to forty minutes; moreover, since the use of heparin in no way interferes with routine blood analysis it is preferred to the oxalate and citrate methods of preserving blood. It also appears to be of value in the treatment of thrombosis, and in counteracting the growth of the thrombus, should this already have formed. The dose is various, but in blood transfusions 1 mg. per Kg. of body weight is recommended. Heparin is supplied in 3-cc. vials containing 5 mg. per cc.; in 5-cc. vials containing 10 and 50 mg. per cc., for injection; and in 3-cc. vials containing 10 mg. per cc. as a non-sterile solution without preservative. Heparinized tubes are also supplied in boxes of 1, 3 and 12 tubes.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 671. (S. W. G.)

Hepaviton (Dr. J. Blomberg, The Hague) is a tonic containing liver extract, vitamins, iron, manganese, copper, strychnine and cola extract. It is also obtainable without the addition of carbohydrates for diabetics. The dose is one dessertspoonful three times a day after meals.—*Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Insulingual Compound (Dr. E. Silten, G. m. b. H., Mannheim-Waldhof) consists of insulin and galega extract in tablet form, each tablet containing 20 units of insulin. It is recommended in the treatment of diabetes.—*Pharm. Zentralhalle.*, 79 (1938), 673. (N. L.)

Katarrh Vaccine Mixture (For Prophylaxis) (Behringwerke, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) contains in each cc., 250 million pneumococci, 250 million influenza bacilli, 50 million *Micrococcus catarrhalis*, 50 million pneumococci bacilli, 50 million diphtheria bacilli and 25 million streptococci.—*Pharm. Zentralhalle*, 79 (1938), 674. (N. L.)

Kina-Redoxon Tablets (Hoffmann-Laroche, Basel) are tablets which contain 30 mg. of quinine sulfate and 20 mg. of redoxon. *Pharm. Weekblad*, 75 (1938), 39. (E. H. W.)

Nausea Perls (E. Scheurich, Chem.-Pharm. Fabrik, Hirschberg i. Schles) contains principally camphor monobromate, cinnamon, phenacetin and coffee.—*Pharm. Zentralhalle*, 79 (1938), 674. (N. L.)

Neo-Hombreol Syntheticum (N. V. Organon, Oss) is testosterone propionate. The 1 cc. ampuls contain 5 mg. of this testosterone propionate that replaces the natural hombreol. *Pharm. Weekblad*, 75 (1938), 29. (E. H. W.)

Neseptol Bengué is a liquid containing Oleum Pini Pumilionis, menthol, ephedrine and liquid paraffin and which is used in rhinitis, laryngitis and bronchitis. *Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Nestrovit (F. Hoffmann-LaRoche and Co., Basle) is a physiological restorative that contains the pure standardized vitamins, A, B_1, C and D.—*Pharm. Weekblad*, 75 (1938), 29. (E. H. W.)

Olbisol, (J. D. Riedel-E. deHaen, Berlin) is a bismuth salt dissolved in oil and used for intramuscular injection. One cc. contains 0.04 Gm. bismuth.—*Pharm. Weekblad*, 75 (1938), 29. (E. H. W.)

Orex (Laboratoires Crinex, Paris) contains all the testicular hormones and is an albumin-free standardized orchis-extract prepared by the same biological method as Crinex. An alcoholic

solution is used as drops, of which 1 cc. is equivalent to 2 Gm. of fresh gland. It is used in ovarian disturbances, nymphomania, etc. *Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Orgakinine (N. V. Orgachemia, Oss.) is a sterile quinine-calcium solution. The treatment of lobar pneumonia by parenteral use of quinine was first recommended by Aufrecht and was carried out with a variety of medicaments. The solubility of quinine (base) and the irritating phenomena caused by the use of the acid salts were objections at the beginning. In 1934 Schöndube took occasion to combine the quinine with calcium salts. He injected quinine-urethane with calcium gluconate in a solution containing 40 mg. quinine and 10 mg. calcium per cc. Ten cubic centimeters of this solution were injected daily, the injection being deep intramuscular. In certain conditions appearing at the onset of the pneumonia the first injection was given intravenously. Orgakinine contains, per cc., 45 mg. quinine hydrochloride, 36 mg. phenyldimethylpyrazolol in a stable 10% solution of calciumglucoheptonate-calciumgluconate.—*Pharm. Weekblad*, 75 (1938), 29. (E. H. W.)

Orgapectal (N. V. Orgachemia, Oss.) is a cough syrup containing 450 mg. of ammonium chloride, 75 mg. of ephedrine hydrochloride, 37.5 mg. of codeine hydrochloride, 37.5 Gm. of white honey, 37.5 Gm. of sugar, 20 Gm. of malt extract, 14 mg. of oil of anise, 9.4 cc. Extractum Primulæ and Extractum Thymi, q. s. ad 150 cc. The dose is 1 dessertspoonful, three times a day for adults and 1 teaspoonful, three times a day for children.—*Pharm. Weekblad*, 75 (1938), 30. (E. H. W.)

Pex (E. Scheurich, Chem.-Pharm. Fabrik, Hirschberg i. Schles) is a cough bon-bon consisting chiefly of oils of salvia, fennel seed and anise, extract of senega, althea, pulsatilla and sodium allylphenylbarbituric acid. It is recommended in the treatment of coughs, catarrh, etc.—*Pharm. Zentralhalle*, 79 (1938), 688. (N. L.)

Preloban Pro Injectione (I. G. Bayer, Farbenindustrie) is a standardized hormone preparation obtained from the anterior lobe of the pituitary. Ampuls are on the market containing 25 maturity-units, and are used for intramuscular injection.—*Pharm. Weekblad*, 75 (1938), 30. (E. H. W.)

Procullen (Dr. Baljet's Chemische en Pharmaceutische Fabriek, Arnhem) are tubes filled with various eye-salves equipped with special delivery tubes so that the salve may be used by the layman without the use of fingertips and without the accompanying danger of pollution. Protection from light and air is also an advantage of this type of packaging. At the present time there are about 27 varieties of eye salves found on the market in the form of procullen.—*Pharm. Weekblad*, 75 (1938), 30. (E. H. W.)

Ralgex is an embrocation in the form of a solid stick containing mesothorium bromide 0.096 γ, ethyl salicylate 4 Gm., methyl salicylate 1 Gm., glycol salicylate 4 Gm., capsicin 0.5 Gm., menthol 6 Gm. and aromatic fatty excipient 84.5 Gm. The amount of mesothorium in this formula ensures a radio-activity of 51 millimicrocuries, with an effective penetration to a depth of 5 cm., and the α, β and γ radiations of this substance produce hyperemia of the skin with consequent leucocytosis and a stimulation of local immunity, while its bactericidal effect reinforces that of the salicylates. Ralgex is indicated in all conditions in which an analgesic, counter-irritant, anti-rheumatic and antiseptic is required, and in neuralgic conditions including sciatica, lumbago and neuritis. It is applied by rubbing the stick lightly over and around the entire painful area until the surface is liberally coated, and then covering with linen or flannel. It should never be applied near the eyes, or upon any open wound, scratch or abrasion.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 672. (S. W. G.)

Reodeim (Behringwerke, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) is a vaccine prepared from acne-staphyloccci and acne-bacilli.—*Pharm. Zentralhalle*, 79 (1938), 689. (N. L.)

Rusven is a preparation of the venom obtained from the Russell viper which exerts a powerful coagulant effect upon external bleeding, and is of particular value in the control of bleeding following teeth extraction, especially in hemophiliacs. Rusven is intended for external use only and should be applied to the wound, which has first been carefully cleaned of clots and debris, by soaking a piece of cotton wool or gauze in the freshly prepared solution, applying to the affected area and holding in place until a firm tough clot of blood is formed. Rusven may also be applied on well beaten raw beef which will then mould itself to fill the cavity. Rusven is supplied in vials containing 0.1 and 0.5 mg. of the desiccated venom, together with an ampul containing

sterile distilled water containing 0.5% of phenol for use as a solvent.—*Quart. J. Pharm. Pharmacol.* 11 (1938), 672. (S. W. G.)

Tetra-Vaccine (Behringwerke, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) is a vaccine prepared from typhoid, paratyphoid-A, paratyphoid-B and cholera bacilli. It is used as a prophylactic in the diseases caused by these organisms.—*Pharm. Zentralhalle*, 79 (1938), 689. (N. L.)

Tonicum Bayer (Bayer, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) consists of vitamin B complex, vitamin C, liver extract, phosphorus and arsenic compounds, nux vomica and various mineral salts. It is recommended as a tonic and reconstructive.—*Pharm. Zentralhalle*, 79 (1938), 89. (N. L.)

Trixanthal Tablets (Societeit voor chemische Industrie, Katwijk) contain 25 mg. caffeine (trimethylxanthine) and 50 mg. phenylethylbarbituric acid per tablet. They are used in migraine, nervous headache, vasomotor disturbances and in certain cases of epilepsy. The dose is $^1/_2$–2 tablets, three times.—*Pharm. Weekblad*, 75 (1938), 31. (E. H. W.)

