PHARMACEUTICAL ABSTRACTS

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CONTENTS

PHARMACY

GALENICAL (*Continued*)

Powders—New Method of Dividing. Automatic machine division of powders is superior to hand division. In the past such machine division worked best with acetylsalicylic acid formulæ. Powders containing phenacetin, acetanilid, salol, antipyrine, etc., have been less easily handled by machine. By using chloroform as granulating fluid, granule formulæ containing these drugs may be handled by motor driven machine. 30–50 cc. chloroform are used per 300–500 Gm. powder, the granulation is shaken through a No. 5 sieve and after drying for $^1/_2$ to 1 day is shaken through a No. 7 sieve. The residue is pressed through with a spatula. Tables cite the per cent weight deviation per hundred sample powders for various weights of seven different formulæ prepared and divided in this way using a machine made by Arbo-Bähr & Co. Mean errors ranged from ±0.54 to ±0.91%.—J. B. TERMANSEN. *Arch. Pharm. og Chemi*, 45 (1938), 521. (C. S. L.)

Sodium Morhuate—Deterioration of, on Storage and the Preparation of Solutions. The opinion is expressed that the insolubility and darkening in color of old samples of sodium morhuate is due to hydrolysis, and that these noted effects of deterioration are not due to oxidation, although oxidation may occur. Sodium morhuate should, therefore, be kept in well closed containers, stoppered bottles being most suitable. The making and stocking of large quantities is inadvisable. Solutions for injections should only be made from sodium morhuate that answers the B. P. Codex for solubility. The addition of 2% of benzyl alcohol is more effective than the addition of ethyl alcohol. Solutions of sodium morhuate may be cleared by the addition of alkali. The buffering of solutions of sodium morhuate at p_H 9.6 produces preparations, even from old samples, that may readily be cleared by gently warming. A 5% solution of sodium morhuate in buffer p_H 9.0 with 2% of benzyl alcohol is a satisfactory preparation, remaining bright after autoclaving under prescribed conditions.—G. W. G. SMITHERS. *Pharm. J.*, 141 (1938), 302. (W. B. B.)

NON-OFFICIAL FORMULÆ

Cosmetics for the Skin. A number of formulæ (45) are given for various pharmaceutical and medicinal preparations including astringent facial lotions, Kummerfeld's lotion, triethanolamine lotion, acne lotions, acne soaps, sulfur creams and pastes, naphthol salves and skin peeling mixtures.—H. JANISTYN. *Seifensieder-Ztg.*, 65; *Der Parfümeur*, 12 (1938), 63–64. (N. L.)

Genista. A review of the physical and chemical constants of the volatile oil of genista and formulæ for perfumes containing genista are given.—A. WAGNER. *Seifensieder-Ztg.*, 64; *Der Parfümeur*, 11 (1937), 907. (N. L.)

Healing Agents—Examination of Some. The composition of eighteen products is reported.—G. DULTZ. *Deut. Apoth. Ztg.*, 53 (1938), 1119–1120. (H. M. B.)

Sodium Alginate in Cosmetics. Properties and possible uses in lotions, jellies, pomades, toothpastes, brushless shaving creams, wave sets, etc., are discussed. The following formulæ are offered: *Hair Pomade.*—Sodium alginate 1.3, glycerin 3.0, calcium citrate 0.1, preservative 0.1, perfume 0.5, water 95.0. Dissolve the alginate and the preservative in one-half of the water, add the perfume and glycerin to this solution. The citrate is mixed with the rest of the water and added to the solution; allow to stand for two hours. Color is added before the addition of the thickening agent. *Hand Lotion.*—Glycerol monostearate 3.0, triethanolamine 0.3, stearic acid 1.0, cetyl alcohol 1.0, preservative 0.1, sodium alginate solution (1%) 94.6. The ingredients are mixed and the whole heated slowly until all of the components have been melted, stir until the mixture cools to room temperature, allow to stand over night and again mix.—ANON. *Drug Cosmetic Ind.*, 43 (1938), 428–429. (H. M. B.)

Sulfur. A deficiency in sulfur was found to result in low cystine and glutathione. Formulæ for sulfur preparations for the skin and hair using non-oily bases are given.—GATTEFOSSE. *Parf. Moderne*, 31 (1937), 91; through *Am. Perfumer*, 36 (1938), No. 6, 54. (G. W. F.)

Sulfur-Containing Cosmetics. A review of the action of sulfur in the form of local applications, the various forms of sulfur which are used in dermatological work and a number of formulæ for lotions containing sulfur are given.—ANON. *Seifensieder-Ztg.*, 64; *Der Parfümeur*, 11 (1937), 850–852. (N. L.)

Dispensing

Absorption Bases. A number of questions and answers concerning bases, their use, advantages, etc.—M. G. Navarre. *Am. Perfumer*, 36 (1938), No. 6, 27–28. (G. W. F.)

Allantoin Ointment. The ointment contains triethenolamine stearate, an excess of stearic acid sufficient to maintain the ointment acid in reaction and colloidal-size particles of allantoin dispersed therein.—Frederick R. Greenbaum, assignor to The National Drug Co. U. S. pat. 2,124,295, July 19, 1938. (A. P.-C.)

Auxiliary Medical Agent and Method of Preparing the Same. An auxiliary medical agent to be used for the administration of oil and unpleasant tasting medicine is prepared by finely grinding together an alkali metal carbonate, an acid reacting substance, a water-soluble adhesive gum, a flavoring substance and a perfume. Upon the addition of water the mixture yields a pleasant tasting liquid and a mass of lasting bubbles of carbon dioxide.—Akiyoshi Matsumae. U. S. pat. 2,125,577, Aug. 2, 1938. (A. P.-C.)

Camphorated Oil—Preparation and Physical Properties of, for Injection. In preparing camphorated oils for injection, the oil used must be neutral in reaction to reduce the pain of injection. The methods of neutralization may be divided into three groups: (*a*) washing out the acid with 95% alcohol, (*b*) neutralizing the acid with sodium carbonate, (*c*) neutralizing the acid with sodium hydroxide. The merits of the methods are discussed. The method described by Ballot (using aqueous sodium hydroxide solution) is the best one for preparing a neutral oil. The content of camphor in camphorated oil may be determined exactly with the polarimeter. The free acid in olive oil is not completely removed by washing with 95% alcohol. The physical constants may be used to characterize and test camphorated oil for injection with success.—Axel Jermstad. *Pharm. Acta. Helv.*, 13 (1938), 87–91. (M. F. W. D.)

Extracts—Vacuum Drying of. From an examination of commercial extracts of krameria, cascara and hamamelis, it is concluded that the methods used in drying extracts are not satisfactory, there being evidence that the preparations are, in many cases, grossly overheated. It is probable that this is due to the use of steam-jacketed vacuum pans for both the concentration and the final drying of extractives. The temperature of the liquid extractive will remain fairly constant during concentration and while in the liquid state. If it is an aqueous extractive it is possible to concentrate at a temperature never exceeding 70° C. if reduced pressure is used. In the final stages, however, when the extractive thickens and commences to dry, the portion in contact with the pan will take the temperature of the heating steam, irrespective of what reduction of pressure is employed. If high pressure steam is used, considerable overheating will result. This usually results in big variations in appearance, solubility and very probably in activity. The degree of overheating can usually be detected by the solubility of the product in the original solvent, and this criterion might well be used generally for both soft and dry extracts as an indication of the care that has been used during concentration and drying. Vacuum ovens, or vacuum pans used for drying should be heated by means of water jackets or very low pressure steam.—H. Berry and E. M. Temple. *Pharm. J.*, 141 (1938), 262. (W. B. B.)

Extractum Filicis Concentratum. The crude filicin was extracted from 199 Gm. of extract of the Swiss Pharmacopœia IV with ether, the ether extracted with a solution of barium hydroxide, the aqueous solution made acid with hydrochloric acid and reëxtracted with ether; the ethereal solution was dried over anhydrous sodium sulfate, neutralized with sodium carbonate and distilled; in this way 43 Gm. crude filicon was obtained. Fifty per cent of the ether was recovered.—F. Ducommun. *Schweiz. Apoth.-Ztg.*, 76 (1938), 445. (M. F. W. D.)

Filtration through Glass Filters. Pressure filtration through a Jena glass filter disk directly into an ampul is described. Pressures of about 2 atmospheres are obtained with a bicycle hand pump. A pressure vessel with glass cylinder wall, the glass filter, rubber washers and top and bottom plates of metal clamped together with thumb screws, are employed.—E. V. Andersen. *Arch. Pharm. og Chemi*, 45 (1938), 569. (C. S. L.)

Kummerfeld's Lotion. The author recommends the following formula for Kummerfeld's Lotion: camphor 1 Gm., alcohol (95%) 20 Gm., milk of sulfur 10 Gm., gum arabic 2 Gm., glycerin 10 Gm., bicarbonate of soda 1 Gm. and distilled water 56 Gm. The sulfur and gum arabic are mixed together with the glycerin and gradually diluted with water while thoroughly mixing, and the camphor dissolved in alcohol is gradually added to the above mixture. A brief historical

account of this lotion is also given.—HANS SCHWARZ. *Seifensieder-Ztg.*, 64; *Der Parfümeur* 11, (1937), 811. (N. L.)

Linimentum Terebinthinæ Aceticum—Gelatin as an Emulsifying Agent in. Three liniments were prepared in 1000 cc. quantities: the N. F. VI formula, one replacing the whole egg with 10 Gm. of U. S. P. gelatin and one with gelatin 10 Gm. and 80 Gm. of anhydrous laonlin. All three exhibited a very uniform dispersed phase. The relative viscosity of the N. F. VI formula increases with age but the others show a decrease. This decrease in relative viscosity does not seem to alter stability.—FREDERICK GRILL and NORMAN NOBACH. *J. Am. Pharm. Assoc.*, 28 (1939), 33. (Z. M. C.)

Plant Extracts—Alcoholic, New Thoughts and Experiments on the Preparation of. Extractions were carried out in a percolator with 43% alcohol by weight. To facilitate passage of the solvent and subdivision of the drug a series of perforated aluminum disks were provided in the percolator, each disk being provided with vertical rods on the points of which rested the next higher disk. The material was allowed to macerate for 5 days and the solvent was then allowed to flow out at the rate of about 1 drop per second. The solvent remaining in the drug was recovered by passing a regulated amount of steam through the bottom of the percolator. The loss of solvent was thus kept down to 3 to 5%. Experiments were carried out with ergot of rye, orange peel, cinchona, with and without the addition of alcoholic hydrochloric acid. An endeavor was made to obtain extracts with high contents of active ingredients and good stability, that is, extracts in which the chemical equilibrium of the colloids had been retained. This is obtained with extracts of relatively high viscosity (4 to 5) with respect to the small percentage of substances entrained and a very low p_H (2 to 3). A 43% alcohol is quite suitable for the above-mentioned drugs. The hydrochloric acid content can remain low (0.75) but instead of 1 part of alcohol to 1 part of drug, it would be preferable to use 2 parts alcohol to 1 part of drug, to obtain a more complete exhaustion.—H. SCHRADER. *Pharm. Ztg.*, 81 (1936), 1359-1365; through *Chimie & Industrie*, 39 (1938), 719. (A. P.-C.)

Plants—Triturations of Fresh. Preparations containing the volatile constituents of fresh plants are produced by mixing fresh plants with grape sugar and a salt having an alkaline reaction, triturating the mixture, and drying the resultant mass.—ALFRED KUHN, assignor to DR. MADAUS & Co. U. S. pat. 2,128,616, Aug. 30, 1938. (A. P.-C.)

Prescription Difficulty. The following prescription is discussed: boric acid 1.0 Gm. Dissolve and add zinc oxide and olive oil of each 50 Gm. The following two possibilities are suggested: (1) to ignore the word "dissolve" and mix the three ingredients; (2) to dissolve the boric acid in about 4 Gm. glycerin, add the zinc oxide and then the olive oil.—L. ROSENTHALER. *Pharm. Acta Helv.*, 13 (1938), 105. (M. F. W. D.)

Procaine Hydrochloride—Preparation of Alkaline Buffered Solutions of, for Surgical Use. (1) *The Dispensing of Alkaline Solutions of Procaine Hydrochloride.*—A method is described for the dispensing of dry-salt ampules and vaccine bottles suitable for the preparation of alkaline, sterile, isotonic and buffered solutions of procaine hydrochloride. (2) *The Rate of Decomposition of Procaine Hydrochloride in Solution.*—Data showing the rate of decomposition of procaine hydrochloride in acid, neutral, and alkaline solutions are given and discussed. (3) *The Physico-Chemical State of the Procaine Molecule in Alkaline Solutions.*—The state of the procaine molecule in acid and alkaline solutions is investigated and the relationship of the results obtained to the theory of anesthesia by alkaline solutions is indicated. A report is given on the purity and the differences of commercial brands of procaine hydrochloride at present on the market.—K. BULLOCK. *Pharm. J.*, 141 (1938), 268. (W. B. B.)

Sodii Bicarbonatis Compositæ B. P. C. Tabellæ and Zingiberis Compositæ B. P. C. Tabellæ—Preparation and Keeping Qualities of. The formulæ of compound tablets of sodium bicarbonate B. P. C. and compound tablets of ginger are impracticable owing to the inclusion of ammonium bicarbonate. The volatility of this substance renders it unsuitable for tablets in popular demand, as it is impossible for the pharmacist to supply an article of the strength demanded. It is particularly unfortunate that the Codex should have made use of the term "Soda Mints" as a synonym for compound tablets of sodium bicarbonate This is contrary to the long established custom of the trade. From all points of view the pharmacist is placed in an invidious position if he endeavors to supply a Codex tablet, labeling it as such, and he renders himself liable to prosecution, since it will certainly be deficient in ammonia. If he supplies the customer

with plain bicarbonate of soda and oil of peppermint tablet, he is liable to get into trouble with those local authorities whose analysts regard the Codex as semi-official. The National Formulary has adopted the Codex standard so that whenever a National Health Insurance prescription is dispensed for either compound tablets of sodium bicarbonate or soda mint, the pharmacist cannot help putting himself in the wrong. It is suggested (1) that ammonium bicarbonate be omitted from the formulæ of compound tablets of sodium bicarbonate B. P. C. and compound tablets of ginger B. P. C. and (2) that the title soda mint and ginger mint be reserved for those tablets which it has been the custom of the trade to supply, consisting of bicarbonate of soda and oil of peppermint for soda mints with the addition of oleoresin of ginger or ginger mints.—H. BURLINSON. *Pharm. J.*, 141 (1938), 303. (W. B. B.)

Stramonium—Dry Extract of, Further Investigation of. It has been shown that for the preparation of dry extract of stramonium, alcohol (70%) is unsuitable because (*a*) the extract is hygroscopic and becomes sticky when exposed to the atmosphere unless excess heat is used for drying; (*b*) fractionation occurs during evaporation of the percolate and it is difficult to obtain a homogeneous extract. The criticism that the use of alcohol (95%) as the solvent produces an objectionably "oily" extract is not substantiated.—R. C. KAYE and A. T. MOORHOUSE. *Pharm. J.*, 141 (1938), 342. (W. B. B.)

Tincture Arnica, Swiss Pharmacopœia V—Preparation of. It has been shown, not only by the author, but by many others that the procedure of the Swiss Pharmacopœia V does not always give a product meeting pharmacopœial specifications. Of seven samples bought on the market, only 2 met the pharmacopœial requirements for per cent residue. Extraction studies showed that arnica flowers (coarsely powdered to pass a no. III sieve) gave the most efficient extraction. Similar series of studies showed 40 to 60% alcohol to be the best solvent and percolation, the best extraction method. The following improved procedure is suggested: 100 parts of arnica flowers (no. III sieve) are moistened thoroughly with 50 parts of dilute alcohol. The drug is then packed in a percolator and extracted with 1000 parts of dilute alcohol by the percolation method and then allowed to drain. The marc is expressed and the expressed liquid added to the percolate. After several days standing in a cool place, the liquid is filtered and if necessary, the filter washed with enough dilute alcohol to make 1000 parts of tincture. The specific gravity of the preparation should be between 0.8950 and 0.9100, and the residue between 2.0 and 2.5%. To insure using a drug which will produce a pharmacopœial tincture, at least 20% of dilute alcohol-soluble extractive must be found by the following method: 2.5 Gm. of arnica flowers (sieve no. V.) are washed into a measuring flask and made up to 50 cc. with dilute alcohol. The flask is shaken vigorously and frequently during two hours and the contents of the flask filtered. Twenty-five cc. of filtrate are used to determine extractive according to the general procedure.—J. BÜCHI, C. BERGMANN and E. PAULI. *Pharm. Acta. Helv.*, 13 (1938), 92–101. (M. F. W. D.)

PHARMACEUTICAL HISTORY.

Fontane, Theodore—Reports of His Time as an Apothecary in Berlin. A memorial paper on the 40th anniversary of his death.—PAUL LINDENBERG. *Deut. Apoth. Ztg.*, 53 (1938), 1118–1119. (H. M. B.)

Institute of Pharmacy (1769)—Dr. Lewis Mottet's Projected. The author quotes from an early number of the South Carolina Gazette about what was probably the earliest attempt to establish a pharmaceutical institute. The plan was put forward by Dr. Lewis Mottet who settled in South Carolina before the middle of the 18th century.—J. HAMPTON HOCH. *J. Am. Pharm. Assoc.*, 27 (1938), 1260. (Z. M. C.)

Medical Oddities. An interesting article about the antiquity of disease, the invocations, incantations, exorcism, amulets and charms, talismans, strange instruments used by surgeons indicates how far medicine and pharmacy have advanced.—CHARLES WHITEBREAD. *J. Am. Pharm. Assoc.*, 28 (1939), 49. (Z. M. C.)

One Hundred Year Old Apothecary in Gelsenkirchen. Historical.—ANON. *Deut. Apoth. Ztg.*, 53 (1938), 1065–1066. (H. M. B.)

Pharmacy in Edinburgh—Phases of. An historical sketch presented under the following headings: Official Pharmacy, Materia Medica and Pharmacology, Applied Pharmacy, Academic and Extra-Mural Pharmacy, Institutional Pharmacy, Poisons and Pharmacy Law and Phar-

maceutical Literature. A bibliography is appended.—J. P. GILMOUR. *Quart. J. Pharm. Pharmacol.*, 11 (1938), 351–362. (S. W. G.)