Vakara is a preparation of Karaya gum, from a tree of the *Astragalus* species. It is hygroscopic, absorbing more than twice the fluid taken up by agar-agar. It is recommended for the treatment of constipation, and contains 1.5% of aromatic extract of cascara. Vakara is non-assimilable and increases the bulk of the intestinal contents, producing an action in approximately twenty hours. The average dose is 2 teaspoonfuls twice daily. Vakara is supplied in 4 oz. metal boxes.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 336. (S. W. G.)

Viscum Reinecke (Reinecke, Hanover) is a plant powder obtained from *Viscum album* and used in arteriosclerosis.—*Pharm. Weekblad*, 75 (1938), 321. (E. H. W.)

Zant Skin Cream contains zant germicide, 1.0; glycerin, 10.0; boric acid, 3.0; tragacanth, 1.5; perfume, 0.6; decoction of chondrus to 100.0. Zant is a potent non-toxic germicide containing *p*-chlor-*m*-xylenol and essential oils. Zant skin cream is intended for those inflammatory conditions of the skin, such as chapped hands, sunburn and red or roughened skin, and minor burns, which require an emollient preparation rather than a highly medicated ointment. Gently massaged in, this cream leaves no sticky layer on the surface of the skin, and will not soil clothing. The base is non-greasy and water-miscible.—*Quart. J. Pharm. Pharmacol.*, 11 (1938), 336. (S. W. G.)

BACTERIOLOGY

Antigen Preparations. A hypodermic preparation comprises a specific antigen combined with milk proteins, which serve to reduce local irritation.—FLOYD H. EGGERT assignor to U. S. STANDARD PRODUCTS CO. U. S. pat. 2,110,208, March 8, 1938. (A. P.-C.)

Chloramines—Sterilizing Water by. A portion of the water to be sterilized is passed in contact with a granular body of zeolites containing exchangeable ammonia. The remainder of the water is diverted out of contact with the zeolites, and the two portions are subsequently reunited and treated with chlorine.—HERBERT L. BOWERS and RAY RILEY, assignors to THE PERMUTIT CO. U. S. pat. 2,112,476, March 29, 1938. (A. P.-C.)

Germicides—Recent Developments in Methods of Testing. A new method of testing fungicides is described. Recent developments in the testing of antiseptics and disinfectants are reviewed and discussed. Testing of such preparations by the F. D. A. method (*U. S. Dept. Agr. Circ. 198*) should be carried out under identical conditions, particularly as regard the exact nutritional requirements of the test organisms. Efforts led to the production of a special peptone (Armour), which was subjected to tests both by the Antiseptics Committee and the Food and Drug Administration, preliminary to its release for general use. This precaution of employing tested and approved peptone serves as an additional safeguard in the development of standard resistance of the test organisms and the subsequent uniform evaluation of preparations to be tested. Directions are given for the proper testing of solid soluble antiseptics, such as lozenges and tablets. The F. D. A. wet filter paper method is the method of choice for solid soluble tablets. The method employed for liquid antiseptics has been used for antiseptics of the solid type and the resulting confusion suggested a special study of the germicidal activity of lozenges containing antiseptics, combining laboratory with clinical tests. Those antiseptic lozenges which kill *Staphylococcus aureus* by the standard F. D. A. wet filter paper method will kill very large numbers of bacteria when the lozenge is dissolved in the mouth. However, in case the lozenge does not

contain sufficient antiseptic to pass this severe test but does pass the test for liquid antiseptics, it does not kill sufficient numbers of bacteria in the oral cavity. The new fungicidal test is carried out with four varieties of fungi: *Trichophyton rosaceum, T. rubrum, T. interdigitale* and *Epidermophyton inguinale*. Each organism is streaked over the surface of Sabouraud agar in a 9 cm. Petri dish, by means of a dry sterile cotton swab inoculated with a 5-day culture of these organisms. After incubation at room temperature for 5 days, the agar in the dishes is cut into 1 cm. squares. The fungicide is poured over the agar in the dish so as to flood the plates entirely. After 5, 15 and 30 minutes one of the squares from each plate is removed and placed in 10 cc. of sterile broth. Excess fungicide is washed out of the matted culture by shaking the tube gently for a few minutes. The square is then removed from the broth and spread with the culture side down over the surface of a sterile Sabouraud agar plate. These plates are incubated at room temperature for three weeks and observed for growth. Experience has shown that fungicides which kill the test organisms in 5 minutes by this test are effective in the treatment of "athlete's foot" as determined in clinical tests.—G. F. REDDISH. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 425–427. (E. G. V.)

Hog Cholera Vaccine and Method of Production. A hog cholera virus is attenuated with eucalyptus oil, eucalyptol, phellandrene or piperitone, in an amount sufficient to eliminate the disease-producing power of the virus without destroying its immunizing power.—WM. H. BOYNTON. U. S. pat. 2,114,588, April 19, 1938. (A. P.-C.)

Hydroxybenzoic Esters as Preservatives for Medicinals. Nipagin, nipasol, nipabenzyl, etc., *i. e.*, esters of *p*-hydroxybenzoic acid, were compared with C_6H_5OH as preservatives. On the phenol bacteriostatic scale these esters are reported as: methyl 3, ethyl 8, propyl 17, butyl 32, amyl 50, benzyl 109. The methyl and ethyl esters are two to three times as effective as $C_6H_5CO_2H$ in inhibiting bacterial growth. Combinations of nipagins and nipasols, etc., and practical applications are discussed.—K. A. KARSMARK. *Svensk Farm. Tid.*, 42 (1938), 93–5, 117–21, 137–9; through *Chem. Abstr.*, 32 (1938), 4282. (F. J. S.)

Iodine in Experimental Tuberculosis. Studies were made of the bactericidal action *in vitro*, the toxicity and the therapeutic action in experimental tuberculosis of tincture of iodine (I), compound iodine (Lugol's) solution (II), 0.78% aqueous iodine solution (III), 4.43% aqueous iodine solution (IV), hydrogen iodide (V) and sodium iodide (VI). From the initial data on bactericidal value and toxicity, a calculated daily dosage of 15 mg. iodine per Kg. was established as the routine therapeutic procedure in guinea pigs and rabbits, with 1.5 mg. per Kg. in a small series of animals for comparative uses. I, II, IV, V and VI were badly tolerated orally and parenterally even in the smaller established dosage. Their influence on the course of experimental tuberculosis due to human or bovine strains of tubercle bacilli was negligible; indeed, most of the animals died in a shorter time than the untreated controls. III, however, was well tolerated even in daily oral doses of as much as 78 mg. over 8–10 weeks. In the animals treated with III prior to, simultaneously with, or within two to three weeks after infection, the tuberculous lesions were smaller and fewer and showed a striking tendency to heal. Several of the animals showed practically complete healing of the lesions at the end of six months. Under treatment with III the weight curves were maintained or increased.—L. W. SMITH. *Journal-Lancet*, 58 (1938), 195; through *Squibb Abstr. Bull.*, 11 (1938), A-852. (F. J. S.)

Silargel—Action of, on Diphtheria Bacilli. The work of Gins and Jermoljewa was only partly confirmed. When Silargel was added to cultures of *C. diphtheriæ*, the cells became nontoxic only temporarily. These strains could produce infection but no immunity.—TH. LINK. *Z. Hyg. Infektionskrankh.*, 120 (1937), 14; through *Squibb Abstr. Bull.*, 11 (1938), A-902. (F. J. S.)

Soda Solution—Hot, Sporicidal Action of. A soda solution (1.5%) at room temperature or 45° has no effect at four months on a suspension of thermostable spores. At 70° the solution shows a definitely greater sporicidal effect than distilled water. At 100° the spores in the solution are killed in one hour or about twenty times sooner than in distilled water. At 110° the solution kills the spores in ten minutes and at 115° in five minutes.—H. M. v. JETTMAR. *Arch. Hyg. Bakt.*, 119 (1938), 223–44; through *Chem. Abstr.*, 32 (1938), 3909. (F. J. S.)

"Zenol"—New Disinfectant. "Zenol" is a new disinfectant, chemical constitution is not given, made by the Bayer Dye Works. It is cheap, stable and highly effective. It can be used at a dilution of 1:100 for disinfecting a wide variety of materials. Its odor is not disagreeable.—H. KLIEWE. *Zentr. Bakt., Parasitenk., I Abt., Orig.*, 141 (1938), 194–8; through *Chem. Abstr.*, 32 (1938), 4281. (F. J. S.)

BOTANY

Anthocyanic Pigments of Plants. A review of the literature relative to the soluble pigments which impart to flowers their red, purple or blue color.—J. HUBIE. *Bull. mems. soc. natl. hort. France*, 5 (1938), 91–101, 133–51; through *Chem. Abstr.*, 32 (1938), 5028. (F. J. S.)