Town Apothecary in Züllichau. History of this old apothecary.—CURT SCHELENZ. *Deut. Apoth. Ztg.*, 53 (1938), 1105–1106. (H. M. B.)

PHARMACEUTICAL EDUCATION.

American Council on Education—Work of, for the Year 1937–1938. Attention is directed to the value of the Council's publication, *The Educational Record*, reference is made to what Dr. Marsh says about what makes a good meeting of an organization; and mention is made of some features that were new at the 1938 meeting.—RUFUS A. LYMAN. *J. Am. Pharm. Assoc.* 27 (1938), 1249. (Z. M. C.)

Hospital Pharmacy—Duties for the Unregistered Assistant in. The author shows how unregistered may be used to the satisfaction of all concerned.—ELIZABETH NEUFELD. *J. Am. Pharm. Assoc.*, 28 (1939), 38. (Z. M. C.)

Pharmacist—Reading the Professional, Should Do. The author explains how he manages the reading of pharmaceutical journals for himself and his clerks and mentions a number of other things he believes should be read.—J. K. ATTWOOD. *J. Am. Pharm. Assoc.*, 27 (1938), 1237. (Z. M. C.)

Pharmacy Curriculum—Objectives of and Basic Materials for a Course in Public Health for the B.S. in. Objectives of such a course are discussed and an outline submitted.—FANCHON HART. *J. Am. Pharm. Assoc.*, 27 (1938), 1246. (Z. M. C.)

PHARMACEUTICAL ECONOMICS.

Hospital Pharmacist—Establishing a Fair Wage Level for. The question of wage scale is considered from several angles. A plan is offered for the establishment of proper salaries.—DOROTHEA FRANKS STONER. *J. Am. Pharm. Assoc.*, 28 (1939), 40. (Z. M. C.)

Professional Newspaper as a Business and Goodwill Builder. The author relates how he goes about preparing a monthly bulletin which he sends to physicians and the results that it brings.—ARTHUR H. EINBECK. *J. Am. Pharm. Assoc.*, 28 (1939), 47. (Z. M. C.)

Proprietaries in Prescriptions—Survey of. The author discusses the problem involved in filling prescriptions calling for a few ounces and having left large quantities that are never prescribed again. He refers to some of the findings of the National Drug Store Survey and reports on a survey made in Boston. Many figures of value in any consideration of the subject are submitted. He offers the following suggestions to counteract the tendency to prescribe proprietaries: *First*, detailing doctors with a complete selected list of proprietaries that contain no duplicates, or with a plea that official preparations be prescribed for the economy of the patient; *Second*, that retail druggists specialize in the complete lines of a few manufacturers and have an exchange arrangement between themselves; *Third*, each druggist create his own duplicates of popular specialties of the simple type and detail doctors for prescriptions calling for them; *Fourth*, make an arrangement with wholesalers to furnish the specialties in amounts smaller than full packages.—J. H. GOODNESS. *J. Am. Pharm. Assoc.*, 29 (1939), 42. (Z. M. C.)

Store Arrangement. Photograph of a desk suitable for semi-open prescription department is shown. Its possibilities are discussed and some figures on cost given.—RALPH W. CLARK. *J. Am. Pharm. Assoc.*, 28 (1939), 35. (Z. M. C.)

MISCELLANEOUS.

Adhesive Tape—Surgical. A fabric base is provided with a pressure-sensitive adhesive containing rubber firmly attached to one side of a coating of plasticized nitrocellulose composition on the opposite side, the plasticizing component of which consists of a rubber adhesive-innocuous plasticizer such as dibutyl phthalate (the resultant tape being easily cleanable and highly resistant to water and to soiling).—EDGAR H. NOLLAU and DONALD A. RANKIN, assignors to E. I. DU PONT DE NEMOURS AND CO. U. S. pat. 2,118,101, May 24, 1938. (A. P.-C.)

"Brown Camphor Oil"—Hydrogenated, Suitable for Use in Perfume Manufacture. A hydrogenated "brown camphor oil" having an odor approximately 3 times the strength of the starting material is produced by the complete hydrogenation of the unsaturated side chain of "brown camphor oil."—MARION S. CARPENTER, assignor to GIVAUDAN-DELAWANNA, INC. U. S. pat. 2,125,832, Aug. 2, 1938. (A. P.-C.)

Cholesterin. Cholesterin is soluble 1% in 90% alcohol, 1% in isopropyl alcohol, 2.5% in ethyl acetate. Formulæ are described for mixtures with stearic acid, cacao butter, ceresin, etc.—ANON. *Seif. Ztg.*, 64 (1937), 184; through *Am. Perfumer*, 36 (1938), 34. (G. W. F.)

Cosmetic Cream Base. The product consists of the reaction product of a fatty acid and an ethanolamine, mixed with an unsaponifiable oily material, in proportions to produce a solid cake which is solid at and above ordinary temperatures and is substantially anhydrous, and which is adopted to be blended with water to produce a smooth cosmetic cream.—HERMAN GOODMAN, assignor to COSMETIC RESEARCH INC. U. S. pat. 2,129,836, Sept. 13, 1938. (A. P.-C.)

Cosmetics. A cosmetic such as a cream or lotion or powder contains a base material and a buffer composition such as disodium phosphate, and citric acid to maintain the p_H of the cosmetic at a point between 4 and 7 (suitably 5.5).—GILBERT D. MILES. U. S. pat. 2,118,566, May 24, 1938. (A. P.-C.)

Depilatory. A depilatory of salve-like consistency comprises a system of at least one solid (consisting of finely divided material having hydrophilic properties) in admixture with at least two liquid phases, one dispersed in the other. One of the liquid phases, consisting of an aqueous solution of a depilating agent, upon application of the depilatory preferentially wets the hair substance and exerts a depilating action thereon. The other phase upon application of the depilatory preferentially wets the skin and serves as a protection to the skin; it comprises a substantially non-toxic and non-irritating lipin solvent compatible with the depilating solution and of limited miscibility therewith, and it possesses a sufficiently high wetting power and a sufficiently low volatility to spread over the skin rapidly and to remain thereon while the depilatory is in contact with the skin.—WARREN MOORE. U. S. pat. 2,128,158, Aug. 23, 1938. (A. P.-C.)

Emulsions in Industry. II. The uses of emulsions in various industries are discussed, with special emphasis to the different agents and their specific advantages. The uses include biology and medicine, pharmacy, cosmetics and food emulsions.—H. L. BENNISTER and A. KING. *Chemistry and Industry*, 57 (1938), 990–993. (E. G. V.)

Fungicides and Insecticides. Amorphous sulfur is used, suitably together with a small proportion of a sulfide or polysulfide of ammonium or of an alkali or alkaline-earth metal.—MYRON V. ANTHONY, assignor to STAUFFER CHEMICAL CO. U. S. pat. 2,119,125, May 31, 1938. (A. P.-C.)

Grindability of Materials—Determination of. By means of a cone mill coupled to an electrodynamometer a power-time diagram is obtained. Data for the work required to grind various materials from one size to another are given.—W. GRUNDER. *Z. Ver. deut. Ing. Beih. Verfahrenstech.*, (1938), 17–23; through *J. Soc. Chem. Ind.*, 57 (1938), 993. (E. G. V.)

Hair—Compositions for Use in Waving. A hair treating solution (which may be used for impregnating a pad) is prepared from ammonia and an alkali metal sulfite.—ERNEST O. FREDERICS and JAMES C. BROWN, assignor to FREDERICS. U. S. pat. 2,126,375, Aug. 9, 1938. (A. P.-C.)

Hydrogen Peroxide Preparations—Stabilized Solid. A preparation suitable for making antiseptic tablets, candies, pills and the like, comprises a solid hydrogen peroxide compound containing a stabilizer such as benzyl glycol ether, and is impregnated with paraffin, a wax, fat, higher fatty acid or alcohol such as wool fat alcohols, and mixed with sugar as a diluent.—ALFRED RIECHE, assignor to WINTHROP CHEMICAL CO. U. S. pat. 2,120,430, June 14, 1938. (A. P.-C.)

Insecticidal, Fungicidal, Disinfectant Material. Cyclohexyl thiocyanate is claimed as new.—LEON C. HECKERT and CHAS. H. PEET, assignors to ROHN & HAAS CO. U. S. pat. 2,124-400, July 19, 1938. (A. P.-C.)

Insecticidal Oil Spray. An antiparasitic oil composition for application in emulsified form comprises a refined petroleum white oil containing in solution about 5% of a mixture of about 3 parts by weight of aluminum naphthenate and 1 part by weight of glyceryl oleate.—HUGH KNIGHT, assignor to EMULSOIDS, INC. U. S. pat. 2,124,782, July 26, 1938. (A. P.-C.)

Insecticide. The essential active ingredient is 2,4-dinitro-*o*-tolyl acetate.—LLOYD E. SMITH. U. S. pat. 2,127,090, Aug. 16, 1938. (A. P.-C.)

Insecticide. The product contains a halogenated ketal and an acid-binding agent.—ALFRED RIECHE, HANS MAIER-BODE and WOLFGANG ECKARDT, assignors to WINTHROP CHEMICAL CO., INC. U. S. pat. 2,129,025, Sept. 6, 1938. (A. P.-C.)

Insecticides. Sprays are used containing constituents such as naphthenyl thiocyanate from Russian or Californian naphthenic acids, bornyl thiocyanate or like compounds.—PAUL L. SALZBERG, assignor to E. I. DU PONT DE NEMOURS & Co. U. S. pat. 2,122,781, July 5, 1938. (A. P.-C.)

Liquid Dentifrice. A solution of castile soap is formed with propanediol, 1,2-butanediol, 2,3-butanediol, 1,4-butanediol, 1,2-ethanediol or methyl-1,3-propanediol as the principal solvent.—HARRY EISENBERG and ANTHONY J. ZOLENAS, JR. U. S. pat. 2,124,971, July 26, 1938. (A. P.-C.)

Mothproofing. Materials are mothproofed by treating with monophenyldi(ortho-xymyl)-phosphate.—LINDLEY E. MILLS and WM. W. ALLEN, assignors to the DOW CHEMICAL Co. U. S. pat. 2,128,189, Aug. 23, 1938. (A. P.-C.)

Nose Drops or Nasal Spray—Therapeutic Composition Suitable as. In addition to the therapeutic ingredients, there is added a small amount of pectin. The pectin, in 1% aqueous dispersion, has a p_H above 4.5 and the p_H value of the composition lies between 4.5 and 8.0.—JOHN H. WRIGHT, assignor to VICK CHEMICAL Co. U. S. pat. 2,125,212, July 26, 1938. (A. P.-C.)

Oxygen—Apparatus for Generating, as for Breathing Purposes. Various structural and operative details of an apparatus utilizing cartridges of oxygen-generating material such as chlorate and perchlorates.—MAX HAUSMANN, assignor to I. G. FARBENINDUSTRIE A.-G. U. S. pat. 2,121,-034, June 21, 1938. (A. P.-C.)

Petroleum—Uses and Controls of Pharmacopœial Products Extracted from. A general discussion. The uses to which these several products are put are dependent largely on their respective viscosities. It is suggested that the test with sulfuric acid be included in the next edition of the French Codex, and a technic for such a test is described.—F. GRÉGOIRE. *J. Pharm. Chim.*, 24 (1936), 452–461; through *Chimie & Industrie*, 39 (1938), 720. (A. P.-C.)

Skin-Protecting Composition. A composition suitable for protecting the skin from grease, paint, etc., contains 7.4 to 9 parts of a hard soap, 11 to 18 parts of a water-soluble alkali metal silicate, 1 to 1.5 parts of a starchy material such as potato starch, 6.5 to 12 parts of a water-soluble polyhydroxy emollient such as glycerin, and 32 to 72 parts of water.—OSMER F. OLIVER, assignor to TRI DERMIS Co. U. S. pat. 2,120,569, June 14, 1938. (A. P.-C.)

Stannite Depilatories—Stabilized Soluble. Soluble stannite solutions such as those of sodium or potassium are prepared with an alkali silicate as a stabilizer and with a p_H value of less than 12.6.—WM. B. STODDARD and JULIUS BERLIN. U. S. pat. 2,123,214, July 12, 1938. (A. P.-C.)

Titanic Dioxide. A review of the physiological properties, preparation of and the use of titanium dioxide in the manufacture of cosmetics.—H. SCHWARZ. *Seifensieder-Ztg.*, 65; *Der Parfümeur*, 12 (1938), 82. (N. L.)

Vermin-Exterminating Compositions. A composition which evolves hydrogen sulfide and carbon monoxide when burned is formed of sulfur, a solid combustible carbon-containing material such as sawdust, an oxygen-yielding substance such as potassium nitrate or manganese dioxide, and an oil or fat such as rape-seed, linseed or train oil, in the amount of 10% or less.—KARL MEMMINGER, assignor to FAHLBERG-LIST A.-G. CHEMISCHE FABRIKEN. U. S. pat. 2,124,494, July 19, 1938. (A. P.-C.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS.

PHARMACOLOGY.

Adrenaline—Influence of Ascorbic Acid on the Activity of. I. The Action of Ascorbic Acid on the Peripheral Circulation of the Frog. Injection of solutions of ascorbic acid in concentrations of 0.0375–50.0 per 1000 in Ringer solution, p_H 7.4, into the frog showed that the acid exercises a definite vasoconstrictive action by causing blocking of the circulation in dilutions up to 1:10,000. The dilution of 1:20,000 is the limit at which the vitamin C does not cause any appreciable modification in the circulation.—A. LEVI. *Atti. soc. nat. mat. Modena*, 68 (1937), 17–19; through *Chem. Abstr.*, 33 (1939), 1023. (F. J. S.)

Adrenaline—Secondary Vasodilatory Action of. It has been verified that the diminution of the rate of flow of the femoral vein caused by the injection of a moderate dose of adrenaline in a branch of the femoral artery is followed by a marked increase of this rate of flow. In the

experiment traced with a dog, after the injection of 0.005 mg. of adrenaline in a branch of the femoral artery, the discharge of the blood from the femoral vein, at the time of maximum vasoconstriction was only one third as rapid as initially. However, following this, at the time of maximum vasodilatation it was twice as rapid as before the injection.—RAYMOND-HAMET. *Compt. rend.*, 207 (1938), 304. (G. W. H.)

Alkyl Nitrites. II. Pharmacology of 2-Ethyl-*N*-Hexyl-1-Nitrite. Studies of octy nitrite were made on the blood pressure of dogs, the coronary flow on the rabbit and dog heart, and on the isolated coronary vessels from the heart of a steer. The toxicity by inhalation and by injection was also determined on rats. The tendency of the preparation to produce methemoglobin was studied on dogs. The physico-chemical properties of the compound is also described as to solubility and vapor pressure. The duration of action of this compound is seven times that produced by amyl nitrite, while the acute toxicity by intraperitoneal injection was found to be one-fourth that of amyl nitrite. By inhalation the compound was found to be definitely less toxic than amyl nitrite. The tendency of octyl nitrite to produce methemoglobin was found to be neglible. The authors suggest this compound might lend itself to medication in the form of an inhaler for the treatment of angina pectoris, asthma and paroxysmal hypertension.—JOHN C. KRANTZ, JR., C. JELLEFF CARR and SYLVAN E. FORMAN. *J. Pharmacol.*, 64, No. 3, (1938), 302–313. (H. B. H.)

Analgesic Power and Chemical Constitution. A review, with 68 references. Only morphine and a few synthetic derivatives of the phenanthrone series are true analgesics, as they alone can insensitize animals to pain without putting them to sleep.—ERNEST FOURNEAU. *Chimie & Industrie*, 39 (1938), 1043–1057. (A. P.-C.)

Anesthetic. The product comprises coagulated latex (or caoutchouc) dissolved in a volatile liquid anesthetic.—FREDERICK E. GUNTRIP. U. S. pat. 2,126,463, Aug. 9, 1938. (A. P.-C.)

Anesthetics—Local. These are defined as drugs which act by depressing the sensory nerve endings in the skin or mucous membranes thereby inducing insensibility to pain when applied and are divided into those with specific effect on the sensory nerves or their endings, those which cause cessation of feeling by freezing the tissues and certain protoplasmic poisons which usually act by irritation. The review deals primarily with the action of the first group including cocaine, procaine and related drugs. Fifteen references are given.—M. A. LESSER. *Drug Cosmetic Ind.*, 43 (1938), 425–427, 431. (H. M. B.)

Barbiturates—Influence of Room Temperature on the Action of. The author reviews the literature bearing on the influence of temperature on the susceptibility of animals to various drugs. He found from experiments on mice that a duration of action in the case of sodium evipan is definitely dependent on the temperature at which the experiments were done. The ratio of the duration of action between temperatures of 20° and 30° C. was 2.4. The L. D. 50 of phenobarbitone at 20° C. was found to be about two-thirds of that at 30° C. The author suggests that the comparisons of the various barbiturates be carried out at a uniform temperature, preferably around 30° C.—J. RAVENTOS. *J. Pharmacol*, 64, No. 4, (1938), 355–363. (H. B. H.)

Belladonna—Phytopharmacological Investigation of, Used in the Treatment of Postencephalitic Parkinsonism. The possible standardization of belladonna preparations by their phytotoxic action on lupine seedlings (*C. A.*, 31, 5941) is discussed.—V. ZANOTTI. *Farm. ital.*, 6 (1938), 677–682; through *Chem. Abstr.*, 33 (1939), 1096. (F. J. S.)

1:2-Benzpyrene—Production of Tumors in Rabbits by. The author previously recorded the production of sarcomata in rabbits by injections of 1:2-benzpyrene. Three additional sarcomata have now developed after long latent periods. In the second paper the author describes similar experiments with rats and mice. Sarcomata resulted in a larger proportion of animals in shorter time and with smaller doses of benzpyrene than in rabbits. The tumors resulting from intramuscular injections did not originate from muscle cells. It is concluded that tumor production by highly carcinogenic substances requires a suitable animal species and a responsive tissue.—J. KLINKE. *Zeitschrift für Krebsforschugn* 47, 1938; through *Brit. Med. J.*, 4047 (1938), 272H. (W. H. H.)

Blood—"Restropic" Activity of. The blood of rabbits, of the horse, and of healthy human subjects has been found to contain a factor that stimulates the activity of the reticulo-endothelial

system (positive restropic factor). Positive restropic activity seems to persist in disease, except in malignant disease, when, as a rule, the normal activity is reversed, a negative restropic factor being found in the blood.—C. WETZLER-LIGETI and B. P. WIESNER. *Brit. Med. J.*, 4051 (1938), 444. (W. H. H.)