Urease, Canavalin, Concanavalin A and Concanavalin B—Molecular Weights of. The molecular weights of the four crystalline globulins of the jack bean, *Canavalia ensiformis*, have been found to be: urease, 473,000; canavalin, 113,000; concanavalin A, 96,000 and concanavalin B, 42,000. Determinations were made by means of the ultracentrifuge.—J. B. SUMNER, N. GRALÉN and I.-B. ERIKSSON-QUENSEL. *Science*, 87 (1938), 395–6; through *Chem. Abstr.*, 32 (1938), 5034. (F. J. S.)

Vitamin K in the Plant. The amount of vitamin K (I) in a series of plant organs was determined with the curative method. The richest sources were the green leaves, chestnut leaves being the most potent of those examined. The amount of I in the leaves was not decreased by withering and was the same in the yellow parts of the leaves as in the green. The amount of I in flowers, roots and seeds was much less than that in the green leaves. Certain lower plants were poorer sources than higher plants. In an experiment with germinating peas it was shown that abundant synthesis of I occurred in peas grown in the light, but very little I was formed when the peas were grown in the dark.—H. DAM, J. GLAVIND and I. SVENDSEN. *Biochem. J.*, 32 (1938), 485–7; through *Chem. Abstr.*, 32 (1938), 5446. (F. J. S.)

CHEMISTRY

GENERAL AND PHYSICAL

Colloids in Pharmacy. An address delivered at the Pharmaceutical Congress at Groningen, November 26. 1938.—C. G. BAERT. *Pharm. Weekblad*, 75 (1938), 145. (E. H. W.)

Pantocaine and Novocaine Bases—Determination of Dissociation Constants, Solubilities and Distribution Coefficients of. The first and second dissociation constants of novocaine and pantocaine base were determined by an electrolytic or spectrophotometric method in the ultraviolet region. Pantocaine base proved to be about 0.6 unit weaker in pK_1 value (aliphatic basic group) than novocaine. The equivalence points of the monohydrochloride of both were ascertained from the dissociation constants. The dependence of the solubilities of both bases upon p_H was determined and traced back to its electrolytic dissociation. The distribution of both bases between ether and water was determined, and the dependence of this distribution upon p_H was cleared up; it is caused by the interplay between electrolytic dissociation and the distribution coefficient of the undersociated base.—J. EISENBRAND and H. PICHER. *Arch. Pharm.*, 276 (1938), 1. (L. L. M.)

ORGANIC

Alkaloids

Alkaloids. A brief discussion of alkaloids, natural and synthetic.—R. H. F. MANSKE. *Can. Chem. Proc. Inds.*, 22 (1938), 22, 72–3, 75; through *Chem. Abstr.*, 32 (1938), 3901. (F. J. S.)

"Channa" or "Kougoed" (Mesembryanthemum Anatomicum and M. Tortuosum)—Isolation of the Alkaloidal Constituent of the Drug. The dried, above-ground portions of the plants *M. anatomicum* and *M. tortuosum* yielded an alkaloid which was identified as mesembrine and found to have the formula $C_{17}H_{23}NO_3$. Mesembrine picrate, $C_{17}H_{23}NO_3.C_6H_3N_6O_7$, melting at 193–4°, prisms aggregated into clumps or rosettes, insoluble in ether, sparingly soluble in water and hot C_6H_6. Mesembrine picrolonate, $C_{17}H_{23}NO_3.C_{10}H_8N_4O_5$, amorphous yellow precipitate, soluble in warm dilute alcohol. Mesembrine platinichloride, $(C_{17}H_{23}NO_3)_2\ H_2PtCl_6$, crystallized rapidly from dilute alcohol yields small prisms melting at 151–3°, contains neither water nor alcohol of crystallization; crystallized slowly at low temperature from aqueous alcohol yields irregular octagonal plates containing two molecules alcohol of crystallization, softens at 170° with evolution of bubbles, melting at 181°. Mesembrine appears to belong to the group of tropane ester alkaloids.—C. RIMINGTON and G. C. S. ROETS. *Onderstepoort J. Vet. Sci. Animal Ind.*, 9 (1937), 187–91; through *Chem. Abstr.*, 32 (1938), 4279. (F. J. S.)

Ergot Alkaloids—Microscopic Investigation of. III. Ergosine and Ergosinine (Ergoclav-

inine). Ergosine and ergosinine can be well characterized microscopically and thus differentiated from one another as well as from the other previously described ergot alkaloids. Ergosine crystallizes without solvent of crystallization, best from ethyl acetate, as rhombic prisms. The oscillatory bearing, gamma, lies in the longitudinal direction of the crystal. The axial angle is very small, the dispersion of the axis large and the optical character is negative. The refraction indices are: alpha = 1.520, beta = 1.601, gamma = 1.603. Ergosine melts with decomposition between 208° and 212° C. Ergosinine forms crystals free from solvent except in the case of methyl alcohol when molecular combination results. Both kinds of crystals belong to the rhombic system. The solvent-free crystals are quadrangular prisms or stalks, the longitudinal direction of which corresponds to the optical normal. The axial angle is small and the optical character positive. The refraction indices are: alpha = 1.570, beta = 1.578, gamma = 1.656. Liquefaction occurs between 210° and 215° C. The molecular compound of ergosinine with methyl alcohol is identical with ergoclavinine; it forms hexagonal stalks, in the longitudinal direction of which lies the optical normal. The axial angle is large and the optical character negative. The crystals are soluble only in liquids with higher refractive indices. Alpha = 1.590, beta = 1.603, gamma = about 1.64. The molecular compound either melts between 190° and 192° C., or else around 150° C. when there occurs a metamorphosis into the solvent-free crystals which liquefy at 210° to 215° C. Photomicrographs of each of the above are included.—ADELHEID KOFLER. *Arch. Pharm.*, 276 (1938), 40. (L. L. M.)

Ergot Alkaloids—Microscopic Investigation of. II. Ergotinine, Ergotoxine and Sensibamine. Ergotinine, ergotoxine and sensibamine, like the two previously described alkaloids, ergotamine and ergotaminine, are microscopically distinguishable by their optical properties, solubilities and to some extent by their decomposition temperature. Ergotinine and ergotoxine are rhombic bisphenoidal. While ergotinine is obtained from almost all solvents in crystalline form, ergotoxine crystallizes from few solvents, in particular benzene and toluene. The forms of ergotinine crystals are varied. They may be stalky, prismatic or fusiform. The longitudinal bearing of ergotinine crystals always corresponds to the oscillating direction alpha, the axial plane proceeds along parallel 100; the apex bisector with a small axial angle can be observed in the stalked crystals with rather low interference colors. The refraction indices are: α = 1.575, β = 1.580, γ = 1.655. Three kinds of crystals of ergotinine are obtained from benzene (1) Pellets with a radial structure which represent an unstable modification changing into the stable phase between 90° and 110° C. (2) Small fusiform crystals, the stable modification, identical with the stalky crystals from methyl and ethyl alcohol and acetone; they begin to decompose at 210° to 215° C. and melt into black drops at 220° C. (3) Large fusiform crystals which immediately after the evaporation of the solvent become turbid and probably represent a molecular combination of ergotinine with benzene. When heated they exhibit the same properties as the small fusiform crystals. The ergotoxine crystals in contrast with ergotinine always present the oscillatory bearing in the longitudinal direction; the axial plane likewise proceeds longitudinally but parallel 010, and the apex bisector with a medium sized axial angle can be observed in the transverse section of the crystal. The refraction indices are indeterminable on account of the variability of the index of liquidity. In the micromelting point apparatus there developed a strong bubbling above 100° C., with loss of double refraction, and at 165° C., liquefaction and browning. Sensibamine is monoclinic, extending toward the transverse axis. The crystals extended continuously on one fixed face, exhibit the eccentric emergence of one optical axis, the axial plane lying diagonal. Sensibamine melts at 180° to 182° C., relatively sharply. Its complex nature can be confirmed by microscopic methods; it can be obtained in crystalline form from an acetone solution on a microscopic slide side by side with ergotamine and ergotaminine. Eighteen photomicrographs are illustrated.—ADELHEID KOFLER. *Arch. Pharm.*, 275 (1937), 455 . (L. L. M.)

Ergot of Rye—Evaluation of. Digest three Gm. finely powdered ergot with twenty cc. lead acetate for one hour, shaking several times, filter and extract with twenty plus ten plus ten cc. ether. Pour off the clear solution, evaporate, dissolve the residue remains in five cc. concentrated acetic acid, add two drops of 1% solution of ferric chloride and overlayer this solution on five cc. concentrated sulfuric acid in a test-tube. A violet ring shows the presence of alkaloids. The acetic acid solution may be yellow but should not turn brown. The method is a modification of the test proposed by Keller (*Bull. soc. agr. franc.*, 1867).—E. PERCS. *Magyar Gyogyszeresztud. Tarsasag Ertesitöje*, 14 (1938), 81–83; through *Chem. Abstr.*, 32 (1938), 3901. (F. J. S.)