Diethylene Glycol, Elixir of Sulfanilimide-Massengill and a Synthetic Elixir—Studies on the Toxicity of. Literature on the subject is briefly reviewed and report made of experimental work which was designed to provide more information as to cumulative and chronic effects and to substaniate results reported previously. Experiments are reported in detail. Dogs and rats were used as test animals and tabulated results show dose, total given, fate (whether death from treatment or whether killed), liver and kidney damage. When administered in large single doses diethylene glycol was found to have the same toxicity as previously reported. Pathological lesions were vacuolic degeneration of hepatic cells and convoluted tubule epithelium of the kidney. Small doses had essentially same effect. Rats showed wide variation in susceptibility as represented by death in four days from 2.5 cc. per Kg. three times daily and survival for 60 days of daily doses of 7.5 cc. per Kg. In general, there was extensive liver and kidney damage in those that died while those that survived the treatment were found to be normal. The ingestion of 1. and 0.3% solutions of diethyline glycol in drinking water had no apparent deleterious effect.—J. H. WEATHERBY and G. Z. WILLIAMS. *J. Am. Pharm. Assoc.*, 28 (1939), 12. (Z. M. C.)

Drug Deposits. The author reviews the attempts which have been made to prepared mixtures which when injected will slowly liberate the active principle and thus reduce the number of injections necessary. This is especially applicable in the field of insulin therapy. Several proprietaries containing insulin claimed to fulfill this ideal are described. Diphtheria vaccines have also been prepared so that they may be "deposited" in the body. Fifteen references are given.—KONRAD SCHULZE. *Scientia Pharm.*, 9 (1938), 73–76. (M. F. W. D.)

Ergometrine—Action of, on the Isolated Human Uterus. Studies were made upon isolated strips of muscle tissue obtained from pregnant and non-pregnant human uteri and fallopian tubes. Ergometrine caused no increase in activity in these rhythmically contracting preparations. In strips from the post-partem uterus of the guinea pig it caused vigorous regular contractions in quiescent strips but was ineffective in strips showing rhythmical activity.—A. D. MCLACHLIN. *J. Pharmacol.*, 64, No. 3 (1938), 243–249. (H. B. H.)

Gall Bladder Evacuants—New Method for Testing. The author refers to the recent advances in the isolation of special secretion products, such as secretin and cholecystokinin, which exert a beneficial effect on biliary secretion. He chose the telescope fish as a suitable test animal for the evaluation of medicinal products of this type. Upon injection into the major tail vein (caudal) of minute amounts of cholecystokinin (approximately 0.03 mg.) the gall bladder progressively emptied its contents until the decrease in volume was obvious after one to one and one-half hours, and evacuation complete after two to two and one-half hours. The green or yellow bile excreted from the gall bladder was subsequently found as an obvious pigment in the intestinal canal.—ARNO VIEHOEVER. *Am. J. Pharm.*, 110 (1938), 188. (R. R. F.)

Helium in Anesthesia. An artificial atmosphere of helium and oxygen is theoretically and practically about twice as easy to breathe as ordinary air, and the mixture should be of great value in cases of respiratory obstruction or in cases in which it is essential to economize muscular effort. When obstruction is present its value is immediately apparent and can be measured by simple timing experiments. Even if there is no obstruction, in which case it has no visible effect, it might still be of value in reducing the amount of work done by the patient and in preventing post-operative collapse of the lung because of its low solubility.—W. S. SYKES and R. C. LAWRENCE. *Brit. Med. J.*, 4051 (1938), 448. (W. H. H.)

Heparin—Experimental Exchange Transfusion Using Purified. These experiments demonstrate that with the use of purified heparin and a specially designed pump, short-term or long-term exchange transfusions can be carried out safely between two anesthetized dogs. The heparin does not have any toxic action. If it is used continually and in sufficient amounts thrombosis can be prevented. The urea which has accumulated in the blood and tissues of a dog after bilateral nephrectomy is excreted rapidly in the urine of the normal donor. The excretion is sufficiently rapid to lower the urea—which for a time is greatly increased in the donor animal—to approximately normal value in twelve to eighteen hours. When the transfusion is discontinued, the donor dog may recover completely and behave in an entirely normal manner. At various intervals

later, the tissues, including the kidneys, of the dogs used as donors in the successful experiments were found to be normal macroscopically and microscopically.—W. THALHIMER, D. Y. SOLANDT, and C. H. BEST. *Lancet*, 235 (1938), 554.

Hypophysis and Blood Picture. Extirpation of gonads, spleen, thyroids and adrenals, or combined removal of the three first-mentioned organs failed to produce a reticulopenia as observed after hypophysectomy. This reticulopenia can be prevented by injections of a crude alkaline extract of acetone-dried anterior lobes of beef hypophysis. Thyrotropic, gonadotropic or growth hormone is not responsible for this action of the crude extract. A separate hormone exerting influences on the blood picture might be assumed.—A. QUERIDO and G. A. OVERBEEK. *Arch. intern. Pharmacodynamie*, 59 (1938), 370. (W. H. H.)

"Jucundal," a New Spasmolytic. The antispasmodic action of "jucundal" (Schering) has been tested on the rabbit's small intestines. It is claimed that this drug possesses remarkable antispasmodic properties with very low toxicity. Its technical, as distinct from its trade, name is tri-*n*-butyl-acetamide.—K. JUNKMANN. *Deut. Mediz. Wochensch.*, 64, 1938; through *Brit. Med. J.*, 4045 (1938), 162A. (W. H. H.)

Morphine Hydrochloride—Action of Injections of, on the Hepatic and Cerebral Lecithin of the Guinea Pig. This experiment is part of a study to determine the fate of morphine in the animal organism. The animals received 0.04 Gm. daily injections of morphine hydrochloride and after having received from 0.16 to 1.24 Gm., they were starved for 24 hours, killed by cardiac puncture and the organs were examined. The following facts were established: (1) In the course of the intoxication by morphine, the liver is decreased in lecithin while the brain is increased. (2) The ratio existing between the proportion of cerebral lecithin and hepatic lecithin increases proportionally with the dose of morphine injected.—MAURICE DELAVILLE. *Compt. rend.*, 207 (1938), 94. (G. W. H.)

Phenylethylbarbiturate of Brucine. The authors explain that phenylethylbarbiturate of brucine is a definite chemical compound, which equals the weight of the alkaloid, is two and one-half times less toxic than brucine (dimethoxystrychnine), and is twenty times less toxic than strychnine. It is weakly convulsant and is deprived of the curare-like action of the ordinary salts of the two previously cited alkaloids. In man, phenylethylbarbiturate of brucine is a sedative due to the barbituric radical and neurosthenic due to its alkaloid. It produces its double effect in daily doses of 3 to 6 Cg. which is lower than those that certain therapy have attained with brucine alone (75 to 90 Cg.). In reason of the weak quantity of alkaloid contained in the active dose of phenylethylbarbiturate of brucine, it is not to be compared to the risk of strychnine.—H. BUSQUET and C. VISCHNIAC. *Presse Medicale*, 69 (1938), 1295. (W. H. H.)

Picrotoxin—Inactivation and Elimination of. The author studied inactivation and elimination on rabbits. He found that the rabbit eliminates or detoxifies picrotoxin very rapidly, for instance, from one series of experiments it was found that a convulsive dose of picrotoxin was completely eliminated in 45 minutes. He stresses the point however, that by varying the condition of the experiments, varying values can be obtained. Traces of convulsion-producing substances (assumed to be picrotoxin) were detected in the urine of rabbits 18 hours after they had been given an intravenous convulsive dose of picrotoxin.—JAMES M. DILLE. *J. Pharmacol.*, 64, No. 3, (1938), 319–329. (H. B. H.)

Pineal Gland—Biological Assay of Fraction of. Pineal extracts are able to delay the vaginal membrane opening time of infantile female mice. Daily doses of 3 γ of a certain purified extract were sufficient hereto. To demonstrate this effect it was found necessary (*a*) to take animals of twenty-two days of age, weighing 8 Gm. and having an entirely closed membrane, and (*b*) to apply purified extracts. The data of Vinals and of Wade about a "synergic effect" of pineal extract on gonadotropic action could be confirmed. It is supposed that the reason of the uncertain effect of crude preparations is to be found in the presence of this synergic substance which has to be eliminated considerably before proceeding to the inhibition experiments.—Ö. FISCHER. *Arch. intern. Pharmacodynamie*, 59 (1938), 340. (W. H. H.)

Piperidomethyl-3-Benzodioxane (933 F.)—Action of, upon the Enucleated Frog's Eye. 933 F. exerts a durable myotic effect upon the enucleated eye of the frog, persisting after washing with Finger solution and in relationship with the concentration employed. 933 F. diminishes, without inverting the mydriatic effect of adrenaline.—E. MOISSET DE ESPANES. *Arch. intern. Pharmacodynamie*, 59 (1938), 482. (W. H. H.)

Sulfosalicylic Acid—Action of. Sulfosalicylic acid is known as an albumin precipitant, is a constituent of various antiseptic, antipyretic and antineuralgic preparations and is used in ointments for wound treatments and many other kinds of local therapy. A study of the pharmacological properties leads the author to the following conclusion: It is strongly irritant to rabbits' eyes in a concentration of 1 to 10,000. In studies on the tendons of rat tails, concentrations below 1% are astringent in a short time and irritant after 50–70 minutes; concentrations over 1% are irritant immediately. As with other acids, the compound restricts yeast fermentation by virtue of the change in p_H. A concentration of 1 to 2000 causes an irreversible diastolic stoppage of isolated frog hearts. The free acid in a concentration of 1 to 15,000 is hemolytic. The lethal dose for rats on intraperitoneal injection is 0.5 to 1.0 gm./Kg. animal. The toxicity symptoms caused by sulfosalicylic acid are purely characteristic of acids. Sodium sulfosalicylate cannot influence elevated body temperature. Similarly, sodium sulfosalicylate is inactive in all of the other tests carried out. The action on the isolated frog heart is purely a salt action because of a change of the ionic balance. It can be stated that the sulfosalicylic acids, except for their general reactions as strong acids, exhibit no specific toxic action on rabbits, rats and mice.—K. GÖPFERT *Naunyn-Schmiedebergs Arch.*, 189 (1938), 387; through *Scientia Pharm.*, 9 (1938), 88. (M. F. W. D.)

Theophylline and Respiration. Theophylline alone, after a phase of light inhibition, accelerated the rhythm or increased the amplitude of a dog anesthetized with chloralose. The exciting action combats the depressive action exerted by larger doses of chloralose. In the unanesthetized rabbit, weak doses of theophylline transiently slow the rhythm and diminish for a time the amplitude; larger doses, often in an inconsistant manner, accelerate the rhythm or augment the amplitude of the respiration. In a rabbit subjected to a somnifacient, chloralose, evipan and morphine, theophylline in the same or weaker doses combats for a time the slowness of the rhythm and diminution of the amplitude of respiration. Theophylline alone should be considered as a respiratory stimulant, often returning the irregular effects of respiration to normal; more so in the very manifest and constant effect upon the rhythm and amplitude in the case of depression of the bulbar respiratory center. Theophylline behaves essentially as a respiratory analeptic.—R. HAZARD and R. JEQUIER. *Arch. inter. Pharmacodynamie*, 59 (1938), 295. (W. H. H.)

Thyroid—Assay of, on Tadpoles. A new method of estimating the relative activity of thyroid powders is described, based on the average diminution in length produced in groups of tadpoles. Application of the method to a series of eight thyroid powders gave results which ran more closely parallel with total organic iodine than with thyroxine iodine. The method is as follows: A weighed quantity of each sample in No. 60 to 80 powder is shaken with distilled water to give a suspension containing either 1 or 2 mg. in 20 cc. The suspension should be used on the day it is made. In each of a series of 48 dry numbered boiling tubes is placed 20 cc. of the first suspension. Another series of 48 tubes is prepared containing 10 cc. of the suspension and 10 cc. of distilled water, and a third series of 48 tubes containing 5 and 15 cc. respectively. The same process is repeated with the suspension of the second sample. Tadpoles are taken from a stock which has been growing steadily on a diet of coagulated white of egg, and chosen so that the average length of each is approximately the same and lies between 20 and 28 mm. Each tadpole is placed in a separate tube containing a known quantity of thyroid suspension and kept at room temperature. No food is supplied. At the end of twenty-four hours each tadpole is rinsed with water to remove any adherent powder and is transferred to a clean tube of water, where it is fed on coagulated white of egg. Measurements are made daily of the length of some of the tadpoles on the highest dose in order to determine when diminution in length commences. As soon as this occurs, all of the tadpoles must be measured daily until a suitable effect is obtained, which may take two or three days. The average diminution in length, calculated as a percentage of the initial length, shoud lie between 15 and 30 representing a loss of $3^1/_2$ to 7 mm. in tadpoles whose initial length was 24 mm. Individual tadpoles may lose more than half their length.—F. WOKES. *Pharm. J.*, 141 (1938), 305. (W. B. B.)

Thyroxin and Thyroid Globulin Feeding—Metabolism in Normal and Thyroidectomized Rats as Influenced by. The normal rat consumes from 1420 to 1670 mg. O_2 per hour per Kg., the thyroidectomized 900 to 1200 mg. The increase produced by thyroxin feeding follows a logarithmic curve. The best measurable response corresponds to an increase of 25 to 30%. This is obtained in the normal rat by feeding 25 mg. thyroxin per 10 Gm. weight and for three days. However, the responses vary too widely for practical testing. The thyroidectomized rat

gives more uniform results. The 25 to 30% range is obtained with 0.75 mg. thyroxin. Thyroid-globulin, given at a dosage of determined thyroxin content produces the same effect at 0.19 to 0.25 mg. thyroxin, proving the higher efficacy of the substance in its natural linkage.—ARTHUR E. MEYER and ANNE WERTZ. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 847. (A. E. M.)

Tri-Brom Ethanol—Dermal Absorption of. The author finds that tri-brom ethanol readily penetrates the intact skin of rats and mice and causes its characteristic narcotic effect. A solution of tri-brom ethanol crystals in alcohol (95%) is rapidly absorbed, anesthesia being effected within fifteen to thirty minutes and lasting for 2 or 3 hours. With larger doses, the anesthesia was followed by coma and death. The minimal quantity of tri-brom ethanol to anesthetize a 24 Gm. mouse was 0.85 cc. of a 10% solution. The addition of amylene hydrate (as in clinical use) resulted in a smaller dose being required (0.75 cc. with solution of tri-brom ethanol 10% and amylene hydrate, 5%). This is obviously due to the synergism produced by combining amylene hydrate with the drug.—D. I. MACHT. *Nature*, page 849; through *Chemist and Druggist*, 128 (1938), 717. (A. C. DeD.)

Vitamin E—Responses of Daphnia Magna to. Daphnia, grown in Vitamin E deficient culture medium were inhibited in their growth, rhythmic ovarian function and reproduction. Moreover, there was a decided lack of vigor and the mortality rate was high. The addition of Vitamin E in the form of Triticol (cold pressed wheat germ oil) accelerated their growth within forty eight hours, restored the ovarian rhythm, increased the number of young per clutch, improved their vigor and decreased the mortality rate. Tests were also made which indicated that fertility deficiencies in stagnated cultures could be remedied by the addition of Vitamin E. In the presence of excess Vitamin E, significant responses, in increased fertility, were obtained.—ARNO VIEHOEVER and ISADORE COHEN. *Am. J. Pharm.*, 110 (1938), 297. (R. R. F.)

Yohimbine, Cantharidin, Capsaicin and Piperine—Physiological Evaluation of, on Daphnia Magna. A physiological method has been devised for the study of the mechanism of action of the above and their evaluation, using *Daphnia magna*, the transparent crustacean, as a test animal. All four substances cause pronounced and continued excitatory movements of the male genital organ. Actual ejaculation of the sperm was observed with the use of cantharidin. In varying concentrations the order of increasing lethal toxicity was found to be piperine, yohimbine, capsaicin and cantharidin. These agents in high concentration also produce irregular clumping and stasis of the intestinal contents as a result of the progressive and prominent swellings in the lining of the intestinal canal. In low concentration, 0.0033–0.0025% yohimbine causes evacuation in young daphnia (7 to 9 days old); while capsaicin and cantharidin, both 1:30,000, show as a rule no indication of valuable laxative properties, their local irritant action apparently prevailing. Yohimbine, capsaicin and piperine in varying concentration depress progressively both the heart, producing dilation, and the respiratory movements. Cantharidin in suspension stops first all vital activity except that of the heart, which then shortly collapses. Gravid females exposed to 0.025–0.1% yohimbine for three hours can be recovered by returning them to culture media although there remains even after twenty-four hours a partial depression of the heart beat. Normal life activity, including the release of several broods of young, was observed subsequently. Yohimbine and capsaicin in varying concentrations produce an exaggerated torsion of the muscles controlling the movements of the eye. Paralysis of these movements occurred after one hour in a suspension of capsaicin. The alteration in the normal swimming of animals under the influence of yohimbine (0.025–0.1%) and capsaicin (suspension) is caused by the incoördination of antennal movements, and, possibly in part, by the derangement in the optical system. The derangement of the swimming mechanism correlated with the internal disturbances can obviously be used as criteria in establishing the toxicity of test substances.—ARNO VIEHOEVER. *Am. J. Pharm.*, 110 (1938), 226. (R. R. F.)

TOXICOLOGY

Aluminum Metal as a Preventive of Silicosis. Six of a group of 13 rabbits were subjected 16 hours a day for 20 to 24 weeks to an atmosphere charged with particles of quartz dust (4000 to 8000 per cc., 90% being of a diameter less than 5μ); the others were subjected to the same dust to which had been added about 1% of aluminum powder. The first lot exhibited the symptoms of acute silicosis with the usual conjunctive excrescences; in the second group these manifestations were much less marked. Aluminum seems to act by decreasing the solubility of the silica; the

metal is much more active than its salts.—M. BAUER. *Arbeitsschutz*, (1937), 291–292; through *Chimie & Industrie*, 40 (1938), 62. (A. P.-C.)