Veratrum Album—Alkaloids from. I. The coarsely powdered drug was extracted by the baryta process of Salzberger and a mixture of alkaloids, presumably jervine, rubijervine and protoveratridine, isolated. Fractional extraction of this mixture with ether yielded a hitherto unknown alkaloid, $C_{36}H_{57}O_{11}N.H_2O$, melting at 193° to 195° C., which the author named germerine. A better separation of the alkaloids than by methods previously described was obtained by precipitating the acetic acid solution of the mixture of alkaloids with trichloracetic acid or with metaphosphoric acid. A complete tabulation of the alkaloidal yield from the rhizome, roots, leaf bases, stems, leaves and seeds of the plant is included.—W. POETHKE. *Arch. Pharm.*, 275 (1937), 357.
(L. L. M.)

Essential Oils and Related Products

Essential Oil of Asafetida—Chief Constituent of. The main fraction (40%) of this oil boils at 82° to 84° C. under 10 mm. of pressure. It is a mercaptan $C_7H_{14}S_2$ and apparently has the structure $CH_3CH_2CH(CH_3)SSCH:CHCH_3$.—C. MANNICH and PH. FRESENIUS. *Arch. Pharm*, 274 (1936), 461–472; through *Chimie & Industrie*, 39 (1938), 512. (A. P.-C.)

Essential Oils—Action of Alcoholic Solutions of, on Metals. The appearance of strips (10 x 50 x 1 mm.) of aluminum, copper, zinc, nickel and iron which had been immersed in distilled water, 95% ethyl alcohol and 2% solutions (in 50% ethyl alcohol) of peppermint, lavender and lemon oils and left undisturbed in the dark for 18 months are described. Tin and nickel were unaffected in all cases, but the others were severely attacked by lavender and lemon oils and to a smaller extent by peppermint oil. The aluminum strip was partly decomposed by peppermint oil and fully hydrated in all other media, including water.—G. A. ROSENBERGER. *Seifens Ztg.*, 64 (1937), 967–968; through *J. Soc. Chem. Ind.*, 57 (1938), 319. (E. G. V.)

Sunflower Kernel—Aromatic Substances of. The kernel contains 0.00125% essential oil, melting at 34.7°, d_{20} 0.9301, n_D^{30} 1.4679. The approximate composition of the oil is given.—A. CHERNUKHIN and I. ENGEL. *Masloboino Zhirovoe Delo*, 14 (1938), 19–20; through *Chem. Abstr.*, 32 (1938), 4273. (F. J. S.)

Tillmans' Chloramine Number for Essential Oils—Determination of. The sole possible way to achieve concordant values was by the use of a solution of the oil in glacial acetic acid and the addition thereto of an aqueous chloramine solution. Other solvents gave inconsistent results. The values are dependent on such factors as: quantity, light, temperature, ratio of glacial acetic acid to chloramine solution. Conditions were established for obtaining unequivocal, usable and easily reproducible values. The mean value of as many as six determinations indicate a limit of error of ± 3%. The authors define the chloramine number as the number of ccs. of $N/100$ chloramine solution which 0.05 Gm. of essential oil will consume under precisely defined conditions. The extremely large amount of chloramine consumed by the essential oils permitted the use of a $N/5$ chloramine solution. The chloramine numbers of 107 commercially available volatile oils with their source and quality are tabulated as well as that of some of their constituents such as eugenol, thymol, terpineol, etc. All volatile oils upon ageing exhibit a definite decrease in chloramine number, probably due to the oxidation of the terpene constituent. The authors suggest that the chloramine number may become to volatile oils what the iodine number is to fixed oils and may also be applicable to fixed oils. It is of value as an indication of sophistication. Method.—Two drops, not to exceed 0.05 Gm., of the essential oil are weighed into an iodine flask, dissolved in a measured quantity of glacial acetic acid and a like amount of 0.2 N chloramine solution then added, such ratio between the two solutions being vital in maintaining a clear mixture. The quantity of chloramine solution required is determined approximately by preliminary test and is then employed in excess by at least four-fold. The mixture is allowed to stand protected from light for 60 minutes at room temperature, and is then titrated with 0.1 N sodium thiosulfate in the presence of 5 cc. 10% potassium iodide solution. The chloramine number equals number of ccs. chloramine solution required by 0.05 Gm. of oil multiplied by 20.—P. W. DANCKWORTT and J. HOTZEL. *Arch. Pharm.*, 275 (1937), 468. (L. L. M.)

Glycosides, Ferments and Carbohydrates

Araban—Molecular Weight of.—T. K. GAPONENKOV. *J. Gen. Chem.* (U. S. S. R.), 7 (1937), 1729; through *Squibb Abstr. Bull.*, 11 (1938), A-736. (F. J. S.)

Cratægus Oxyacantha L.—Constituents of. The berries of the common hawthorne have long been in good repute among homeopaths as a cardiac remedy of the first rank. By systematic

extraction, the authors isolated from them cratægus lactone, $C_{32}H_{52}O_4$, containing two lactone groups. Extraction of the bark yielded the glycoside cratægin, which upon analysis was found to be identical with æsculin, both chemically—no depression in melting point of the mixture; and pharmacologically—no reaction whatsoever when injected into the lymph sac of *Rana esculenta*. It is recommended by the authors that the designation cratægin be dropped from the literature.—H. DIETERLE and O. DORNER. *Arch. Pharm.*, 275 (1937), 428. (L. L. M.)

"Ericolin." Two specimens of the glycoside "ericolin," one prepared by the authors from *Arctostaphylos uva ursi* and the other a commercial preparation from *Ledum palustre*, were analyzed and the end products from both found identical in physical properties. The tannin was characterized by precipitation with lead acetate as protocatechuic tannic acid, the glucose identified by its osazone. The aglycon proved to be hydroquinone. No other substance could be found. It is thus evident that "ericolin" is nothing but an impure form of arbutin and it is recommended by the authors that the name "ericolin" be deleted from the literature.—H. DIETERLE and O. DORNER. *Arch. Pharm.*, 275 (1937), 380. (L. L. M.)

Sugars in Plant Materials—Determination of. A sample of plant extract or juice containing 5 to 35 mg. of reducing sugar was evaporated to about 10 cc. on a water-bath, cooled and treated with 5 cc. of a saturated solution of neutral lead acetate. The excess lead was removed by adding 10 cc. of a saturated disodium phosphate solution. After the addition of about 0.3 Gm. of Norite decolorizing charcoal, the mixture was allowed to stand with frequent shaking for 30 minutes, and was then poured onto a Buchner funnel provided with a thin layer of talc. The original container and funnel were washed several times with a small volume of distilled water and the filtrate was transferred to a 100 or 200 cc. volumetric flask. An aliquot of not more than 2 cc. containing 0.1 to 0.35 mg. of glucose was transferred to a 15 cc. centrifuge tube, diluted to 2 cc., and treated with 3 cc. of the alkaline ferricyanide reagent containing 1.8 Gm. potassium ferricyanide and 40 Gm. anhydrous sodium carbonate per liter. The tube is immersed in boiling water for 5 minutes, cooled under the tap and diluted to the mark. Color intensities are determined in a photoelectric colorimeter. After the reading was obtained, the weight in mg. of glucose in the aliquot was read directly from the calibration curve. In order to determine total sugars, aliquots of 50 cc. of clarified extract were placed in 100 cc. volumetric flasks. The solutions were brought to the acid color of methyl red with dilute acetic acid. The quantity of acid necessary was determined on a separate 5 or 10 cc. aliquot. Two to four drops of a 1% solution of Wallerstein invertase scales were added and the solutions allowed to stand over night at room temperature. A blank on the invertase solution was run simultaneously. The flasks were then diluted to volume and aliquots taken for the determination of reducing sugars.—W. T. FORSEE. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 411–412. (E. G. V.)

Verbena Officinalis L.—Constituents of. II. The Constitution of Cornin. Having proved the glucoside, verbenalin (from *Verbena officinalis*) to be identical with cornin (from *Cornus florida*), it was proposed that the name cornin be used for both on the grounds of priority. They have the same empirical formula $C_{17}H_{24}O_{10}$; the same optical rotation; the same melting point alone or mixed with each other; contain *d*-glucose as the sugar component in both cases; contain one methoxy group each; and show the same behavior toward Tehling's solution. Acetylization of the genin, $C_{11}H_{14}O_5$, yielded a crystalline product melting at 133° C., which elementary analysis indicated to be either tetra- or penta-acetyl cornin. With hydroxylamine hydrochloride, this yielded an oxime, melting between 175° and 176° C., which by elementary analysis still could not be differentiated between the tetra- and penta-acetyl compound. Further acetylization of this compound yielded a crop of matted needles melting at 184° C., analysis of which accorded as well for the penta- as the hexa-acetyl compound, indicating the carbonyl group to be of a ketonic nature rather than aldehydic.—BENNO REICHERT and WALTER HOFFMANN. *Arch. Pharm.*, 275 (1937), 474. (L. L. M.)