Atophan Preparations—Injurious Effect of, on the Liver. This is a description of a case of subacute yellow atrophy of the liver resulting from the administration of atophan over a considerable length of time.—G. KÖHNE. *Klin. Wochenschrift*, 17 (June 18) 1938; through *Brit. Med. J.*, 4051 (1938), 480A. (W. H. H.)

Benzene Intoxication—Changes in Gastric Chemism in. A study of 8 cases of benzenic anemia in workers in the rubber industry. In view of the importance of gastric secretion on erythropoiesis, it is useful to carry out a complete systematic study of the gastric chemism in such patients, whether acute or chronic. The examination must comprise: white and red corpuscle counts, determination of hemoglobin, analysis of the gastric juice after a test meal (150 Gm. of bread and 200 Gm. of water or tea) with determination of total acidity, free hydrochloric acid and peptic power. In such cases, and particularly in severe chronic intoxication, there is always a decrease in the values of the gastric chemism along with alteration of the blood formula. It would therefore seem that there is a relationship between the state of anemia and the gastric secretion, and, in the present instance, between benzenic intoxication and disturbances of the gastric chemism.—G. ZOLEZZI. *Medicina Lavoro*, 28 (1937), 275–283; through *Chimie & Industrie*, 39 (1938), 886. (A. P.-C.)

Blood Specimens—Phytotoxic Reactions of Fresh, Frozen and Dried. Studies were made on the phytopharmacological properties of specimens of dried and frozen blood, respectively. It was found that dry films of normal, menstrual, pernicious anemia and pemphigus blood, when kept in a cool place protected from light, retained their characteristic phytotoxic index for many weeks. Pemphigus blood was the least stable of the specimens examined. Experiments with slowly frozen whole blood and defibrinated blood revealed that such specimens after thawing were much more toxic for *Lupinus albus* seedlings than blood kept fluid just above the freezing point. Blood specimens frozen very rapidly with a mixture of dry ice and acetone did not show such toxicity when compared with fluid controls.—D. I. MACHT and M. L. GRUMBEIN. *Arch. inter. Pharmacodynamie*, 60 (1938), 95. (W. H. H.)

Carbon Tetrachloride—Organic Lesions Following upon Intoxication by. A description of the functional and histopathological lesions of various organs (especially the liver, and also the spleen and suprarenal cortex) produced by pulmonary administration to rabbits of doses of carbon tetrachloride sufficient to produce acute or chronic intoxication.—G. ZOLEZZI. *Medicina Lavoro*, 28 (1937), 289–291; through *Chimie & Industrie*, 39 (1938), 888. (A. P.-C.)

Glutathione—Antitoxic Action of. After cobra venom was incubated three hours at 37° and p_H 7.4–8.4 with an excess of reduced glutathione or cysteine hydrochloride it was no longer toxic to minnows.—L. BINET and L. PEREL. *Compt. rend. soc. biol.*, 129 (1938), 447–8; through *Chem. Abstr.*, 33 (1939), 999. **Detoxification by Sulfhydryl Compounds.** Cobra venom was also detoxified by treatment with sodium thiolactate or thioglycolate in the above manner. A phosphate buffer was used.—L. BINET and E. ROBILLARD. *Ibid.*, 129 (1938), 533–534; through *Chem. Abstr.*, 33 (1939), 999. (F. J. S.)

Huang-Teng and Tsai-Chung-Yao—Two Poisonous Plants, and Their Identification. The plants, since they both yield dulcitol and the characteristic red coloring matter tripterine, are identical with lei-kung-teng (*C. A.*, 31, 1161). Tripterine, melting at 195°, when crystallized from acetone yields an addition product, $C_{25}H_{34}O_4$, melting at 219°.—PIN-FU MEI and T. Q. CHOU. *Chinese Med. J.*, 54 (1938), 37–39; through *Chem. Abstr.*, 33 (1939), 1007. (F. J. S.)

Indelible Pencils—Toxicity of the Dyestuff in. A report of a death resulting from the intrusion of the point of an indelible pencil into the hand. Death was due to the poisonous character of the dye.—A. W. STEWART. *Analyst*, 63 (1938), 494. (G. L. W.)

Intoxication—Case of Fatal, During Acetylene Welding. The medico-legal investigation showed that intoxication was due to carbon monoxide liberated during welding in reducing flame, according to equation $C_2H_2 + 3O = 2CO + H_2O$. Carbon dioxide, which is always present, accelerates intoxication by amplifying respiration. Post mortem having revealed acute pulmonary edema resulting from inhalation of irritant gases, and as it could not be attributed to the action of acetylene and its impurities (phophine, arsine, hydrogen sulfide) or acrolein, the action of oxides of nitrogen formed during the operation should be considered.—MAWICK. *Arbeitsschutz*, (1937), 239–242; through *Chimie & Industrie*, 39 (1938), 887. (A. P.-C.)

Laxatives—Osteomalacia of the Spine Following the Abuse of. The calcium deficiency in a man who developed osteomalacia is attributed to the daily use for thirty-five years of Carlsbad salts which transformed a certain amount of his food calcium into insoluble calcium sulfate and thus prevented its absorption.—E. MEULENGRACHT. *Lancet*, 235 (1938), 774. (W. H. H.)

Lithium Halides—Toxicity of, upon Green Mold. In an effort to determine the effects of the action of chemical elements and compounds upon the growth of numerous fungus foes, the author selected the chloride, bromide and iodide of lithium for the study against the green mold, *Penicillium italicum*. His conclusions follow: (1) After determining the approximate dry weight of orange, a culture medium was prepared which was found to be favorable for the growth of *Penicillium italicum*. (2) The organism used throughout the investigation was a physiological strain obtained from the isolation, growth and reproduction of a single spore. (3) The order of toxicity to *Penicillium italicum*, of three halogen salts of lithium was found to be iodide > bromide > chloride, thus showing increase in toxicity as the atomic weight of the halogen component increased. (4) There is indication that the lithium component of the molecule is relatively nontoxic.—BERNARD MELKON. *Am. J. Pharm.*, 110 (1938), 56. (R. R. F.)

Methyl Alcohol—Toxicity of. Methyl alcohol, Methanol (Merck), proved to be toxic even after redistillation to remove all traces of impurity. A rabbit, fed with methyl alcohol for one day, showed definite retina changes which consisted of a decrease of all ganglia, abnormal nuclei, variation and atrophy, as well as relaxation of the inner granular layer. Synthetically prepared methyl alcohol produces great variations in the eyes of rabbits. The authors conclude from their investigation that methyl alcohol even when free from impurities is in itself poisonous.—P. ALDER, W. BUSCHKE and T. GORDONOFF. *Arch. inter. Pharmacodynamie*, 59 (1938), 416. (W. H. H.)

Methyl Cellosolve as an Industrial Poison. Some interesting and important reports have now appeared (*J. industr. Hyg.*, 20 (1938), 134) on the toxic properties of the valuable cellulose acetate solvent, methyl cellosolve (ethylene-glycol-mono-methyl-ether), for which no toxic effects on man have hitherto been recorded. The clinical picture of the poisoning is summarized thus: (1) Severe smarting, burning and watering of the eyes, with conjunctival irritation. (2) Toxic encephalopathy, indicated by personality change, frequent dizzy and faint spells, sleepiness; loss of interest in normal amusements and activity; general hypertonicity, exaggeration of all reflexes; dilatation of pupils, ankle clonus, moderate ataxia and positive Romberg sign. (3) Anemia of moderate severity associated with granulopenia and a marked increase in the proportion of immature neutrophils; the anemia was of the macrocytic type with a high color index. (4) Additional symptoms were gastro-intestinal disturbance, vomiting, ketosis and nocturia. Various concentration of solvent in the air when windows were open and closed. The practical outcome of these observations is the clear indication to users of methyl cellosolve that stringent precautions must be applied to prevent absorption of the vapor.—ANON. *Brit. Med. J.*, 4051 (1938), 459. (W. H. H.)

Mineral Products Which Can Produce Silicosis. Of the various particles which have been detected in the lungs, mention should be made of: calcium carbonate, quartz, rutile, sillimanite, kaolin, feldspar, sericite, asbestos, cryolite, fluorspar, apatite, to which may be added particles of oxides, silicates and phosphates. All operations in the course of which these minerals are diffused as dusts cause silicosis. In Germany special attention should be given to quartz, agate, siliceous chalks, granite, ceramic clay, cryolite, asbestos and apatite.—H. UDLUFF and J. H. HELLMERS. *Arbeitsschutz*, (1937), 214-219; through *Chimie & Industrie*, 39 (1938), 887. (A. P.-C.)

Phosphorus Poisoning—Icterus in. In phosphorus poisoning first the liver cells are damaged, and, in some cases later, the walls of the bile ducts are also affected. The icterus is caused first by retention and later by resorption. The destruction of the erythrocytes and the increased formation of bilirubin are only of secondary importance in pathogenesis.—T. YAMADA. *Fukuoka Acta Medica*, 31, 1938; through *Brit. Med. J.*, 4046 (1938), 208E. (W. H. H.)

Sedormid—Purpura Hemorrhagica after Taking. A man of 43 developed thrombocytopenic purpura after taking sedormid for a long period. Recovery followed discontinuance of the drug. Other recorded cases of this condition have shown fall in blood platelets, and there is evidence that this due to poisoning of the megakaryocytes in the bone marrow. Such poisoning is attributable either to idiosyncrasy or to an allergic condition following long-continued administration, or both.—T. JOEKES. *Lancet*, 235 (1938), 305. (W. H. H.)

Thallium—Toxicological Determination of. A method for the detection and determination of thallium in organic material is given. The method depends on the solubility of thallic chloride in ether and the insolubility of thallous iodide in water and alcohol. With large amounts the thallous iodide is weighed but with smaller amounts the iodine of the thallous iodide is set free and determined colorimetrically. The methods given are rapid and dependable.—H. KLUGE. *Z. Untersuch. Lebensm.*, 76 (1938), 156–159; through *Chem. Abstr.*, 33 (1939), 89. (E. G. V.)

Vitamin D—Toxic Action of. Intoxication seems to be due to degradation products rather than to the pure vitamin.—C. I. REED. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 791. (A. E. M.)

Zinc—Electrolytic Production of, from the Standpoint of Industrial Hygiene. In the electrolytic production of zinc from its ores, the workmen frequently are afflicted with dental affections, affections of the nasal mucosa, bleeding of the gums, etc. All these phenomena result from the combined action of sulfuric acid and zinc sulfate, which affect first the moist surfaces of the tissues. These two chemicals mutually enhance each other's action.—A. A. METSATUNIAN and D. N. FINKELSTEIN. *Hig. Truda*, 15 (1937), No. 3, 35–40; through *Chimie & Industrie*, 40 (1938), 260. (A. P.-C.)

THERAPEUTICS

Adrenal Cortex in the Treatment of Marasmus. Although the clinical and biochemical picture suggests some connection between marasmus and adrenal insufficiency, it does not follow that all cases of marasmus are primarily due to an adrenal insufficiency. Rather it is the author's view that, whatever the original cause, there is ultimately an adrenal hypofunction and until this is corrected recovery may be retarded or impossible. It would be reasonable therefore to suggest that if the administration of adrenal cortical extract could tide over the period of adrenal insufficiency and permit the utilization of an adequate diet during that period, recovery of function would be followed by an approach to normal health.—W. A. HISLOP. *Lancet*, 235 (1938), 308. (W. H. H.)

Amenorrhea—Causation and Treatment of. Studies on 27 women, 6 with primary and 21 with secondary amenorrhea. Complete estrogenic determinations extending over one month or longer were made. Gonadotropic examinations on some, urine examinations on all. Quantity of estrogenic substance excreted in urine of major importance for diagnosis and for estimation of value of therapy. Estrogenic substance, progynon-B hypodermically or progynon-D orally were administered to seven cases. Four cases were treated with gonadotropic substance-concentrated pregnant mare serum. Results were disappointing. Estrogens required in too high a dose to be practical. No effects from dosage used of gonadotropic substance. Study failed to locate cause or causes producing amenorrhea.—ROBERT T. FRANK. *J. Am. Med. Assoc.*, 109 (1937), 1863. (G. S. G.)

2-(*p*-Aminobenzenesulfonamido) Pyridine—Chronic Meningococcal Septicemia Treated with. Chronic meningococcal septicemia is characterized by recurrent pyrexial chills, crops of cutaneous nodules, arthralgia and positive blood culture. The fever usually lasts several weeks. Treatment with serum may produce a fall in temperature in about a week or may be ineffective. In a typical case 2-(*p*-aminobenzenesulfonamido)pyridine was given in the eighth week of illness and symptoms immediately disappeared. A transitory reaction with vomiting followed twenty-four hours after the first dose. This case encourages trial of 2-(*p*-aminobenzenesulfonamido) pyridine in cerebrospinal meningitis.—S. B. DIMSON. *Lancet*, 235 (1938), 424. (W. H. H.)

Benzedrine—Further Observations on. Thirty-three patients suffering from different forms of mental disorder and eight normal subjects were given benzedrine orally in doses of from 5 to 45 mg. In sixteen, the drug had to be discontinued because of untoward effects, mental or physical, and in two more because no beneficial effect was produced. In eleven (one-third) the drug appeared to be helpful. In five, no effect, mental or physical, was produced. Dosage, contraindications, and the general value of benzedrine in psychiatry are discussed.—E. W. ANDERSON. *Brit. Med. J.*, 4044 (1938), 60. (W. H. H.)

Benzedrine Sulfate—Clinical Observations of the Effect of. Study of patients with chronic exhaustion, depression and psychoneurosis. Beta-amino propylbenzene or benzyl methyl carbinamine has sympathomimetic action on, and stimulating effect on central nervous system. Utilized in congestion of nasal mucosa, in maintaining blood pressure during spinal anesthesia, for

relief of spasm in gastrointestinal tract, etc. Benzedrine does not appear to be toxic in usual doses, nor habit forming. One dose, 10 to 20 mg. orally, indicative of usefulness. Over long periods symptoms may appear which make it advisable to discontinue, and continued use lessens its effectiveness. Indiscriminate use cannot be too severely criticized, unwise for patients over 60 years, or with hypertension or cardiac disease. Is a stimulant, and not a curative agent.—DWIGHT L. WILBUR, *et al. J. Am. Med. Assoc.*, 109 (1937), 549. (G. S. G.)

Burns—Treatment of. From 2 to 20% solutions of tannic acid are used in the treatment of burns. For emergency work jellies of tannic acid are satisfactory, as they keep well; whereas the solutions develop moulds and ropey slimes even in the presence of an antiseptic The increasingly common use of tea as a domestic dressing for burns is dependent on the tannin content of the tea. With large burns it often gives excellent results, but on small burns the still living tissues at the edges of the wound are frequently destroyed. Picric acid, 1% in 10% alcohol, is used somewhat but is losing favor. The crust formed by picric acid is often difficult to remove, which is also true of tannic acid. Mercurochrome has been recommended in place of tannic acid because it gives a thin, transparent, non-irritating and fairly clean crust, and is also an effective antiseptic. Cod liver oil is often used, both as the oil itself and in emulsion form. The vitamin content was first thought to be responsible for the beneficial effects, but plain solutions of vitamins A and D in oil or liquid paraffin did not give as good results as those obtained from cod liver oil itself. According to one investigator the chemical composition is more important than its vitamin content. A sterile solution of finely divided bismuth hydroxide is recommended by one investigator in the treatment of burns. Amyl salicylate is becoming increasingly popular for minor burns; because it lacks the coagulant properties of tannic acid, it is not suitable for extensive burns.—ANON. *Pharm. J.*, 141 (1938), 210. (W. B. B.)

Cardiazol Test in Epilepsy. The intravenous injection of 2.0 to 2.5 cc. of a 10% solution of cardiazol releases an attack only in patients suffering from epilepsy. In some cases of epilepsy it was necessary to increase the dose in order to release an epileptic attack. On the other hand, doses of 3 cc. may release convulsive attacks of schizophrenia, mental deficiency and in the hebephrenic psychopathies. In neuro- and psychopathic individuals the test, except in a few complex cases, remained negative.—F. STIEFLER and F. LANGSTEINER. *Medizin. Klinik*, 34, 1938; through *Brit. Med. J.*, 4046 (1938), 208A. (W. H. H.)

Cardiazol Therapy in Stupor. From the results it would appear advisable to treat every case of stupor, whether of long or short duration, with cardiazol. Complete recovery or improvement may be expected in those cases in which the illness has lasted a relatively short time and in which the stupor has been one of the earliest symptoms. Even when underlying deterioration is masked by stupor, the latter will disappear with cardiazol therapy, but the former will become evident. Apart from the question of remission, refusal of food and consequent tube feeding in cases of stupor should be almost completely eliminated by cardiazol therapy.—J. S. HARRIS and C. R. BIRNIE. *Brit. Med. J.*, 4051 (1938), 449. (W. H. H.)

Cell-Stimulating Composition for Treating Infections. A composition suitable for local or systemic use in the treatment of infections contains a water-soluble chlorophyllin dissolved in an aqueous carrier such as a salt solution.—BENJAMIN GRUSKIN, assignor to LAKELAND FOUNDATION. U. S. pat. 2,120,667, June 14, 1938. (A. P.-C.)

Cevitamic Acid. Scurvy is a common disease and a frequent complication. Cevitamic acid should be administered whenever a deficit is discovered. The use of tests for vitamin C in the blood, saturation tests with urinary determinations and capillary fragility tests will give a fairly complete picture of the state of vitamin C metabolism. The curative and maintenance dose of cevitamic acid is between 30 and 50 mg. orally per day. A single dose of 10,000 mg. was given to a mouse intravenously, and 1000 mg. have been given orally for many months without untoward results. Forty-five references.—I. S. WRIGHT. *Ann. Internal. Med.*, 12 (1938), 516–528; through *Chem. Abstr.*, 33 (1939), 205. (F. J. S.)

Chaulmoogra Oil—Neutralized, Treatment of Leprosy by Intravenous Injection of. The author has found that, in four cases treated for six months, there has been a notable improvement in all. In one of these, the voluntary interruption of the treatment produced a return of the disease. The treatment appeared to be perfectly innocuous, except a rise in temperature in the time which followed the injection.—J. BARE. *Presse Medicale*, 65 (1938), 1239. (W. H. H.)