Other Plant Principles

Borneol—Dehydrogenation of. Borneol when dehydrogenated with dispersed nickel catalyst in PhMe (one hour at 210°, followed by three hours at 220°) gives 92.5% camphor, in 91% yield. Better results are obtained with a continuous liquid-phase process, using 72:28 aluminum-nickel catalyst at 235–240°, and a 2:3 vaseline oil-PhMe solvent. The activity of

this catalyst is lowered by presence of aluminates.—B. N. RUTOVSKI, I. P. LOSEV and A. A. BERLIN. *Prom. Org. Chim.*, 4 (1937), 410; through *Squibb Abstr. Bull.*, 11 (1938), A-840. (F. J. S.)

Camphor Oil to Heliotropin. Methods for the isolation of the safrole, its conversion into isosafrole (I), and the oxidation of I to heliotropin (piperonal) are outlined.—R. FORNET. *Seifens-Ztg.*, 65 (1938), 44–45; through *J. Soc. Chem. Ind.*, 57 (1938), 587. (E. G. V.)

Derris Extract—Total Composition of. The extremely mild alkaline conditions which racemize rotenone and similar substances suffice to liberate *dl*-deguelin from the resin and to convert the *l*-toxicarol present into a *dl*-compound. This and other evidence strongly confirm the view that deguelin exists in the resin as the *l*-form. The variations of commercial derris root are discussed and it is shown that a continuous range of types exists. Methods of estimating deguelin, toxicarol plus sumatrol and fats or waxes in derris are described, and the determination of rotenone is discussed; in this way 82–90% of the total ingredients of the extract are quantitatively accounted for. Finally the effect of the physical state of insecticides on their apparent toxicities is stressed in the light of new examples.—R. S. CAHN, R. F. PHIPERS and J. J. BOAM. *J. Soc. Chem. Ind.*, 57 (1938), 200–209. (E. G. V.)

Drosera Rotundifolia—a Constituent of. It is shown experimentally that plumbagin, 2-methyl-5-hydroxy-1,4-naphthoquinone, of the *Plumbago* species, occurs naturally in *Drosera rotundifolia*, and that the name droserone for the volatile (with steam) constituent of *Drosera rotundifolia* should be deleted from the literature.—H. DIETERLE and E. KRUTA. *Arch. Pharmazie*, 274 (1936), 457–461; through *Chimie & Industrie*, 39 (1938), 512. (A. P.-C.)

Eschscholtzxanthin: A New Xanthophyll from the Petals of the California Poppy, Eschscholtzia California. Eschscholtzxanthin, a new xanthophyll having the empirical formula $C_{40}H_{64}=2O_2$, has been isolated in relatively large quantities from the petals of the California poppy. This xanthophyll, which is oxidized extremely rapidly and which is altered by the action of heat upon its solutions, contains twelve conjugated double bonds and two hydroxyl groups. The optical properties of eschscholtzxanthin and its esters have been compared with the optical properties of the common xanthophylls and their esters.—H. H. STRAIN. *J. Biol. Chem.*, 123 (1938), 425; through *Squibb Abstr. Bull.*, 11 (1938), A-890. (F. J. S.)

Ocimum Sp. No. 2202—a Thymol-Containing Basil. Oil from *Ocimum* sp. no. 2202 contains thymol 32, dipentene 48, *p*-cymene 7, unknown alcohol (b. p. 123°, d_{20}^{20} 0.90, n_D^{20} 1.4974, phenylurethan b. p. 156–7°) 8 and aldehydes about 1%.—M. A. ISKENDEROV. *J. Applied Chem.* (U. S. S. R.), 11 (1938), 102–103 (in French 104); through *Chem. Abstr.*, 32 (1938), 4282. (F. J. S.)

Pyrethrum Flowers—Constituents of. XI. Chrysanthin. A colorless, crystalline compound, designated "chrysanthin," has been isolated from pyrethrum flowers. It melts at 201° when it is crystallized from ethyl acetate and at 177–178° when crystallized from ethyl alcohol, and shows $[\alpha]_D^{20}$ −30.5° (in chloroform). It does not contain nitrogen or sulfur, nor does it yield methyl iodide by the Zeisel method. Its formula is $C_{17}H_{22}O_5$, as determined by analysis and molecular weight. On catalytic hydrogenation it yields a dihydro compound. On mild oxidation a dehydro compound is formed. When chrysanthin is heated in dilute aqueous alkali, acetic acid and a water soluble acid having the empirical formula $C_{15}H_{26}O_7$ are formed.—W. G. ROSE and H. L. HALLER. *J. Org. Chem.*, 2 (1937), 484; through *Squibb Abstr. Bull.*, 11 (1938), A-747. (F. J. S.)

Quercetagetin—From the Flowers of Tagetes Erecta. The flowers of *Tagetes Erecta* have been examined and both the yellow and orange flowers shown to contain 3,3′,4′,5,6,7-hexahydroxyflavone (quercetagetin). The compound is readily obtainable by the extraction method, but a preliminary treatment with chloroform gave a better yield of more easily crystallizable material. The juice of the flowers of *Tagetes Erecta* is reputed to have pharmacological properties as a purifier of the blood and as a remedy in piles.—H. S. MAHAL. *J. Indian Chem. Soc.*, 15 (1938), 87; through *Squibb Abstr. Bull.*, 11 (1938), A-1095. (F. J. S.)

Fixed Oils, Fats and Waxes

Blubber Oils of Sei, Fin and Humpback Whales. The oils were extracted by heating the cut-up blubber, and separated by decantation followed by hot filtration. The characteristics of the oils and descriptions of the whales are given in detail. The effect of heat on the properties of

the blubber oils was tested by extracting the oil from one specimen of blubber and then strongly reheating the blubber, when a further quantity of oil was obtained. No appreciable difference was found between the two samples. However, when a blubber, after the oil had been extracted once, was extracted with ether, the two samples were not similar in every case. Comparison of the oils from whales from different districts, according to the sex and species, showed that no marked relationship could be detected. Oils having the lower iodine value generally had the higher viscosity. Differences in iodine value and per cent of ether-insoluble bromide were observed in the oils from different blubbers of the same whale, but no general relationship could be given. Fin oils generally had the higher saponification value, and sei oils the higher per cent of unsaponifiable matter.—Y. TOYAMA and K. UOZAKI. *J. Soc. Chem. Ind. Japan*, 40 (1937), 398–402; through *J. Soc. Chem. Ind.*, 57 (1938), 547. (E. G. V.)

Carotine in Fats and Oils. The hydrocarbon carotine, $C_{40}H_{56}$ is present as a pigment in some fats and oils but is absent in others. The presence or absence of this hydrocarbon can therefore be used to determine the identity of fats. Carotine gives a beautiful blue coloration with sulfuric acid. The color of the oils disturbs this reaction, the formation of yellowish brown hydrolytic products interfering with the observation. A good coloration however is visible if the following scheme is carried out: 15 cc. of oil is mixed in a test-tube with 7.5 cc. of petroleum ether (b. p. 40–60°) and 2.5 cc. of pure amyl alcohol; one cubic centimeter of sulfuric acid (sp. gr. 1.53) is then added and the whole well shaken for two minutes. After the mixture has come to rest, a blue colored acid layer separates at the bottom of the tube, if carotine is present, and the color is permanent. The petroleum ether serves as a solvent and also to lower the specific gravity of the oil. The amyl alcohol serves to break up the emulsion and prevents the floculation of the blue color. With this reaction, the presence of carotine may be demonstrated in palm oil, linseed oil, soy oil, rape oil, mustard oil, cotton seed oil, tallow, egg oil and milk fat. Peanut oil, sesame oil, coco fat, palm seed fat and lard give no reaction. A blue color also results in the presence of the vegetable or lean colors but this disappears fairly rapidly. With this reaction it was possible to detect the adulteration of peanut oil with soy bean oil in a concentration as low as 5%. It was found that the various soy bean oils reacted about the same in color intensity and it seems possible therefore that the amount present in such a mixture might be determined quantitatively.—S. H. BERTRAM. *Oele, Fette, Wachse, Seifen, Kosmetik*, 1937, No. 8; through *Pharm. Weekblad*, 75 (1938), 79. (E. H. W.)

De-Fatting—Control of, of Plant or Animal Material by Measuring the Surface Activity of the Extract. Extraction of fats in a modified Soxhlet apparatus is complete when the surface tension of the solvent attains a constant maximum value, indicating absence of fat.—A. G. KULMAN and A. I. GERSCHZON. *J. Appl. Chem. Russ.*, 10 (1937), 2072–2081; through *J. Soc. Chem. Ind.*, 57 (1938), 543. (E. G. V.)