Diethylstilboestrol—Some Biological Properties of. Recently Dodds, Lawson and Noble (1938) have reported various physiological properties of the synthetic oestrogen, 4′:4′-dihydroxy-α:β-diethylstilbene (diethylstilboestrol) which was described by Dodds, Goldberg, Lawson and Robinson (1938). Diethylstilboestrol has been found (1) partially to inhibit the response of the pigeon crop gland to prolactin, (2) to inhibit lactation in the rat, and (3) to produce a temporary increase in the phosphatase content of cow's milk accompanied by more prolonged increases in both fat and non-fatty solids content. The latter effect was in part due to an increase in lactose content, which suggests that the treatment does not induce a change from normal milk to a colostral type of secretion. In all these respects the action of diethylstilboestrol qualitatively resembles that of natural oestrogens.—S. J. FOLLEY and H. M. SCOTT WATSON. *Lancet*, 235 (1938), 423. (W. H. H.)

Drugs—Precious Stones as. An account of the therapeutic use of precious and semi-precious stones in calcined and powdered form. The general opinion that such substances could not exert some beneficial action is erroneous, since they contained traces of elements (which give the stones their beautiful color), as manganese, titanium, cobalt, nickel, copper, chromium and iron, which are now recognized as having a most important bearing on both animal and plant economy.—A. SUSSENGUTH. *Suddeut. Apoth.-Ztg.*, 78 (1938), 847–848; through *Chem. Abstr.*, 33 (1939), 1095. (F. J. S.)

Eczema Treated by Sulfanilamide. The author considers that all eczemas are accompanied by a secondary complicating streptococcal infection when they are first inspected. He states that this infection is so virulent that it often masks the original condition, leaving practically pure streptococcal infection. His experience with antistreptococcal serums has proved to be disappointing. In consequence he has turned with success to sulfanilamide, which he regards as a specific treatment for eczema. Irritation and weeping of the infected area are reported to have disappeared, and as a result considerable improvement in the local healing processes takes place.—HIRSCHMANN. *Practitioner*, (1938), 641; through *Chemist and Druggist*, 128 (1938), 598. (A. C. DeD.)

Ethyl Alcohol Acidosis—Effect of Sodium Citrate and Sodium Bicarbonate on. Alcohol given in doses of 5 Gm. per Kg. to dogs resulted in a decrease of the carbon dioxide combining capacity and prolonged elevation of blood lactic acid. Sodium citrate and bicarbonate restored the alkali reserve and lowered the lactic acid even in presence of large quantities of alcohol. They had no influence on the disappearance of the alcohol from the blood.—BYRON B. CLARK and ROBERT W. MORRISSEY. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 734. (A. E. M.)

Gold Salt Therapy of Tuberculus Peritonitis. In comparing a series of twenty cases of tuberculus peritonitis treated with gold salts, and eighty-four treated by other methods, the author found that the former group had a much higher proportion of cures. He found that gold injections had not only a local but a general effect. A careful analysis of indications and contra-indications of the treatment is given, and the prognosis in different forms of tuberculus peritonitis is discussed.—T. SPARCHEZ. *Die Medizin. Welt*, 12, 1938; through *Brit. Med. J.*, 4048 (1938), 330A. (W. H. H.)

Hay Fever, Etc.—Solution Suitable for the Local Treatment of. The product consists of an aqueous solution containing 1.89% of zinc sulfate, 0.19% stannous sulfate and 0.09% cadmium sulfate. An electrode composed of 85% zinc, 5% cadmium and 10% tin also may be used.—HAROLD L. WARWICK, assignor to G. M. BASFORD CO. U. S. pat. 2,123,980, July 19, 1938. (A. P.-C.)

Hexamethylenetetramine Bismuth Iodide. Hexamethylenetetramine bismuth iodide, red crystals that are insoluble in water and in a number of the usual organic solvents, is a valuable antisyphilitic for oral administration.—OSCAR GEO. SALB, assignor to SALB LARORATORIES, INC. U. S. pat. 2,131,144, Sept. 27, 1938. (A. P.-C.)

Influenza—Research on. The progress which has been made in the aetiology of the influenza during recent years is described. The report describes the clinical investigations and the isolation of viruses.—ANON. *Chemist and Druggist*, 128 (1938), 479. (A. C. DeD.)

Insect Bites and Stings. The insects responsible may roughly be divided into two classes: (*a*) blood-sucking insects such as mosquitoes, midges and bugs; (*b*) stinging insects such as bees, wasps, hornets. The poisons injected by many insects, during a sting or bite, are closely related to snake venom, and consist mainly of nitrogen-free degradation products allied to sexual hormones.

In character they closely resemble the bile acids and saponins, and are thus non-protein. Each sting of a bee injects about 0.2 mg. of poison, and, quantitatively, the effect is much greater than that of snake venoms. The sting of the bee is acid in reaction, and that of the wasp is alkaline. Many aromatic bodies have been employed to deter the insect from biting or stinging, but cod-liver oil can be well recommended against flies, mosquitoes and ticks. A number of preparations useful for treating insect stings and bites are given.—ANON. *Chemist and Druggist*, 128 (1938), 555. (A. C. DeD.)

Malaria in Kutch State. Investigation into the incidence of malaria in Vijaya Vilas Palace, Bhuj and Mandvi Talukas were carried out in January and September 1937. Malaria was not found to be generally prevalent in the state but localized areas occurred where the incidence was high. Of the anophelines captured in Kutch State, *A. stephensi* was the only species found infected. The favorite breeding places of this species were troughs, siphons, reservoirs and wells in Vijaya Vilas Palace, while in Bhuj it was almost exclusively a well breeder. An outline of the recommendations for the control of malaria in the localities surveyed is given. Petrol is recommended as the larvicide of choice and limitations in regard to its use are fully discussed.—M. K. AFRIDI, S. ABDUL MAJID and J. SINGH. *J. Malaria Inst. India*, 1 (1938), 187. (A. C. DeD.)

Malaria Transmission. The three species of the Funestus group (*Fluviatilis*, *Varuna* and *Minimus* are the only malaria vectors in the Singhbhum Hills, that require control to afford malaria protection. Transmission of malaria has been found to occur in every month except May, June and July. The main transmission season is August to November, but in certain localities and years this probably continues until the great heat and low humidity of May. Probably transmission, at too low a rate to be found on the numbers dissected, occurs in July also, and it would certainly be inadvisable for control operations not to be resumed as soon as the rains commence.—R. SENIOR WHITE and B. K. DAS. *J. Malaria Inst. India*, 1 (1938), 169. (A. C. DeD.)

Nicotinic Acid in Stomatitis. Nicotinic acid, one of the three components of the vitamin B_2 complex, produces rapid improvement in true pellagra. In temperate climates the skin lesions of pellagra do not appear and deficiency of the pellagra-preventing factor shows itself by stomatitis, a characteristic desquamation of the tongue and chronic diarrhœa. A woman of sixty-two had suffered from these symptoms for five years and recovered rapidly with 150 mg. of nicotinic acid daily and full diet.—P. MANSON-BAHR and O. N. RANSFORD. *Lancet*, 235 (1938), 426. (W. H. H.)

Oestrogenic Substances—Synthetic, and Growth. After the subcutaneous implantation of crystals of synthetic oestrogenic substances in the prepubertal and adult rat, the following effects have been demonstrated: inhibition of body growth for a prolonged period in adult rats; decreased rate of growth in rats at an age when growth is maintained even in the absence of the pituitary gland; inhibition of gonadotropic activity, associated with an absence of gonadotropic hormone in the anterior pituitary. Three carcinogenic hydrocarbons did not affect pituitary secretion or growth when tested by methods described.—R. L. NOBLE, *Lancet*, 235 (1938), 192. (W. H. H.)

Ozone. Active Agent of a New Therapy. A review of the applications of ozone in the treatment of wound infections and the like. The ozone should be made from pure oxygen rather than from air, since when made with air, it is contaminated with oxides of nitrogen which cause toxic symptoms. Good results have been obtained.—H. MEYER. *Forschungen and Fortschritte*, 14 (1938), 243. (M. F. W. D.)

Pellagra—An Endemic Case of, Cured with Nicotinic Acid. Nine out of ten female patients who contracted pellagra were treated with nicotinic acid and recovered; one went without treatment and died.—C. D. DE LANGEN, J. C. BOSWIJK and C. L. C. VAN NIEUWENHUIZEN. *Nederland. Tijdschr. Geneeskunde*, 82 (1938), 4970–4976; through *Chem. Abstr.*, 33 (1939), 1013. (F. J. S.)

Pollinosis or Hay Fever. A brief review of the diagnosis, pollen varieties, immunization and treatment and general measures is given.—ANON. *Chemist and Druggist*, 128 (1938), 649. (A. C. DeD.)

Progesterone in Uterine Bleeding. Two Types of irregular uterine bleeding are described and the mechanism of bleeding in metropathia hemorrhagica is discussed. The results of treatment with progesterone are given, and the effect of this form of therapy on the uterine endometrium is

illustrated by photomicrographs. The rationale of progesterone therapy in irregular uterine bleeding is discussed.—T. N. MACGREGOR. *Brit. Med. J.*, 4045 (1938), 116. (W. H. H.)

Protein Injections—Foreign, Untoward Reactions to. Since foreign proteins are being used in treatment by the general practitioner, an attempt has been made to summarize the recent literature on this subject, with the purpose of familiarizing the physician with the normal and untoward reactions to these proteins. The dangers and contraindications to treatment by non-specific protein therapy have been reviewed and the means of preventing and treating untoward reactions to both this type of therapy, and allergenic desenitization, have been suggested.—J. M. STEELE. *Clin. Med. and Surgery*, 45 (1938), 417. (W. H. H.)

Pylorus—Dried. Dried pig's stomach (pylorus end) has come into use in Denmark for treatment of pernicious anemia. Proper control of such preparations as to method of preparation, clinical control of anti-anemic potency by the Danish Apothecaries Society Control Laboratory, and label requirements, is considered.—ANON. *Arch. Pharm. og Chemi*, 45 (1938), 565. (C. S. L.)

Rheumatic and Arthritis Conditions—Apparatus for the Treatment of. An electrotherapeutic couch is constructed with a number of contact terminals in the form of enlarged flat surfaces along which conductor pads are adjustably displaceable, so as to provide different regions of application of the current to the body of the patient.—BYRON C. WOODRUFF, assignor to one half to ROSE BRANDALEONE. U. S. pat. 2,131,360, Sept. 27, 1938. (A. P.-C.)

Skin Eruptions from Drugs. The following are among drugs which, when given by mouth, may cause eruptions:—antipyrine, arsenic, atropine, bromides, chloral, copaiba, hypnotics—(*a*) urea compounds and (*b*) barbiturates, iodides, morphine, phenolphthalein, quinine, salicylates. Sulfanilamide in certain cases causes a macular rash resembling that of measles, which disappears on discontinuing the drug. Antitoxic serums which are given for diphtheria, scarlet fever and tetanus, sometimes cause allergic actions. The rash may appear in a few hours or a few days if the patient has been previously injected with the serum. If no serum has been given previously, the rash takes longer to appear. Urticaria is accompanied by a general disturbance such as a high temperature, pains in the joints and headache—the rash often being worse where the injection has been given. Certain substances given by intramuscular injection for syphilis, such as bismuth produce occasional eruptions following prolonged administration. Mercury injections are recommended to be alternated with, or to replace, those of bismuth in such cases, and calcium thiosulfate in 6 Gm. doses per day is given successfully in relieving the condition. The eruptions associated with gold injections range from itching erythema to a papular and scaly rash with pigmentation, and may be followed by a dermatitis and falling of the hair and nails. The injections may further produce conjunctivitis and albuminuria in severe cases. Preparations of arsenic given in the treatment of syphilis may cause: (1) An early vascular eruption with œdema, and flushing of the face a few hours after the first injection; (2) milder symptoms such as pruritis, urticaria and transient erythema, which may appear following the first few injections; (3) erythema of the forearms with scaling is regarded as an early sign of arsenical dermatitis and is an indication that injections should be ceased. The treatment of this condition consists of 0.9 Gm. of calcium thiosulfate, given daily intravenously.—R. M. BOLAM. *Medical Press and Circular*, April (1938), 334; through *Chemist and Druggist*, 128 (1938), 555. (A. C. DeD.)

Struthiopteris Spicant—Study of. It does not follow that because filicin, an active medicinal, is present in one variety of fern, it may be contained in other ferns. No indication of the presence of any alkaloids or filicin was obtained and no toxic effect resulted when an alcoholic extract of the rhizomes was fed to white rats. It is concluded that this fern cannot possibly be used as a therapeutic agent.—FOREST J. GOODRICH and ESTELLE KOOZIN. *Am. J. Pharm.*, 109 (1937), 412. (R. R. F.)

Sulfanilamide and Related Compounds. A brief review and bibliography.—L. GERSHENFELD. *Am. J. Pharm.*, 110 (1938), 256. (A. C. DeD.)

Sulfonamide Compounds—Prophylactic and Therapeutic Action of, in Experimental Malaria. Sulfanilamide had a prophylactic value and marked therapeutic effect on acute *Plasmodium knowlesi* infections in rhesus monkeys. It had, in addition, a direct action on the parasites *in vitro*. Sulfanilyl sulfanilate was ineffective prophylactically but had a slight therapeutic action. In chronic infections, 3 Gm. sulfanilamide given intraperitoneally was sufficient to render blood non-infectious for susceptible monkeys, whereas sulfanilyl sulfanilate was inefficacious.

Both substances had no action on avian plasmodia.—LOWELL T. COGGESHALL. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 768. (A. E. M.)

Sulfanilamide—In Vitro and In Vivo Effect of, on Brucella Abortus and Brucella Suis. Oral treatment of *Brucella* infections in guinea pigs with sulfanilamide is effective in preventing generalized infection when treatment is begun immediately after infection.—BEN D. CHINN. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 732. (A. E. M.)

Sulfanilamide—Photosensitizing Agent of Skin. No dermal reactions noted in hospitalized erysipelas patients, treated with sulfanilamide. Report of 4 ambulatory cases of urethritis treated with sulfanilamide, who were subjected to exposure to sunlight, and developed macular eruptions on exposed parts of skin within 12 hours, which vanished within a week after withdrawal of medication. Suggested that patients being treated with sulfanilamide should avoid direct sunlight.—BEN. A. NEWMAN and HERMAN SHARLIT. *J. Am. Med. Assoc.*, 109 (1937), 1036. (G. S. G.)

Therapeutic Products from Milk. A method of producing a stable therapeutic mineral product from milk comprises separating the casein from the milk by the action of an acid, removing the casein, adding an alkaline material to the whey to reprecipitate a complex protein mineral substance, separating the precipitate from the whey, dissolving the precipitate in an acid solution, reprecipitating the complex protein mineral substance by the addition of an alkaline material to the acid solution, substantially immediately thereafter separating the precipitate from the solution whereby the substance is obtained substantially free from products of decomposition.—OSSIP B. WANSHENK, assignor to KRAFT-PHŒNIX CHEESE CORP. U. S. pat. 2,123,218, July 12, 1938. (A. P.-C.)

Thrombin Surgical Dressings—Determination of the Blood-Clotting Activity of. Four fabrics were examined to determine the relationship between concentration and the amount of blood-clot and the effect of differences of cloth. The results are given in a table.—R. W. MAXWELL and W. P. CHAMBERS. *Pharm. J.*, 141 (1938), 339. (W. B. B.)

Thyroxin Administration and Experimental Beriberi. In a previous paper (*C. A.*, 32, 3791) it was shown that doves given 0.10–0.15 Gm. of thyroxin daily did not affect the beriberi quotient appreciably, but doubling this dose increased the beriberi quotient markedly. In order to show whether the result was actually due to the thyroid extract and not to any reserve B_1 factor, synthetic thyroxin was used instead of the natural thyroid extract. In this case, no change in beriberi quotient was noted, indicating that thyroxin, by itself, does not have any effect on the vitamin B_1 reserve.—V. CAPRARO. *Atti accad. Lincei, Classe sci. fis., mat. nat.*, 27 (1938), 414; through *Chem. Abstr.*, 33 (1939), 201. (F. J. S.)

Uleron—Treatment of Gonorrhea with. Uleron is one of the newer compounds obtained in the endeavor to obtain a drug, possessing the lowest possible toxicity, which would influence the largest number of bacterial diseases apart from streptococcal infections. It has the following formula: H_2N—⟨⟩—SO_2NH—⟨⟩—$SO_2N(CH_2)_2$. The number of cases the author has treated is too small to permit a drawing of conclusions. He can only record his impressions. They are: uleron is definitely a most valuable adjuvant in the treatment of gonorrhea; that in the dosage he employed uleron appeared to be non-toxic; that with moderate doses, used in conjunction with local treatment, a cure can be obtained in a large number of cases more quickly than hitherto possible; that the non-acute cases seem to respond more readily than the acute cases; that when the optimum dosage is established, a high percentage of cures should be possible within three weeks; that a small percentage of patients may prove completely resistant to uleron treatment.—D. F. WALSH. *Brit. Med. J.*, 4047 (1938), 215. (W. H. H.)

Veterinary Medicines from Peat. By the reaction of peat with arecoline, anabasine, codeine, ethylene diamine or piperidine in the presence of water and at a temperature of about 100° C., products are obtained which are suitable for use as veterinary medicines for combating internal parasites.—LOUIS N. MARKWOOD. U. S. pat. 2,123,248, July 12, 1938. (A. P.-C.)

Vitamin A and Vitamin B_1—Treatment of Hyperthyroidism with. Neither vitamin A nor the combination of vitamin A and vitamin B_1 had any beneficial effect on hyperthyroidism.—J. JACOBI and H. POMP. *Klin. Wochenschrift*, 17 (June 18, 1938); through *Brit. Med. J.*, 4051 (1938), 480A. (W. H. H.)

Vitamin E—Influence of, on Maternal Lactation and Infantile Growth. Gaedke and Bennholdt-Thomsen came to the conclusion, after a long series of experiments, that vitamin E

has no effect whatever on the quantity of milk in the breast, nor on the growth of the infant. Vitamin E has been stated to have a galactogogue action, but this the authors disproved in humans and rabbits. The milk of women to whose diet vitamin E had been added contained no more fat than normal human milk.—G. GAEDKE and BENNHOLDT.-THOMSEN. *Zeit. für Kinderheilkunde*, 60 (June 20, 1938); through *Brit. Med. J.*, 4050 (1938), 436H. (W. H. H.)