Fats—Rancidity in Edible. The greater part of the report deals with the oxidation of fats and oxidative rancidity, but sections are included on the physiological basis of the perception of rancidity, the lesser causes of rancidity, and the action of microörganisms on fats with the formation of free fatty acids and ketone rancidity. The methods for detection and determination of oxidative rancidity are discussed in detail. The acceleration of oxidation by light, traces of metals, etc., and its inhibition by natural and artificial antioxidants, are dealt with from the practical and theoretical viewpoints. Rancidity in dairy products and the fat of meat and fish are especially considered.—C. H. LEA. *Dept. Sci. Ind. Res., Food Invest.*, Spec. Rept. 46, 230 pp.; through *J. Soc. Chem. Ind.*, 57 (1938), 679. (E. G. V.)

Oil Seeds—Refractometric Method for the Determination of Fat in. The author describes a method for the quantitative determination of fat in oil seeds in which the seeds are ground and extracted with a solvent of known refractive index. The solution thus obtained is examined with an immersion refractometer and the amount of oil calculated. Tables of data on four oil seeds are given: soy beans, sunflower seeds, sesame seeds and linseed. Methods of grinding and extraction are described. Among several solvents suggested monochlornaphthalene is considered best, after which follow brombenzol, amylacetate and isobutyl butyrate. The article is an abstract of the author's dissertation at Groningen.—E. A. C. BARTSTRA. *Pharm. Weekblad*, 74 (1937), 978. (E. H. W.)

Palm Oil—Small-Scale Extraction of. A hand-operated wooden cage-press is described. By careful sterilizing and processing (technic described) about 70–75% of the total oil in the

fruit and nuts equal in quality to the corresponding estate products can be obtained.—J. N. MILSUM and C. D. V. GEORGI. *Malay Agric. J.*, 26 (1938), 53–58; through *J. Soc. Chem. Ind.*, 57 (1938), 544. (E. G. V.)

Seeds—Composition of the Oil Phase of. The phosphatide and unsaponifiable matter contents of oil expressed from whole sunflower-seed kernels were, respectively, 0.041 and 0.7%, as compared with 0.051 and 0.86% for cottonseed and 0.037 and 0.48% for groundnuts; the corresponding values for the oil expressed from ground kernels were 0.049 and 0.075, 0.064 and 0.8 and 0.028 and 0.45%, and for the oil extracted with light petroleum 0.311 and 0.95, 0.426 and 1.15 and 0.25 and 0.66%. The sterol content of sunflower-seed oil obtained in the above three ways is 0.3, 0.3 and 0.52%, respectively. It is concluded that phosphatides are present chiefly in the aqueous, unsaponifiable matter in the oily phases, and sterols equally in both the aqueous and the oily phases.—A. M. GOLDOVSKI and M. I. LISCHKEVITSCH. *Maslob. Shir. Delo.*, No. 6 (1937), 7–8; through *J. Soc. Chem. Ind.*, 57 (1938), 546. (E. G. V.)

Whale Oils—Antartic. The characteristics of samples of commercially-produced oils from the blubber and/or bones of Antartic blue whales (12 samples d_4^{20} 0.9123–0.9199, n_D^{20} 1.4715–1.4737, saponification value 193.1–195.6, iodine value 104.3–122.5) and mixed blue- and fin-whale oils (19 samples; characteristics, respectively, 0.9123–0.9220, 1.4712–1.4739, 193.2–195.7, 103.0–124.1) are detailed. The average iodine value (114.5) of the Antartic oils is less than that of the oils from Japanese sei, fin or humpback whales (140.1, 138.5 and 135.2, respectively; see above). The yields (63–22.9%) and characteristics of the flesh oils from 6 parts of the body of one female fin whale are detailed (iodine value 103.8 for the oil from the ventral ridgy flesh; 134.3–144.8 for oils from other parts).—Y. TOYAMA and K. UOZAKI. *J. Soc. Chem. Ind. Japan*, 40 (1937), 462–464; through *J. Soc. Chem. Ind.*, 57 (1938), 547. (E. G. V.)

Whales—Processing of. By thorough disintegration of the tissues (blubber, bones or flesh) prior to rendering, high grade oils can be rapidly recovered without prolonged boiling at high pressures and temperature. For example, properly comminuted lean flesh needs only 4 minutes treatment with water at 95°, followed by pressing and drying to yield oil and meat meal. Further such rational working permits the recovery of valuable by-products, for example, blubber fiber, to be used in gelatin etc., manufacture, bone residue for glue and meal manufacture, etc. The endocrine glands and whale-bone can be utilized, and full-scale trials are in progress for the recovery of the dried blood, of the stomach and intestines, of the liver for vitamin extraction, and of the fresh meat for human consumption.—P. L. FAUTH. *Fatte u. Seifen*, 45 (1938), 58–60; through *J. Soc. Chem. Ind.*, 57 (1938), 546. (E. G. V.)

Unclassified

Alcohols—High Molecular Weight, Preparation of, by Hydrogenation of Cachalot Oil. The fat is hydrolyzed at 100° with 15% potassium hydroxide in ethyl alcohol, the hydrolysate diluted with alcohol, and excess of 25% barium chloride added. The alcohol is distilled off and the residue dried at 100° and extracted with alcohol. The filtered extract is heated at 100° to remove alcohol, glycerol is pured off from the residue, and the upper layer of high molecular weight alcohols is collected.—T. A. BELOVA. *Maslob. Shir. Delo.* No. 6 (1937), 21–22; through *J. Soc. Chem. Ind.*, 57 (1938), 547. (E. G. V.)

Alginic Acid. Analysis of sodium alginate, evolution of carbon dioxide from alginic acid (I), and direct titration of I confirm its composition as $(C_6H_8O_6)n$. Treatment of I with MeOH-HCl, followed by hydrolysis, yields two fully methylated products with n = 5 and n = 15, the molecular weight being confirmed cryoscopically. Viscosimetric measurements with I in aqueous sodium hydroxide give molecular weight of 15,000 (n = 80). Threads prepared from solutions of I give a typical X-ray fiber diagram. It is concluded that I consists of condensed hexuroic (probably mannuronic) acid residues, having a structure very like that of cellulose, but with CO_2H replacing CH_2OH. It can be considered as a link between the homopolar celluloses and the heteropolar proteins.—E. HEEN. *Tids. Kjemi Bergvesen*, 17 (1937), 127; through *Squibb Abstr. Bull.*, 11 (1938), A-736. (F. J. S.)

Aminophenyl Oxazolines. Methyl-5-(*p*) aminophenyl-2-oxazoline is used as an anesthetic.—ROGER ADAMAS and MARLIN TEMPLETON LEFFLER, assignors to ABBOTT LABORATORIES. U. S. pat. 2,114,326, April 19, 1938. (A. P.-C.)

Antidotes For Arsenic—Preparation and Arsenic-Binding Power of. The arsenic-binding powers of FeOCl and ferric chloride solutions are almost the same. The strongest absorbent seems to be a mixture of ferric sulfate plus magnesium hydroxide; 500 Gm. of this could fix 6 Gm. potassium arsenite. Carbonate content up to 10% magnesium carbonate had no adverse effect on the arsenic-binding power. The reagent must by freshly prepared, since its arsenic-binding power decreases greatly after six hours.—E. PERCS. *Magyar Gyogyszeresztud. Tarsasag Ertesitöje*, 14 (1938), 84–8; through *Chem. Abstr.*, 32 (1938), 3901. (F. J. S.)

Antirachitic Substances—Preparation of. Ergosterol or ergosterol-containing material is treated to vaporize the ergosterol under reduced pressure; it is then subjected to the action of a high-frequency oscillating electrodeless discharge.—NICHOLAS A. MILAS, assignor to E. I. DU PONT DE NEMOURS AND CO. U. S. pat. 2,117,100, May 10, 1938. (A. P.-C.)

Chloroformates—Investigations in Some. The oxidative action of halogen groups in sulfochloride and phosgene (I) is shown by certain chloroformates. The oxidative action, measured by liberation of iodine from sodium iodide in anhydrous methyl acetate, is nil for ClCOOMe and increases with increasing number of chlorine atoms substituted in the methyl group. $ClCOOCH_2Cl$ gives HCHO (1 mole) and CO (1 mole); $ClCOOCHCl_2$ gives CO (2 moles); $ClCOOCCl_3$ gives CO (2 moles). $CO(OCCl_3)_2$ also liberates iodine and CO (3 moles). The chloroformates also behave as normal acid chlorides and their transformation into iodine is more readily effected with increasing chlorine substitution. Their physiological action is comparable to that of iodine, but is associated with solubility rather than with ease of decomposition into iodine.—A. PERRET and J. BIECHLER. *Bull. Soc. Ind. Mulhouse*, 103 (1938), 168; through *Squibb Abstr. Bull.*, 11 (1938), A-634. (F. J. S.)