NEW REMEDIES

SYNTHETICS

Benzochrome (Schering & Glatz, Inc., New York) is a dark powder composed of *o*-cresyl-azo-diaminobenzene hydrochloride 80% combined with tetrabrom-*o*-cresol 20%. It is used for the treatment of bacterial infections in urinary tracts such as cystitis, pyelitis, urethritis, prostatitis. Exerts marked bactericidal potency, equally effective in acid or alkaline urine. Benzochrome was formerly known as Picochrome. It is marketed in capsules of 0.1 Gm. (bottles of 24, 48, 100, 500 or 1000).—*Drug Topics*, 54, No. 45 (1938), 28. (E. V. S.)

Betaxin Elixir (Winthrop Chemical Co., Inc., New York) is a palatable elixir of Betaxin, the first synthetic vitamin B_1 hydrochloride. Each fluidounce contains 1665 international units (5 mg.) of pure synthetic vitamin B_1 hydrochloride. Employed in the manifestations of vitamin B_1 deficiency, including various types of neuritis, gastro-intestinal atony, anorexia and certain cardiovascular disorders. The dose for adults is one teaspoonful daily or more as prescribed. The elixir is available in bottles of 8 oz. or one gallon.—*Am. Drug.*, 98, No. 6 (1938), 44. (E. V. S.)

Cantaxin (Winthrop Chemical Co., Inc., New York) is sodium cevitamate available in tablets equivalent to 25 mg. (500 international units) and in 2 cc. ampuls containing 100 mg. of cevitamic acid (crystalline vitamin C). It is a specific for scurvy; also an excellent dietary supplement in patients on restricted diets for peptic ulcer, diabetes, obesity, colitis, etc.; may be of value in delayed postoperative wound healing when due to subclinical scurvy; an adequate allowance is essential for normal health of gums and teeth. Cantaxin is supplied in bottles of 40 tablets or boxes of six 2-cc. ampuls.—*Drug. Circ.*, 83, No. 2 (1939), 32. (E. V. S.)

Cenolate (Abbott Laboratories, North Chicago, Ill.) is an aqueous solution of monoethanolamine cevitamate (vitamin C). It is a highly potent preparation of vitamin C stable and resistant to ordinary oxidation. It is indicated in conditions diagnosed as vitamin C deficient in which oral administration is not possible or when more rapid and thorough absorption is desired. It may be given intramuscularly or subcutaneously. Cenolate is supplied in boxes of six 2-cc. ampuls (each equivalent in vitamin C to approximately 6 ounces of orange juice).—*Am. Drug.*, 98, No. 4 (1938), 120. (E. V. S.)

Chloro-Hexol (Frederick Stearns & Co., Detroit, Mich.) 2-chloro-4-*n*-hexylphenol, has a phenol coefficient greater than 444 against *S. aureus* by the F. H. A. method. It is indicated for use in sinusitis, tonsillitis, pharyngitis, conjunctivitis, scleritis, blepharitis, especially when due to streptococcus, staphylococcus, pneumococcus, or gonococcus; otis media; acute gonorrhea of the male; cuts, abrasions, infected varicose ulcer, infected wounds, carbuncles, etc. Chloro-Hexol is supplied in 5-cc. vials (aqueous); or as tincture in $^1/_4$-oz., 4-oz. and pint bottles. The aqueous solution is diluted according to directions.—*Am. Drug.*, 98, No. 5 (1938), 114. (E. V. S.)

Eucupin Solution in Oil (Iodized) (Rare Chemicals, Inc., Nepera Park, N. Y.) contains in each 2 cc. ampul eucupin base (isoamylhydrocupreine) 0.002 Gm., ethylaminobenzoate 0.06 Gm., benzyl alcohol 0.1 Gm. in iodized oil (2% iodine). It acts as a local anesthetic with prolonged analgesic action and low toxicity, not opaque to X-ray; and is used for the conservative treatment of low back pain caused by deep muscle injection. Eucupin Suppositories (Rectal) contain 1% eucupin, 2% ethylaminobenzoate and 5% bismuth subgallate in a special suppository base. They produce prolonged rectal analgesia for use in the treatment of hemorrhoids, rectal neuroses, fissures, fistulæ, anal ulcers, proctitis, tenesmus and for comfort following operation.—*Am. Drug.*, 98, No. 6 (1938), 44. (E. V. S.)

Larostidin (Chem. Fabrik "Roche" Basel) contains in each tablet 0.01 Gm. histidin monochlorhydrate.—*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Luvasyl Suppositories (Dr. G. Henning, Chem.-pharmaz. Werk G. m. b. H., Berlin-Tempelhof) contains in each suppository 0.15 Gm. phenylethylbarbituric acid and 0.045 Gm. ethylenediamine.—*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Neo-Synephrin Hydrochloride Emulsion 10% (Frederick Stearns & Co., Detroit, Mich.) contains 10% of *l*-α-hydroxy-β-methylamino-3-hydroxyethylbenzene hydrochloride in an emulsion of acacia, mineral oil and water. It is recommended solely for use in the eye under medical supervision and indicated when rapid and powerful dilation of the pupil and decongestion of the capillary bed are required as in uveitis, posterior synechiæ and secondary type of glaucoma. The dose is one drop of emulsion preceded by one drop of a local anesthetic. The emulsion is supplied in 2 cc. metal tubes with metal tips suitable for ophthalmologic use.—*Am. Drug.*, 98 (1938), No. 4, 120. (E. V. S.)

Silnesia (Wm. S. Merrell Co., Cincinnati, Ohio) is a hydrated magnesium trisilicate marketed as a pleasantly flavored white insoluble powder and as 7½-grain chocolate flavored tablets. It is indicated as an antacid in gastric hyperacidity, gastric ulcer, duodenal ulcer, jejunal ulcer; as an adsorbing agent in the treatment of intestinal toxemia and other conditions in which the detoxifying action of Silnesia is desirable. The dose is one rounded teaspoonful stirred in water or milk or three tablets three times a day, between meals. The powder is marketed in 2-oz. jars and the tablets in bottles of 100 and 1000.—*Am. Drug.*, 98, No. 5 (1938), 114. (E. V. S.)

Temagine (Beiersdorf) is an analgesic which contains the well-known analgesic medicaments para-acetphenetidine, caffeine, diethylbromacetylcarbamide and in addition a new pyrazolon derivative, pheny methylcyclotetramethylenepyrazolon.—*Pharm. Weekblad*, 75 (1938), 400. (E. H. W.)

Specialties

Agobyl (George J. Wallau, Inc., N. Y.) is composed of a pancreatic peptone, lithium succinate and magnesium sulfate and used in the treatment of hepatic and gall bladder diseases, to liquefy congested bile and to drain the ducts. The dose is one to three teaspoonfuls in half glass of warm water, which is to be taken in the morning at the bedside; afterward the patient lies on the right side for fifteen minutes. Agobyl is supplied in cans of 125 Gm.—*Drug Topics*, 54, No. 45 (1938), 28. (E. V. S.)

Allcin (Th. Shirmer, Hannover) is an emulsion consisting chiefly of camphor, menthol, iodine, bromine, sulfur and oils and fats.—*Pharm. Zentralhalle*, 79 (1938), 562. (N. L.)

Bassoran (Wm. S. Merrell Co., Cincinnati, Ohio) plain contains Sterculia gum 87%; Silnesia (magnesium trisilicate Merrell) 8.7%; and **Bassoran with Cascara,** Sterculia gum 82.5%; Silnesia 8.3%; and cascara equivalent to aromatic fluidextract 71.4 minums per ounce. The action is laxative, promoting peristalsis by increasing fecal bulk; lubricant and adsorbent. They are packaged in jars of 7 and 25 ounces.—*Am. Drug.*, 98, No. 5 (1938), 114. (E. V. S.)

Becetax (Winthrop Chemical Co., Inc.) tablets contain in each 0.3 mg. (100 international units) of Betaxin (thiamin chloride, synthetic crystalline vitamin B_1 hydrochloride) and 12.5 mg. of Cantaxin (synthetic crystalline vitamin C). It is a rational supplement to the diet at all ages to assure an adequate daily intake of vitamins B_1 and C; combined deficiency is more likely to occur in patients receiving restricted diets, such as for the treatment of peptic ulcer, diabetes, obesity, colitis, etc.; during pregnancy and lactation and during convalescence from acute exhausting illnesses, as well as in febrile infections and diseases of increased metabolism as tuberculosis, pneumonia, acute rheumatic fever and hyperthyroidism, the requirement for these vitamins is increased. The dose varies from infants one tablet daily to adults 2–4 tablets daily. Becetax is supplied in bottles of 25.—*Drug. Circ.*, 83, No. 2 (1939), 32. (E. V. S.)

Bronchifral (N. V. Pharm. Products Co., Philips-van Houten) is a combination of codeine and ephedrine in tablet form. Each tablet contains 20 mg. codeine hydrochloride in combination with levorotatory and other spasmolytic substances. They are used in asthma, asthmatic bronchitis, hay fever, etc. Dose ½–1 tablet, 3 to 4 times a day.—*Pharm. Weekblad*, 75 (1938), 649. (E. H. W.)

Cachinalis (Chem.-pharmaz. Präparate, W. Tendam, Hamburg) consists chiefly of tinctures of cinchona, catechu and cinnamon, sodium sulfate, alcohol, infusion of senna and spirit of ether.—*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Cadisan (The Cadisan Company, New York) is a non-greasy ointment containing oil of cade, extracts of coal and pine tar, resorcin, zinc oxide, sulfur, ammoniated mercury and chlorbutanol (2.2 gr. per ounce). The ointment is anesthetic and antiseptic; provides rapid relief from severe itching associated with various dermatoses. Cadisan is used to relieve the discomforts of superficial skin irritations such as the itch of eczema, pruritus anal and vulvæ, impetigo, psoriasis, athlete's foot and other minor skin disorders. It is supplied in jars of 2 and 16 oz.—*Drug. Circ.*, 83, No. 2 (1939), 33. (E. V. S.)

Chinetten (Chem. pharmaz. A. G. Bad Hamburg, Frankfurt a. M.) contains in each tablet 50 mg. quinine and is recommended in the treatment of grippe.—*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Diotron-Ohrtropfen (Fiora G. m. b. H., Köln a. Rh.) consists of novocaine 0.1 part, phenol 0.05 part, boric acid 0.5 part, potassium permanganate 0.001 part, absolute alcohol and anhydrous glycerin, of each 10 parts.—*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Feasmin Hyposols (Drug Products Co., Inc., Long Island City, N. Y.) are 5 cc. ampuls containing in each colloidal iron 8 mg., colloidal manganese 0.5 mg. and sodium dimethylarsenate 48 mg. Indicated for use in the treatment of hypochromic or secondary anemia. It is administered intravenously or intragluteally weekly; in obstinate cases twice weekly. The response of the patient to the treatment should also indicate the dosage required. The ampuls are supplied in boxes of 12, 25 and 100.—*Am. Drug.*, 98, No. 5 (1938), 114. (E.V.S.)

Galen "B" (Galen Company, Inc., Berkeley, Cal.) is a biological preparation standardized to content per cc. vitamin B_1 170 micrograms (50 international units or 100 Chase & Sherman units); vitamin G (B_2 or riboflavin) 10 micrograms; approximately 150 micrograms of Fact 1 (vitamin B_6); and nicotinic acid. The filtrate factor value is 28. This vitamin B complex concentrate is prepared from rice bran having a pleasant malt-like flavor with the consistency of molasses and soluble in milk, water, fruit juices, dilute alcohol and glycerin. As a dietary supplement, the following daily dosages are recommended: Infants $^1/_2$–1 teaspoonful; children 1–2 teaspoonfuls; adults 2–4 teaspoonfuls. Galen "B" is supplied in bottles of 4, 8 and 16 ounces and one gallon cans.—*Am. Drug.*, 98, No. 4 (1938), 120. (E. V. S.)

Genovax (Genatosan Ltd.) contains streptococci, staphylococci, *M. catarrhalis*, *B. protens.* It is used in cases of periodontitis and pyorrhœa. The dose is 1–6 minims by sub-mucous membrane injection. It is marketed in ampuls, 1 × $^1/_2$ cc., and 10 × $^1/_2$ cc.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

Hæmatogen (Hommel's Hæmatogen and Drug Co., London) is hemoglobin depurat. It is used for anemia and chlorosis. The dose is 2–3 tablespoonfuls each day before meals. It is marketed in bottles of 9 ounces each.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

Kationorm (Nordmark Chemical Works, Inc., New York) is a mixture of compounds of calcium, potassium and magnesium, in a ratio corresponding to the ration of these cations in the blood serum. It is used in the treatment of vegetative dermatoses, and in place of calcium therapy; also to regulate disturbed cation relations or to antagonize sodium. It is administered intramuscularly or intravenously (10 cc.), repeatedly. Kationorm is supplied in boxes of 5 ampuls (5 or 10 cc. each).—*Drug Topics*, 54, No. 45 (1938), 28. (E. V. S.)

Lanatysat (Ysat Factory) which should not be confused with Laxysat produced by the same firm, is a product obtained from the leaves of *Digitalis lanata* by dialysis. The activity of this product is about 3–4 times that of a similar product obtained from *Digitalis purpurea.*—*Pharm. Weekblad*, 75 (1938), 399. (E. H. W.)

Liver Extract Forte "Chemifa" is a liver preparation for injection made by the Chemische Fabriek Amsterdam which is sold in ampuls holding 2.2 cc. and is put up in boxes of 5 and 25 ampuls. It is used in pernicious anemia, thrush, etc.—*Pharm. Weekblad*, 75 (1938), 649. (E. H. W.)

Nembutal and Aspirin Capsules (Abbott Laboratories) contain in each nembutal $^1/_2$ gr. and aspirin 5 gr. It is used to relieve restlessness and insomnia associated with dull, long-continued pain, such as nervous tension and pain due to headaches, toothaches, aching joints and similar conditions. The capsules are marketed in bottles of 100 and 500.—*Drug. Circ.*, 83, No. 2 (1939), 32. (E. V. S.)

Neobar (E. Merck, London and Darmstadt) is a specially prepared form of pure barium sulfate. It is used for X-ray examination of the gastric mucous membrane. It is supplied as a

powder, in 150, 2000 and 8000 Gm. sizes.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

New Remedies. Desitin Ointment is a non-irritant, mildly astringent ointment that favors smooth cicatrization and epithelization and stimulates granulation. **Esiderm** is a non-greasy ointment for use in treatment of eczema, acne vulgaris, acne rosacea, erythematous and papular dermatitis. **Heparin 318** is a solution of pure heparin, the physiological anticoagulant of animal blood. **Rusven** is a powerful blood coagulant for local external application in the control of bleeding following wounds, injuries, extraction of teeth, and in epistaxis, in hemophiliacs.—ANON. *Pharm. J.*, 141(1938), 200. (W. B. B.)

Photogastrine is a contrast substance for stomach and intestine made by N. V. Orgachemia at Oss, consisting of barium sulfate in such a form that a finely divided mass of the contrast medium is assured. To this end vegetable substances are added which form colloidal solutions in water. The taste is improved by the addition of fruit juices.—*Pharm. Weekblad*, 75 (1938), 400. (E. H. W.)

Pontampons (Pontampon Co., London) contain: A—Ichthyol compound; B—Ichythyl; C—Protargol and ichthyol; and E—Glycerol of Tannin. They are used as follows:—A, antiseptic, stimulating and astringent, softens and relaxes adhesions; B, inflammatory conditions of the ovaries, pruritus; C, gonorrhea and its complications; E, prolapse, a soothing astringent in erosion, irritation and leucorrhœa. Directions with each box of six tampons.—*Australian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

P-Paste (Ubert & Co., G. m. b. H., Berlin) contains chiefly zinc oxide, iodoform, creosote, oil of cinnamon, oil of clove, phenol and alum.—*Pharm. Zentralhalle*, 79 (1938), 282. (N. L.)

Propidex (Pharmaceutical Specialities (May and Baker) Ltd., Dagenham, near London) is an anti-pyogenic vaccine in the form of an ointment. It is used for boils, carbuncles, abscesses and general pyogenic conditions. It is used as a local application. It is marketed in 1-ounce packages.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

Sprayofan (R. M. Mayer, Bad Reichenhall) consists chiefly of adrenaline, ephetonin, atropine-methylnitrate and papaverine. It is recommended in the treatment of bronchial asthma.—*Pharm. Zentralhalle*, 79 (1938), 544. (N. L.)

Theodosal (Hirst, Brooke and Hirst Ltd., Leeds, England) contains sodium salicylate, digitalis leaves and theobromine. It is used as a cardiac stimulant, diuretic, cardiac and renal dropsy, auricular fabrillation, etc. The dose is 1-3 tablets. It is marketed in packages of 100 and 1000.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

Theoviscum Pulvoids (The Drug Products Co., Inc., Long Island City, N. Y.) are enteric sugar-coated and purple containing in each theobromine calcium salicylate $2^1/_2$ gr.; sodium nitrate 1 gr.; phenobarbital sodium $^1/_4$ gr.; *Viscum album* 1 gr.; and *Crataegus oxyacantha* 1 gr. They act as a vasodilator, diuretic, myocardial stimulant, possessing mild hypnotic and antispasmodic properties. Indicated for use in arteriosclerosis, angina pectoris, dropsical conditions, cardiovascular-renal disease, congestive heart failure and hypertension. The dose is one or two pulvoids three times daily, or as required. Marketed in bottles of 100 and 1000.—*Am. Drug.*, 98, No. 6 (1938), 44. (E. V. S.)

Veinotrope (Continental Laboratories Ltd., London) contains parathyroid, suprarenal, pancreas, posterior pituitary, ovary or testicular extract, horse chestnut, hamamelis and nux vomica. It is used in cases of varicose veins, hemorrhoids, phlebitis, menstrual disorders. The dose is 2-6 tablets daily, at meals. It is supplied in tablets: M = men; W = women.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

Vitacain (Chicago Pharmacal Co., Chicago, Ill.) is an ointment containing one and one-half times the vitamin A and D potency of U. S. P. cod liver oil with benzocaine 1% carefully compounded in a base of lanolin and petrolatum and free from disagreeable odor. It is an ideal dressing for burns, bruises, cuts, lacerations and other injuries. It inhibits bacterial growth, promptly relieves pain and promotes healing with a minimum of scar tissue. It is marketed in tubes of 2 ounces and in one pound jars.—*Drug. Circ.*, 83, No. 2 (1939), 32. (E. V. S.)

Viteolin (Glaxo Laboratories Ltd., Greenford, Middlesex, England) contains in each 3 minim capsule the liquid unsaponifiable matter extracted from 5 Gm. of freshly-prepared wheat germ oil (vitamin E.). It is used for habitual and threatened spontaneous abortion. The dose is one each day during pregnancy. For threatened abortion a first dose of 5 capsules, with one

capsule daily thereafter. It is marketed in capsules of 25, 100 and 500.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

Volpar Gels and Paste (The British Drug Houses, Ltd., London) is phenyl mercuric acetate, in dispensing agents. It is used for contraception. One gel inserted in the vagina and allowed to melt; occlusive pessary or diaphragm lubricated with Volpar paste. It is marketed in one dozen gels in tube and paste in metal tubes.—*Australasian J. Pharm.*, 20 (1939), 124. (A. C. DeD.)

BACTERIOLOGY

2-(*p*-Aminobenzenesulfonamido) Pyridine—Action of, on Pneumococci. The preparation 2-(*p*-aminobenzenesulfonamido) pyridine, called T 693, retards the growth in human blood of pneumococci and hemolytic streptococci in concentrations which it is resonable to suppose can be obtained therapeutically. It has in such concentrations no bactericidal effect. Blood containing T 693 in such concentrations can destroy considerable numbers of pneumococci and streptococci. Leucocytes are necessary for this destruction. If blood is rendered "immune" by the addition of some specific immune serum, the apparent effect of the chemical is enhanced. It is suggested that to obtain the best results with the drug, patients should be immunized actively or passively.—A. FLEMING. *Lancet*, 235 (1938), 74. (W. H. H.)

2-(*p*-Aminobenzenesulfonamido) Pyridine—Antibacterial Power of the Blood of Patients Receiving. The blood of patients taking T 693 has a much increased antibacterial power against hemolytic streptococcus and pneumococcus. This increased antibacterial power lies in the serum. The efficiency of the leucocytes is not increased. A patient's serum which is strongly inhibitory to streptococci is incapable of killing the cocci in two days. The patient's serum not only inhibits growth but also inhibits the production by *Streptococcus pyogenes* and pneumococcus of substances which alter the blood. T 693 added to human blood or contained in the blood of patients taking the chemical does not prevent encapsulation of pneumococci. Methods are described for estimating the antibacterial power of the serum to streptococci and pneumococci.—A. Fleming. *Lancet*, 235 (1938), 564. (W. H. H.)

Antiseptic Compositions. A very soluble low toxic salt of aluminum, such as aluminum chloride, in amounts of 15 to 38%, is used with 15 to 38% of ethanol or acetone and at least 25% more water than the heavier of the other two ingredients.—JOHN S. PIERCE. U. S. pat. 2,118,225, May 24, 1938. (A. P.-C.)

Antiseptic for Internal Use. A stable, nonhydroscopic, white, cyrstalline, hexamine salt of mandelic acid is claimed as a new antiseptic.—EDMOND T. TISZA, assignor to PYRIDIUM CORP. U. S. pat. 2,124,321, July 19, 1938. (A. P.-C.)

Antiseptics—Action of, in Mice. Mice used for *in vivo* titration of potency of antiseptics. Invasive strain of *Staphylococcus aureus* injected intracutaneously. Antiseptic injected at same site. Chlor-iso-octyl-resorcinol 1:5000 prevented formation of typical skin lesion. Merthiolate, metaphen, mercurochrome, oxyquinolin and chloramine-T, ineffective.—CURRENT COMMENT. *J. Am. Med. Assoc.*, 109 (1937), 1368. (G. S. G.)

Antiseptics—Experimental Investigation of the Penetration of, Through Tissues. Since penetration of antiseptics through tissues had uever been investigated, the authors tested the penetrating power of various antiseptics by injecting 0.05 cc. of bouillon culture of pooled staphylococci into the tissues, applying the antiseptic to the surface, and subsequently dissecting out the area containing the cocci, grinding, diluting, plating, counting and comparing with the symmetrically situated control area. None of the antiseptics listed below penetrated into a puncture 6 mm. deep unless the puncture was at least 4 mm. in diameter and the wound actually gaping. None killed subcutaneous staphylococci when applied to intact or burned guinea pigs' skin. Forty-eight-hour granulation tissue completely blocked penetration. Electrophoresis increased penetration only when it coagulated the tissues. Painted over the scarified guinea pigs' skin, none of the antiseptics killed as many as 50% of staphylococci injected subcutaneously, but wet dressings of the following solutions applied continuously for 4 hours killed 90% of staphylococci 1 mm. below the surface: phenol 3%; iodine 5 %; $HgCl_2$ 1:2000; neutral acriflavine 1:1000; gentian violet 1:1000; alcoholic merthiolate 1:1000; alcoholic mercurochrome 1:100; alcoholic metaphen 1:1000. One per cent $AgNO_3$ and Dakin's Solution did not penetrate at all. All caused delayed healing, leucocytic infiltration, oedema and some necrosis. Intracutaneous in-

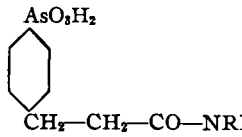
jection of 0.1 cc. caused sloughing. Application of 0.8% sulfanilamide as wet dressing on scarified guinea pigs' skin for 24 hours did not kill subcutaneous haemolytic streptococci. A criterion of antiseptic efficiency is proposed as follows: the

$$\text{Antiseptic Efficiency Coefficient} = \frac{\text{(Lowest Intradermal Sloughing Concentration)}}{\text{(Lowest Penetrating Antiseptic Concentration)}}$$

compared with that for phenol $\frac{\text{(1 per cent)}}{\text{(3 per cent)}}$. For all antiseptics tested this was never greater than 1.5, though their phenol bacteriostatic coefficients ranged from 0.7 to 500.—ARTHUR D. HIRSCHFELDER and MILAN NOVAK. *J. Pharmacol.*, 63 (May, 1938), 15. (H. B. H.)

Antisyphilitic Preparation. From heating sodium bismuthate with tri-isopropanolamine and propylene glycol (suitably at a temperature of about 80° C.) a product is obtained which forms feather-shaped clusters of needle-like crystals and which is suitable for oral or intramuscular administration.—PAUL J. HANZLIK, assignor to the BOARD OF TRUSTEES OF LELAND STANFORD JR. UNIVERSITY OF CALIFORNIA. U. S. pat. 2,125,561, Aug. 2, 1938. (A. P.-C.)

β-*p*-Arsonophenylpropionic Acid—Amides of, as Trypanocides. Several arsenicals of the type



(where R = Me, Et, Ph, etc., and R' = Me) were prepared by treating the methyl ester of β-*p*-arsonophenylpropionic acid with a series of different amines. The sodium salt of some of the amides were curative in infected mice while others showed no activity. The M. L. D. of the sodium salts of the compounds ranged from 0.5 to 64 mg. per Gm. of mouse.—E. WALTON. *J. Chem. Soc.*, (London), (1939), 156. (W. T. S.)

Bacteria—Growth Factors of. The "Z" Effect of von Euler and Swartz. A review.—R. DE SMEDT. *Ann. Soc. Brasseurs*, 47 (1938), 100–110, 173–202. (A. P.-C.)

Bacterial Chromogen—Study of New Crystalline Violaceous. The organism is described morphologically and biologically. The pigment production was not dependent upon the temperature of the culture or the p_H of the medium. The organism did not cause pathogenic reaction when injected intraperitoneally into the guinea pig. The presence of traces of iron and magnesium are necessary for pigment production. The pigment was isolated by extraction with ether and purified with petroleum ether, chloroform and distilled water. The final crystallization was made from pure acetone. A solution of the pure violet pigment is reduced by ammonium hydrosulfide to a rose leuco-derivative which may be restored to the original form by hydrogen peroxide solution. The suggested formula is $C_{10}H_{12}NO_3$, and a quinoleic cycle with C=O and C=NH as chromophore groups.—A. SARTORY, J. MEYER and J. WAELDELE. *Bull sci. pharmacol.*, 45 (1938), 302–306. (S. W. G.)

Bacterial Infection—Chemotherapy of. In referring to specifics in bacterial infections, it is found as the result of much work that the sulfanilamido group is characteristic and chemically active substituent and that it must be in the position para to any other modification of the ring as it is in prontosil red, prontosil soluble, prontosil white, etc. These compounds are active in various streptococcic infections, especially childbed fever. Prontosil is also active in bacterial infections caused by colon bacilli and others. Uliron is particularly effective against gonococci and meningococci and prontosil against pneumococci. Since 1937, nearly 1000 papers have appeared on the various phases and aspects of the activity of hundreds of compounds with possible antibacterial action.—G. DOMAGK. *Forschungen und Fortschritte*, 14 (1938), 258. (M. F. W. D.)

Bacterial Multiplication—Action of Different Amounts of Certain Cations on. The following conclusions are given: (1) The velocity of the electric transmission of pyocyanic bacteria does not vary, and it is independent of their concentration in the emulsions tested. (2) The charge of the organism remains practically the same through all the characteristic phases of growth. Commencing after eight hours the organisms show an increase in charge. This augmentation of charge is due to the appearance in sufficient quantity in the medium of substances having an ac-

tive opposite charge, and acting on dead or altered organisms. (3) The addition of lanthanum nitrate in doses which increase bacterial growth, and doses which have no effect, did not noticeably modify electric transmission of the organisms. An appreciable alteration of charge was noted only when the concentration of lanthanum nitrate caused changes in the organisms or death. Inhibition of growth could not be attributed to a diminution of the charge. Cerium nitrate was also used. The media and technic used are described. An extensive bibliography is appended.—L. NEIPP. *Bull. sci. pharmacol*, 45 (1938), 289–302. (S. W. G.)

Blackleg Antigen. A composition suitable for injection comprises a blackleg antigen incorporated in an adsorbent and astringent comprising aluminum hydroxide, ammonia alum and the like.—HOWARD M. WINEGARDEN, FRANCES W. WESTFALL, ROLAND C. HAWES and FRED W. WOOD, assignors to THE CUTTER LABORATORY. U. S. pat. 2,125,533, Aug. 2, 1938. (A. P.-C.)

Bowel Antigen—New Diagnostic Intradermal Reaction With. Cases of ulcerative colitis of obscure etiology may be due to a virus in colon. Patients with colitis reacted to intradermal administration of inactivated bubo pus from venereal lymphogranuloma. But positive reaction does not necessarily indicate venereal lymphogranuloma as cause of colitis. It was hypothesized that antigen from bowel if used in connection with bubo injections might verify relationship. Material from bowel aspirated through rectosigmoidoscope and diluted with azochloramide. Mixture dechlorinated with sodium sulfite, tested for sterility and merthiolate added. Antigens tested on patients presenting positive and negative Frei reactions, with or without colitis, having been obtained from patients with similar disorders. Hope of specific use of antigen for differential diagnosis and simplifying clinical approach.—MOSES PAULSON. *J. Am. Med. Assoc.*, 109 (1937), 1880. (G. S. G.)

Calomel Ointment—Bactericidal Effectiveness of the Improved. A new type of ointment, consisting of the official N. F. VI base, into which a suspension of colloidal calomel has been incorporated, has been found to possess a bactericidal action far greater than that of the official calomel ointment. It is believed that this increased effectiveness is largely dependent upon the greater availability of water (containing mercurous ions) in the ointment. Again, this increased efficiency may be only an apparent one since it is based entirely on the agar plate test. The presence of gelatin in the suspension of the colloidal calomel is a factor of foremost significance in producing a wide zone of inhibition when ointments containing such suspensions are tested by the *F. D. A.* agar plate technic.—F. W. SCHILLER. *Am. J. Pharm.*, 110 (1938), 289. (R. R. F.)

Chemical Elements—Concentration of, by Organisms. R. summarizes the concentration of Ca, Fe, Mn, Cu, V, Zn, Ni, Co, Ge, Si, Al, Br, I, B, P, and S in animal and plant tissues.—RUDOLF ROST. *Priroda*, 29 (1936), 223–226; through *Chem. Abstr.*, 33 (1939), 653. (F. J. S.)

Cosmetics—Bacteria in. A description and characteristics of three organisms: *Staphylococcus aureus*, *Bacillus subtilis* and *Escherichia Coli*.—MILTON HERBOLD. *Am. Perfumer*, 36 (1938), 28. (G. W. F.)

Cosmetics—"Germ-Free" or Sterile. When cod liver oil was diluted beyond 70%, its ability to remain sterile (to *Staphylococcus aureus*) disappeared. Other fish oils possessed similar properties, but vitamin concentrates, synthetic or natural, or ordinary fixed oils did not possess this property. Commercial cosmetics had no bactericidal action and many were contaminated with microörganisms. It is concluded that cosmetics should contain a small amount of potent, colorless, odorless, non-irritating antiseptic.—M. G. DE NAVARRE. *Am. Perfumer*, 37 (1938), 27–28. (G. W. F.)

Diphtheria Antiserum Antitoxin—Stabilization of, by Formaldehyde and Recovery by Precipitation with Sodium Aminonaphthalenetrisulfonate. To 5 cc. of total diphtheria antiserum dissolved in 20 cc. of physiological saline add 0.5 cc. of formalin with stirring followed by 0.1 Gm. of sodium aminonaphthalenetrisulfonate, adjust the p_H to 4.6 by addition of 20% citric acid solution and shake again; separate the precipitate (A), and add more citric acid to a p_H of 2 to 1.5, which produces a second precipitate (B). Both precipitates are washed thoroughly with physiological saline and redissolved to a p_H of 6.5 by means of a few drops of dilute sodium hydroxide, the total volume being the same as the original volume of the antiserum. Evaluation of the antitoxic potency of these protein solutions is effected by addition of known doses of toxins and, after incubation at 37° C., injection into guinea pigs. Fraction A was found to possess about 75% of the antitoxin and fraction B about 2%. These solutions of antitoxin showed no loss in potency

after storage in the refrigerator for 4 to 6 weeks, and they were uncoagulable and remained perfectly clear on heating to 100° C.—H. GOLDIE. *Compt. rend. soc. biol.*, 124 (1937), 550–554; through *Chimie & Industrie*, 39 (1938), 725. (A. P.-C.)

Diphtheria Antiserum—Parallelism between Certain Chemical Changes in, and Changes in Physicochemical Properties and Antitoxin and Anaphylactogenic Properties. If the antiserum (horse) is treated with ketene until 25 to 30% of the amino groups are blocked by acetylation, the antitoxic power is but little affected but the serum no longer produces shock in guinea pigs sensitized to the untreated serum. If guinea pigs are sensitized to serum treated with ketene as above-mentioned, the injection of either treated or untreated serum produces a mild, non-fatal shock. If the ketene treatment is continued until nearly all the amino groups of the serum proteins are acetylated, the antitoxic power is destroyed.—G. SANDOR and H. GOLDIE. *Compt. rend. soc. biol.*, 126 (1937), 295–298; through *Chimie & Industrie*, 39 (1938), 727. (A. P.-C.)

Dysentery Bacilli and Targesin. Targesin (a complex colloidal diacetyl-tannin-silver-albumen compound) has been tried in two cases of bacterial dysentery with remarkable success. The preparation when given by the mouth was well tolerated; the general symptoms cleared up in a few days.—H. LIPPELT. *Klin. Wochens.*, 17, 1938; through *Brit. Med.J.*, 4044 (1938), 106A. (W. H. H.)

Fishery Products—Microbiological Methods for the Examination of Canned. Suggested bacteriological methods, concerning chiefly the examination of so-called non-acid, low-salt canned fishery products, are described in detail. They cover physical examination and preparation of the can, removal of sample, culture media and incubation and culture study.—O. W. LANG. *J. Assoc. Official Agr. Chem.*, 21 (1938), 449–452. (A. P.-C.)

Fungi—Use of, in Industry. Examples of fungoid action having a pharmaceutical interest are those in which mucilage goes acid, oils become rancid and alkaloidal salts are inactivated. It is fortunate that unlike bacteria there are no pathogenic fungi with which industry has to deal. In industrial processes the manufacture of citric acid, chiefly in the United States, from glucose solutions by *Aspergillus niger* is now competing commercially with the natural acid from citrus juice. A pure strain of the fungus is grown first in a sterile culture solution and then in the sugar solution contained in very pure aluminum trays. The selected strain only produces citric acid, but other strains of the same fungus might produce in addition oxalic and gluconic acids.—ANON. *Pharm. J.*, 141 (1938), 439. (W. B. B.)

Germicides. Products suitable for use with water or alcohol comprise natural paired bile acids chemically combined with iodine.—PAUL GOEDRICH, assignor to WM. R. WARNER & CO. U. S. pat. 2,121,029, June 21, 1938. (A. P.-C.)

Hydrogen Peroxide—Sterilization Activity of. A review of the sterilization and bactericidal properties of hydrogen peroxide.—H. KÜHL. *Pharm. Ztg.*, 82 (1937), 1214–1216. (N. L.)

Hydroxyalkyl Ethers of Basic Phenols. The Antipneumococcic Activity of Some 8-Quinolyl Ethers. A method is described for hydroxyalkylation of basic phenols by means of benzyloxyalkyl aromatic sulfonates. A brief report is given on the antipneumococcic activities of some ethers of 8-hydroxyquinolinesulfate.—C. L. BUTLER and ALICE G. RENFREW. *J. Am. Chem. Soc.*, 60 (1938), 1582. (E. B. S.)

Lysol—Preparation of. By the addition of 4% of industrial spirit to the British Pharmacopœial formula for lysol, the initial saponification may be carried out "homogeneously," the process being complete in less than twenty minutes. When large batches are being made no external source of heat is required.—J. JACKSON. *Pharm. J.*, 141 (1938), 339. (W. B. B.)

Nicotinic Acid Derivatives—Activity of, As Growth Essential for Dysentery Bacillus. Upon the addition of nicotinic acid to a medium unable to support growth of dysentery bacillus, development of the organisms took place. Nicotinamide, methyl nicotinate, trigonelline amide, ethyl nicotinate, nicotinuric acid, ethyl nicotinoacetate, nicotinic acid-*n*-methylamide, nicotinonitrile and possibly picolinic and quinolinic acids also permitted the development of the organisms.—ALBERT DORFMAN, STEWART A. KOSER and FELIX SAUNDERS. *J. Am. Chem. Soc.*, 60 (1938), 2004. (E. B. S.)