Cinnamyl Alcohol and Cinnamic Acid—Esters of. Two Isomeric Series of Esters of the Phenyl-Propenyl Group. The odor characteristics of the methyl, ethyl, propyl, butyl, amyl and tolyl esters of $CHPh:CH.CO_2H$, and the corresponding isomeric series: cinnamyl formate, acetate, propionate, *n*- and *iso*-butyrate, isovalerate, benzoate and phenylacetate, and also cinnamyl, linalyl, citronellyl, geranyl and terpinyl cinnamates are described; the perfumes of the various substances vary considerably and, with the possible exception of the lower members of the cinnamate series, scarcely show any "homologous series" in odor. The higher esters of both series are excellently suited for use as fixatives.—R. FORNET. *Seifens.-Ztg.*, 64 (1937), 869–870, 887–888; through *J. Soc. Chem. Ind.*, 57 (1938), 318. (E. G. V.)

Corydalinium Salts—8,9,16,17-Tetradehydro-, Contribution to the Constitution of. V. Derivatives of Berbine. The structure of corydaline has already been denoted as 2,3,11,12-tetramethoxy-16-methyl-berbine and the racemic form synthesized. Corydaline, either with alcoholic iodine or mercuric acetate solution, yields identical tetrahydro derivatives, bright yellow needles melting at 229° to 230° C., absorption measurements of which exhibited parallel curves and equivalent maxima. Treatment of 8,9,16,17-tetradehydro-corydalinium iodide with benzyl magnesium chloride yielded 9-benzyl-16,17-dehydro-corydaline, the hydro-iodide of which was obtained as yellowish brown needles melting at 186° C.; while with phenyl magnesium bromide, 9-phenyl-16,17-dehydro-corydaline, bright yellow crystals melting at 209° C., was obtained. The latter was converted to 9-phenyl-corydaline, colorless needles melting at 177° to 178° C., by reduction with zinc-cadmium amalgam.—WALTHER AWE. *Arch. Pharm.*, 275 (1937), 405. (L. L. M.)

α,γ-Dichaulmoogroylglycerol-β-phosphoric Acid—Preparation of. The sodium salt ("chaulphosphate") of α,γ-dichaulmoogroylglycerol-β-phosphoric acid has been found to be better tolerated and more effective in rat leprosy than the usual chaulmoogric acid preparations. A method of synthesizing this acid is described. Dichaulmoogrin (a diglyceride of chaulmoogric acid) is treated with a pyridine solution of phosphorus oxychloride; the chloride thus formed is hydrolyzed and the acid product is separated as a water-insoluble, ether-soluble lead salt. The lead salt is decomposed with hydrogen sulfide or with hydrochloric acid, and the free acid is converted into its sodium salt which is soluble in water and in benzene.—TH. WAGNER-JAUREGG and H. ARNOLD. *Ber. Deut. Chem. Ges.*, 70 (1937), 1459–1462; through *Chimie & Industrie*, 39 (1938), 519. (A. P.-C.)

Inositol—Inactive. Decomposition of phytin is effected in an alkaline solution such as one of calcium hydroxide of a concentration below that corresponding to 25% alkalinity, with

steam under pressure.—EDWARD BARTOW and WM. W. WALKER. U. S. pat. 2,112,553, March 29, 1938. (A. P.-C.)

Insecticide. The essential active ingredient is a nitrated tolyl ether.—LLOYD E. SMITH, dedicated to the free use of the people of the U. S. A. U. S. pat. 2,115,046, April 26, 1938. (A. P.-C.)

Iron—Reduced, for Pharmaceutical Uses. Reduced iron is kept in contact with platinum, as by coating iron powder with platinum, to facilitate dissolving when taken internally.—SZEBELLEDY LASZLO. U. S. pat. 2,112,167, March 22, 1938. (A. P.-C.)

Isoquinoline Series—Investigation of. I. Attempts to synthesize isoquinoline derivatives from substituted benzylamines by condensation with glyoxal, phenylglyoxal, isonitrosoacetone, lactic acid, acetyl-lactic acid, etc., and from substituted benzylamino-acetone nitriles by the Hoesch reaction were unsuccessful, although usually the isoquinoline ring is easily formed from substituted phenylethylamines. The difference between these two series of reactions appears to be due to the difference in the position of the nitrogen atom in the benzene nucleus, and failure of ring closure in these cases can be ascribed to this fact.—B. B. DAY and T. R. GOBINDACHARI. *Arch. Pharm.*, 275 (1937), 383. (L. L. M.)

Isoquinoline Series. II. Opianylmethylamine ($C_{11}H_{13}O_4N$), a substituted beta phenylethylamine apparently not previously described in the literature was prepared from opianic acid by conversion into opianyl-nitromethane and reduction of the latter. An alternate method consisted in the treatment of opianic acid with malonic acid yielding meconinacetic acid, converting it by means of ammonia and thionyl chloride into meconinacetamide and subsequent degradation of the product with bromine and potassium hydroxide. Opianylmethylamine was characterized by its hydrochloride, small colorless flakes melting at 248° C.; hydrobromide, colorless needles melting at 235° C.; picrate, beautiful canary-yellow platelets melting at 209° C.; platinic chloride $(C_{11}H_{13}O_4N.HCl)_2PtCl_4$, an orange colored crystalline precipitate; and a quaternary ammonium iodide, thin platelets melting at 178° C. Treatment with nitrous acid yielded opianylmethyl alcohol, thin platelets melting at 115° C. Treatment with formic acid yielded formyl-opianylmethylamine, colorless needles melting at 147° C.; with benzyl chloride, the benzoyl derivative, needles melting at 158° C.; and with acetic anhydride, acetyl-opianylmethylamine, needles melting at 157° C. The latter, upon treatment with phosphorous pentoxide was converted into the lactone of 1-methyl-6, 7-dimethoxy-3, 4-dihydro-4-hydroxy-isoquinoline-5-carboxylic acid, characterized by a picrate, prisms melting at 242° C.; and a methyliodide, pale needles melting at 207° C. Benzoyl-opianylmethylamine undergoes cyclization to an isoquinoline derivative, crystallizing as a picrate, needles melting at 158° C. Cyclization of the formyl compound was not feasible. Phthalic acid mono-aldehyde was treated with nitromethane and reduced to phthalylmethylamine. Efforts to cyclize the formyl, acetyl and benzoyl derivatives of the amine to the corresponding isoquinolines were unsuccessful.—B. B. DEY and T. K. SRINIVASAN. *Arch. Pharm.*, 275 (1937), 397. (L. L. M.)

Mercury Compounds—Organic. A method of preparing phenyl-mercury salts comprises treating an acid anhydride, such as phthalic anhydride, with phenyl-mercury hydroxide or phenyl-mercury soluble salts, in the presence of water. Details are given of the preparation of a number of such compounds, including products which are probably phenyl-mercury salts of the acids of coconut oil and of hydrogenated coconut oil or hydrogenated cottonseed oil.—CARL N. ANDERSEN, assignor to LEVER BROS. CO. U. S. pat. 2,112,129, March 22, 1938. (A. P.-C.)

Mineral Oil Sulfonic Acids. VI. Preparation of Naphthenesulfonic Acids. Esters of technical naphthenic acid are fractionated and the fractions reduced to alcohols, converted by phosphorus pentachloride into chlorides, and thence by crystalline sodium sulfite at about 200° and greater than 1 atmosphere in 80% yield into naphthenylmethanesulfonic acids, which are purified by way of the sodium salt, or, better, the barium or silver salts. Thus are obtained acids, $CH_2R.SO_3H$, in which $R = C_9H_{17}$, $C_{11}H_{21}$ and $C_{13}H_{25}$. That in which $R = C_7H_{13}$ was not obtained free from aliphatic impurities. They are strong acids, water soluble, and give soluble sodium, calcium, barium and silver salts. The sodium salts are surface-active and foam-producing.—S. VON PILAT and N. TURKIEWICZ. *Petroleum*, 34, No. 8 (1938), 5–8; through *J. Soc. Chem. Ind.*, 57 (1938), 483. (E. G. V.)

Osones—New Preparation of. Oxidation of sugars occurs almost homogeneously and leads mainly to osones when a moderate excess of copper acetate is used for a short time in ethyl

alcohol or, preferably, in concentrated methyl alcohol. *l*-Sorbosone and *l*-xylosone (I) are thus obtained in at least 60% yield by direct oxidation of the respective sugars. The solutions of I have the further advantage that they can be used directly without further purification or isolation of the osone for the addition of hydrogen cyanide in the synthesis of vitamin C (II). This takes place almost quantitatively, and the further operations can be so conducted that II is obtained in 42% yield calculated on the dissolved I. Of this 50% crystallizes directly on concentration, and further amounts can be obtained from the mother liquors. The solid material is of 95% purity. *d*-Xylosone is obtained in 60% yield from *d*-xylose. In contrast with sorbose, the yields with the other hexoses attain only 40%; this is reached by galactose which under other conditions does not yield any osone.—R. WEIDENHAGEN. *Z. Wirtschartsgruppe Zuckerind.*, 87 (1937), 711; through *Squibb Abstr. Bull.*, 11 (1938), A-736. (F. J. S.)

Phenolphthalein Studies. I. Colloidal Phenolphthalein. Colloidal phenolphthalein (I) in solid form is prepared by adding 2.15 Gm. of I dissolved in normal sodium hydroxide to 5.0 Gm. of gelatin dissolved in 50 cc. of water, and passing carbon dioxide over the mixture until the color is discharged. Citric acid is added to p_H 5.5, and the mixture spread on sheets of glass and dried at room temperature. It is somewhat more soluble at the p_H prevailing in the human body than is crystalline I and is somewhat more active in producing bowel evacuation.—B. FANTUS and J. M. DYNIEWICZ. *Amer. J. Digest. Dist. Nutr.*, 2 (1936), 721–724; through *J. Soc. Chem. Ind.*, 57 (1938), 453. (E. G. V.)

Phosphoric Acid Esters of Hydroxyalkyl Isoalloxazines. By reacting upon 9-polyhydroxyalkylisoalloxazines and their derivatives containing at least one free hydroxyl group, with a phosphorus halide, oxyhalide or oxide, or a metaphosphoric acid ester (suitably with gentle warming and in the presence of pyridine, quinoline, triethylamine or like organic base), phosphoric acid esters are obtained such as that of 9-(*d*-ribityl)-6,7-dimethylisoalloxazine which, with albuminous substances, form products which exert a catalytic action on oxidation processes such as the oxidation of hexosemonophosphoric acid and also have a growth-promoting action.—RICHARD KUHN and HERMANN RUDY, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,111,491, March 15, 1938. (A. P.-C.)

Radium (Radon) Emanation—Apparatus for Extraction, Purification and Collection of. Radon and carbon dioxide associated therewith are frozen while the entrained hydrogen, oxygen and helium remain in the gaseous state and are later removed as completely as possible. A first stage of freezing removes water, organic vapors and hydrochloric acid; carbon dioxide is removed after thawing. The apparatus is a combination of lead glass and Pyrex, with ground and waxed joints.—T. H. ODDIE. Brit. pat. 479,224; through *J. Soc. Chem. Ind.*, 57 (1938), 511. (E. G. V.)

Sulfanilamide. Benzamide-*p*-sulfonamide is subjected to a Hofmann reaction. Various details of procedure are described.—JONAS KAMLET. U. S. pat. 2,111,913, March 22, 1938. (A. P.-C.)

Sulfonic Acids—Aromatic Decomposition of, by Phosphoric Acid. The temperature at which phosphoric acid effects the removal of sulfonic radical from substituted benzene—and 1,2,3,4-tetrahydronaphthalenesulfonic acids are recorded. The elimination is aided by alkyl and halogen groups, and inhibited by nitro groups.—V. VESELY and T. STOJANOVA. *Collection Czechoslov. Chem. Commun.*, 9 (1937), 465; through *Squibb Abstr. Bull.*, 11 (1938), A-737. (F. J. S.)

Thiocyano-Sulfides and -Sulfones. $Cl_2CH.CH_2S.C_2H_5$ (I) in acetic acid and hydrogen peroxide at 100° yield ethyl β-chloroethyl sulfone, b. p. 120–122/3–5 mm. I in ethyl alcohol and potassium thiocyanate (six hours at 70°) give ethyl β-thiocyanoethyl sulfide, b. p. 105–110°/5 mm., oxidized as above to ethyl β-thiocyanoethyl sulfone, m. p. 36–37°. The following compounds are prepared analogously: phenyl β-chloroethyl, m. p. 52°, ethyl, b. p. 160–163°/7 mm., and phenyl γ-chloropropyl sulfone, m. p. 23–24°; phenyl β-thiocyanoethyl, b. p. 143–146°/2 mm., ethyl, b. p. 115–120°/10 mm., and phenyl γ-thiocyanopropyl sulfide, b. p. 176–178°/3 mm.; phenyl β-thiocyanoethyl, m. p. 71.5–72°, ethyl, m. p. 39.5–41°, and phenyl γ-thiocyanopropyl sulfone, m. p. 91°.—A. E. KRETOV and E. M. TOROPOVA. *J. Gen. Chem.* (U. S. S. R.), 7 (1937), 2009; through *Squibb Abstr. Bull*, 11 (1938), A-737. (F. J. S.)

Tribromomethyl Borate. CBr_3CH_2OH(I) (avertin) with BBr_3 in light petroleum yields tribromoethyl borate (II), melting at 179–182°, soluble in fats and readily hydrolyzed by water.

II resembles I in narcotic properties. The lack of narcotic action in other derivatives of I is due to non-liberation of the alcoholic hydroxyl group of I in the organism.—A. MANGINI. *Riv. biol.*, 22 (1937), 457; through *Chem. Abstr.*, 32 (1938), 3900. (F. J. S.)

α,β-Unsaturated Ketones—Stereochemistry of. The oximes of styryl ethyl ketone and α-keto-β-benzylidenebutane have been obtained each in two forms. The labile, anti-varieties readily lose water and give two-substituted quinolines. The stable syn-forms give isoquinoline derivatives.—E. BARONI. *Osterr. Chem.-Ztg.*, 40 (1937), 497; through *Squibb Abstr. Bull.*, 11 (1938), A-741. (F. J. S.)

Vitaminous Oils—Protection of. There is incorporated into the oil extra hydroquinone with the aid of a carrier which is miscible with the oil and in which the hydroquinone is more soluble than in the oil.—FERDINAND W. NITARDY, assignor to E. R. SQUIBB & SONS. U. S. pat. 2,115,040, April 26, 1938. (A. P.-C.)

BIOCHEMISTRY

Alcohol Contents of Organic Liquids and Viscera—Variation in the, After Ingestion of Alcohol Followed by Immersion in Fresh Water. Experiments were carried out with rabbits. In the case of asphyxiation by immersion, *i. e.*, when there is penetration of water in the circulatory system, the alcohol content of the blood of previously alcoholized rabbits is diluted up to 11 to 25%. The degree of dilution is independent of the time of submersion required to produce asphyxiation (within limits of 2 to 6 minutes). The distribution of alcohol in the various viscera is fairly uniform, substantially identical figures being obtained in the brain, muscles, liver and kidneys; in the lungs there is some variation, presumably related to the greater or less intensity of the intra-parenchymatous congestion. During at least the first 24 hours that the corpse is submerged, there is practically no possibility of passive cadaveric dilution. When immersion has lasted more than 24 hours, and especially if putrefaction has set in, no definite conclusions can be drawn on account of the possibility of destruction or formation of alcohol. The application of these results to human beings requires caution, particularly on account of the possibility of death being caused by inhibition before the individual was submerged.—PIERRE LANDE, PIERRE DERVILLÉE and JEAN GODEAU. *Ann. Méd. Légale Criminol. Police Sci.*, 17 (1937), 999–1019. (A. P.-C.)

Alcohol—Determination of, in Blood by Heiduschka and Steulmann's Method. Improvement in the details of the apparatus required for Heiduschka and Steulmann's method, which is a modification of Liebesny's method. It has been observed that the presence in the atmosphere of of acetone or other reducing vapors causes the results to be too high. To overcome this drawback, an absorber containing sulfuric-chromic mixture should be provided.—K. WREDE and H. SCRIBA. *Pharm. Zentralhalle*, 78 (1937), 267–268; through *Chimie & Industrie*, 39 (1938), 452–453. (A. P.-C.)

Alcohol in Blood and Tissues—New Method for the Determination of. A new method for the determination of alcohol in blood and tissues is based on the oxidation of alcohol by potassium dichromate in the presence of sulfuric acid, in a special apparatus. The aldehyde formed by the oxidation of alcohol is absorbed in a U-tube and silver precipitates. The silver is titrated with decinormal potassium thiocyanate. By this method 0,00008 Gm. of alcohol can be determined.—U. FABRIS. *Arch. Ist. Biochim. Ital.*, 9 (1937), 81–98; through *Chimie & Industrie*, 39 (1938), 452. (A. P.-C.)

Alcohol in Human Urine and Blood After Administration of Definite Quantities of Alcohobic Liquors. The amount of alcohol found in the urine or in the blood affords a definite indication of the minimum quantity of liquor consumed and the alcoholic condition of the subject. The maximum elimination of alcohol in the urine takes place in two to two and a half hours. The factors given by Evans and Jones (*Analyst*, 54 (1929), 134) for the calculation of the amount of alcoholic liquor consumed from the alcohol content of the urine at its maximum excretion are reasonably accurate of a person weighing about 9 stone; for persons weighing approximately 13 stone, the factors should be increased in the ratio of 13 to 9. Of the alcohol consumed, approximately 2 to 3% is eliminated in the urine; apparently persons of lower body weight eliminate a greater percentage for the same consumption of liquor. It is advisable to collect at least two samples of urine at approximately half-hour intervals to enable an opinion to be formed as to the minimum amount of alcohol consumed.—S. G. WALTON. *Annual Rept. New South Wales Govt. Analyst*, 1935, 27–30; through *Medico-Legal Criminol. Rev.*, 5 (1937), 395. (A. P.-C.)