Nitrogen Distribution in Milk—Method for Determining Action of Certain Organisms on. The object of this work was to improve or modify a method for determining the amino acid content in milk brought about by bacterial activity, in order that more consistent results might be

obtained in following the course of the protein digestion of milk. The modified method of nitrogen determinations, using skim milk, consisted of the following steps: (1) Protein material precipitated and removed. (2) Total soluble nonprotein nitrogen determined. (3) Amino acid content determined. (4) Material hydrolyzed and the amino acid content again determined. The method outlined was found to be quite satisfactory for the study of the action of certain bacteria on nitrogen distribution in milk, as occurring after protein cleavage brought about by bacterial action. The amount of protein converted to amino acids by the organisms in a given length of time could be determined. The process of hydrolysis broke down those protein complexes which might eventually be transformed by the organism into amino acids. By determining the nitrogen distribution in a definite quantity of digested milk, it was possible to indicate the results of the nitrogen conversion on a percentage basis.—G. H. McFADDEN and H. H. WEISER. *Am. J. Pharm.*, 110 (1938), 154. (R. R. F.)

Odorizers and Disinfectants—Device for Vaporizing Materials Such As. An electric lamp bulb is provided with a coating of absorbent heat-resisting plastic material such as clay, alabaster or spachtel, which may be impregnated with heat-vaporizable material.—JAMES B. CLINE, assignor to L. BRUCE GRANNIS. U. S. pat. 2,124,543, July 26, 1938. (A. P.-C.)

***p*-Oxybenzoic Acid—Ethers of.** The bactericidal power of the ethers of *p*-oxybenzoic acid is many times stronger than that of phenol. The increase of the alkyl group makes their effect more pronounced. The acid was obtained by heating potassium salicylate at the usual pressure at 215–220°. Etherification reactions are carried out in the presence of sulfuric acid.—I. ZBARSKY. *Trans. Ukrainian Inst. Exp. Pharm.*, 1 (1938), 97. (C. J.)

Papain—Value of, in the Preparation of Some Pharmaceutical Products. Either in the form of dried pawpaw juice or of the purified product, the plant enzyme papain readily digests horse, calf or heart muscle proteins. The mixture of muscle extractives and protein degradation products provide a valuable nutrient medium for many types of bacteria. By varying the conditions of digestion, media containing as little as 1.5% or as much as 10% of total solids can be obtained by this method. These bacteriological culture media are of value in the preparation of pharmaceutical products such as diphtheria prophylactics, therapeutic sera and vaccines. A table is given which compares the conditions of activity (temperature and p_H of pepsin, trypsin and papain).—A. F. WATSON, R. A. TAGGART and H. F. MANNION. *Pharm. J.*, 141 (1938), 266. (W. B. B.)

Plant Viruses—Dissemination of. There are no fewer than fifty-two plant viruses which spread without insect agency or by unknown means. For some of these viruses, no doubt, insect vectors will be found. Nevertheless, it is now known that other means of natural spread exist and some of these are discussed.—K. M. SMITH and W. D. MACCLEMENT. *Pharm. J.*, 141 (1938), 205. (W. B. B.)

Plant Viruses—Isolation and Properties of Some. Tobacco mosaic virus, cucumber virus 3, potato virus X and Bushy stunt virus have been isolated and found to be nucleo-proteins. The analytical figures are all similar except that Bushy stunt virus contains twice as much nucleic acid as the others, and the apparent absence of water and any constituents other than nucleic acid and protein sharply separates these viruses from bacteria and other organisms.—F. C. BAWDEN. *Pharm. J.*, 141 (1938), 205. (W. B. B.)

Sabouraud's Medium—Potassium Tellurite and Copper Sulfate in, for the Isolation of Pathogenic Fungi. The medium is definitely superior for the primary isolation of fungi.—T. L. CH'IN. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 700. (A. E. M.)

Serum—Method of Concentrating. Canine distemper serum of virus origin is concentrated by separating serum from blood, acidifying the serum to a p_H of 5.0 or less and adding a zinc salt of a low molecular weight fatty acid to precipitate objectionable matter from the solution.—GEORGE W. LITTLE and ABRAHAM J. KLEIN, KLEIN, assignor to LITTLE. U. S. pat. 2,124,951, July 26, 1938. (A. P.-C.)

Spore-Bearing Bacteria—Sterilization of, in Water Supplies. The chloramine process offers a means for disinfection of waters containing spore-bearing bacteria. By preceding the chloramine treatment with alum as a coagulant, the effectiveness was increased.—JOHN N. MCDONNELL. *Am. J. Pharm.*, 110 (1938), 346. (R. R. F.)

Sterilizing Agent. Water is sterilized by treating at substantially room temperature with 1,3-dichloro-5,5-dimethylhydrantoin.—ARTHUR A. LEVINE, assignor to E. I. DU PONT DE NEMOURS & Co. U. S. pat. 2,130,805, Sept. 20, 1938. (A. P.-C.)

Sulfanilamide Derivatives. I. Aminoarylsulfonamidoarylsulfonic Acids and Aminoarylsulfonamidoarylcarboxylic Acids. A system of naming the derivatives of sulfanilamide is proposed. The system relates the names of the compounds, where possible, to the parent compound. The H_2N⟨⟩SO_2— radical is called "sulfanilyl" and the H_2N⟨⟩SO_2NH— radical is called "sulfanilamido." A number of sulfanilamidobenzenesulfonic acids and sulfanilamidobenzenecarboxylic acids are described. They form highly soluble sodium salts. It was found that when the carboxyl or sulfonic acid groups were in ortho position on the second ring, the compounds possessed greater antistreptococcal activity than when they were in the meta or para positions. The presence of —CH, —OH, —OR, or —Cl on the second ring greatly lowers or destroys the activity. Some seemed to possess activity against certain types of virus.—M. L. CROSSLEY, E. H. NORTHEY and MARTIN E. HULTQUIST. *J. Am. Chem. Soc.*, 60 (1938), 2217. (E. B. S.)

Sulfanilamide Derivatives. II. Disulfanilamides and Related Compounds. The authors point out that Rosenthal's "Disulfanilamide" should be called N^4-sulfanilylsulfanilamide. The authors give the synthesis of true disulfanilamide, $(H_2N$⟨⟩$SO_2)_2NH$, and a number of related compounds. The disulfanilamides act as strong acids, and form salts readily. *N'*-Methyldisulfanilamide and the corresponding ethyl- and sodium- derivatives show greater antistreptococcal activity than sulfanilamide. The methyl- and ethyl- derivatives also showed promising results on infections caused by the Francis strain of influenza virus in mice.—M. L. CROSSLEY, E. H. NORTHEY and MARTIN E. HULTQUIST. *J. Am. Chem. Soc.*, 60 (1938), 2222. (E. B. S.)

Surgical Dressings—Heat Sterilization of, in High Frequency Electric Fields. The following scheme is presented: The substance is placed in a bakelite drum (illustrated). Immediately the current is switched on, oscillation commences, the pressure of 20 lb. per sq. in. is reached in 4 minutes. This pressure is made up of 5.5 lb. per sq. in. caused by the heated and expanded air, and the remainder arises from the hygroscopic water in the dressing, so that the corresponding temperature is about 115° C. When this pressure has been reached, it is kept at this level by switching on and off, by varying the filament resistance or by de-tuning, so as to maintain the pressure at ±0.5 lb. per sq. in. The process is being studied further.—R. M. SAVAGE. *Quart. J. Pharm. Pharmacol.*, 11 (1938), 562–571. (S. W. G.)

Thermophilic Bacteria—Detecting and Estimating Numbers of, in Sugar. Sulfite agar, which is used as test medium for sulfide spoilage organisms, is very time-consuming to prepare for laboratories in which tests for sulfide organisms are made infrequently. The following easily-prepared medium is quite satisfactory and is recommended as the principal medium for the detection of sulfide spoilage organisms: Water 1 liter, tryptone 10 Gm., sodium sulfite 1 Gm., agar 20 Gm.; at the time of tubing a clear iron strip or nail is placed in the tube; no adjustment in reaction is necessary. As in sulfite agar, the "sulfide" spoilage organisms are detected through the formation of characteristic blackened spherical areas; in the usual case there is no gas formation.—E. J. CAMERON. *J. Assoc. Official Agr. Chem.*, 21 (1938), 457–458. (A. P.-C.)

Tomato Products—Microbiological Methods for the Examination of Canned. Technics for the physical examination and preparation of the can, removal of sample, preparation of culture media, incubation and culture study are described in detail and recommended for adoption.—B. A. LINDEN. *J. Assoc. Official Agr. Chem.*, 21 (1938), 454–457. (A. P.-C.)

Trypanocides—Guanyl- and Guanido-Naphthalenes as. Reference is made to a previous article by King, Lourie and Yorke (*Lancet*, ii (1937), 1360) in which the authors showed that some aliphatic diguanidines and diamidines exhibit marked trypanocidal action. K. and W. present evidence that certain diamidine and diguanido derivatives of naphthalene are also active in this respect. For example 2,7-naphthylenediamidine cured infected mice and possessed a M. L. D. of 2 mg. per 20 Gm. of mouse.—HAROLD KINE and E. V. WRIGHT. *J. Chem. Soc.* (London) (1939), 253. (W. T. S.)

Tuberculin Patch Tests in Children. A method of standardizing both the technic and the reading of the Mantoux tuberculin test is suggested. In a series of 536 children under sixteen years of age the Lederle and Copenhagen patch tests have given fewer positive reactions than the

Mantoux, but have agreed in all the reactions obtained in strengths of $^1/_{1000}$ O. T. intracutaneously and less. There has been little to choose between the two types of patch used but reasons are given for preferring the Copenhagen method. A combination of patch test and Mantoux test is suggested, calculated to spare the child and the physician, and to give as few false reactions as possible.—F. DUDLEY HART. *Lancet*, 235 (1938), 609. (W. H. H.)

Typhus Infections—Experimental, Dissociation of Rickettsia and Proteus X_{19} Antibodies in. The agglutinin of Rickettsia appears in animals treated with louse typhus vaccine earlier than the Weil-Felix reaction and may be used as a means of early diagnosis.—SAMUEL H. ZIA and P. Y. LIU. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 685. (A. E. M.)

Water—Sterilization of, for Beverages and Foodstuffs. In testing of water bacteriological examination is more important than chemical analysis. Water, which after sterilization is free from *B. coli* can be considered free from typhoid, cholera and other germs. Treatment of water with chlorine, leaving a taste, is not desirable if it is to be used for foodstuffs. But ozonation, which removes taste, color and odor, destroys bacteria and oxidizes organic matter, is to be preferred.—N. C. JONES. *Chemistry and Industry*, 58 (1939), 48–50. (E. G. V.)

BOTANY

Ascorbic Acid—Comparative Study of Methods of Determining, in Plants. The four methods compared were: (1) the ordinary iodometric method, (2) the Buogo and Schiappareill modification of (1), (3) the 2,6-dichlorophenolindophenol method and (4) the Martini-Bonsignore methylene blue method. All give low results even in the presence of cysteine; (2) and (4) also give low results even in pure solutions of ascorbic acid and in acid juices of oranges, lemons, tomatoes, etc., which contain cysteine. The author prefers (1) when examining plant extracts that have natural or acquired acid reactions.—U. BAGNOLESI. *Ind. ital. conserve aliment.*, 12 (1937), No. 3, 45–47; through *Chimie & Industrie*, 39 (1938), 728. (A. P.-C.)

Chloroplasts—Quantitative Isolation of, from Higher Plants. Chloroplasts can be isolated from tomato and tobacco leaves by grinding under hypertonic salt solutions followed by differential centrifuging. The amount isolated can be estimated by comparing the amount of pigment in a sample of the isolated chloroplasts with that in the original material.—S. GRANICK. *Am. J. Botany*, 25 (1938), 558–561; through *Chem. Abstr.*, 33 (1939), 1008. (F. J. S.)

Masterwort. A botanical review.—S. GALLUCCI. *Farm. ital.*, 5 (1937), 706. (A. C. DeD.)

Oriental African Flower. Strophanthus and Its Quality. The botanical characters of strophanthus which grows in oriental Africa are described; the varieties are *Strophanthus hispidus, Strophanthus Kombé, Strophanthus gratus, Strophanthus asper, Strophanthus sarmentosus.* Products of extraction of this plant discussed are: Strophanthin and oubain and their pharmacologic properties.—A. GATTI and R. CAJOLA. *Riv. it. ess. prof. e piante offic.*, 19 (1937), 37–39; through *Farm. ital.*, 5 (1937), 715. (A. C. DeD.)

Saponin Formation in Lychnis Flos Cuculi L. and Saponaria Ocymoides L.—Influence of Different Nitrogenous Nutrient Salt Solutions on the Growth and. An illustrated experimental study of potted plants indicating that in drug plant culture such inorganic plant foods should not be selected for fertilizers which promise the highest crop yield, but rather those which give a relatively high yield and at the same time a high-quality drug. With *Lychnis*, for example, ammonium nitrate should replace ammonium chloride.—R. JARETZKY and H. J. SEYFFARTH. *Pharm. Ztg.*, 82 (1937), 47–53; through *Chimie & Industrie*, 39 (1938), 934. (A. P.-C.)

Silica—Biochemistry of. The author studied the detection, isolation and estimation of silicon in animals and plants and the character of its combination in animals and plants, whether organic or inorganic. His conclusions are: (1) The largest amount of silicon is evidently found in fully developed plants grown on sandy soil. (2) Among the more prominent silicon plants, containing the therapeutically active, soluble silicic acid, are *Equisetum arvense* and *Polygonum aviculare.* (3) Silicon occurs either as silicic acid or inorganic silicates in the seeds of cardamom fruits and in the fibers of *Cocos nucifera*—inasmuch as the silica bodies, there present, are completely soluble in hydrofluoric acid. (4) Silicon occurs as silicic acid or inorganic silicates in *Equisetum hiemale.* (5) Silicon probably occurs in the *Equisetum* epidermis also in an organic combination with the cellulosic material of the cell wall for the following reasons: the epidermal tissue, after prolonged treatment with freshly prepared copper oxide-ammonia solution, in order

to dissolve any adhering cellulose, and washing with water (*a*) was charred upon heating—proving the presence of organic matter; (*b*) became soft when treated with hydrofluoric acid, giving a cellulose reaction with chlorzinciodide; and (*c*) showed considerable resistance to attack of cellulose destroying bacteria. (6) *Daphnia magna* yielded, undried, 0.0875% of silica, present in the mandibles, and probably also in the chitinous shell. The ash yielded 0.982% of silica.—ARNO VIEHOEVER. *Am. J. Pharm.*, 110 (1938), 99. (R. R. F.)

Ultraviolet Microscopy. A description and discussion of the technic of ultraviolet microscopy, of the results it permits of obtaining and of its applications to the study of living organisms and its technical applications.—FRANCIS F. LUCAS. *Chimie & Industrie*, 40 (1938), 19–30. (A. P.-C.)

Vitamin B_1 and Growth of Plants. The vitamin B_1 content of pea plants kept in the dark does not increase while in the light the content of the leaf rises rapidly. Root tips of plant in light likewise contains more vitamin B_1 than those with leaves in the dark indicating the production in leaves and translocation to the growing root tip. If vitamin B_1 is supplied to the roots of plants grown in dark, both shoot and root growth is increased. Addition of the vitamin to slow growing species in the light increased growth; this was not true of fast growing annuals. Vitamin B_1 is found in organic manure as well as in plant debris and soil microflora.—JAMES BONNER and JESSE GREEN. *Bot. Gazette*, 100 (1938), 226–237. (G. W. F.)

Vitamins—Study of, in Plants. A review.—N. N. IVANOV. *Bull. Applied Botany, Genetics Plant Breeding* (U. S. S. R.), Suppl. 84 (1937), 4–20; through *Chem. Abstr.*, 33 (1939), 1008. (F. J. S.)

Yeast Cells—Influence of Oxygen upon the Multiplication of. The author has measured the multiplication, respiration and fermentation during the multiplication in air and in pure oxygen, for baking yeast, wild yeast and a high fermentation type of brewer's yeast. With the bread yeast, the multiplication is inhibited from 20 to 30% in pure oxygen; the respiratory quotient is 1.7 in air and 1.1 in oxygen; the values of the respiration are sensibly equal; fermentation is inhibited in oxygen. A culture of Torula however, multiplied more rapidly in oxygen than in air; respiration, production of carbon dioxide and the respiratory quotient are the same. The high type fermentation brewer's yeast revealed an inhibition of 35% regarding their multiplication when exposed to pure oxygen; the respiration, which is always very little, seemed lightly stimulated in pure oxygen; the production of carbon dioxide was diminished 35% when in oxygen. It seems that oxygen is unfavorable, as each time that the organism studied multiplied, it was affected by a raised respiratory quotient; that is to say when this organism possessed a notable aerobic glycolysis. This aerobic glycolysis is diminished in pure oxygen in a more consequent manner than in air. This is not an application of the general pressure law of Warburg, where respiration diminishes glycolysis.—L. MASSART. *Arch. inter. pharmacodynamie*, 60 (1938), 56. (W. H. H.)

CHEMISTRY

GENERAL AND PHYSICAL

Atom Transmutations and Artificial Radioactivity. The author reviews the progress of transmutations beginning with the time of the alchemist. Natural radioactivity is discussed in conjunction with the properties of the particles emitted and means of visualizing them. Several of the machines for producing high speed particles for the purpose of bombarding elements to produce artificial radioactivity are described and illustrated.—G. HERZOG. *Pharm. Acta. Helv.*, 13 (1938), 106–122. (M. F. W. D.)

Balance—A Glass Vapor Density. The balance is made entirely of Pyrex glass, having a vapor jacket to maintain constant temperature. The beam is of 1 mm. rod and is 17 cm. long, and at one end is the thin closed bulb, with a counterpoise terminating in a pointer on the other end; the bearing is of thin rod, terminating in two sharp points. A telescope with cross-hairs is used for observing the pointer. The device is useful in determining molecular weights, and in following the distillation of mixtures.—J. H. SIMONS. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 587. (E. G. V.)

Biocolloids—Complex Systems of. I. Survey and Classification According to Colloid-Chemical and Electrochemical Points of View. II. Specific Factors of Importance to the Intensity

of the Complex Relations, Their Significance in Particular with Regard to the Formation of the Tricomplex Systems.—H. G. BUNGENBERG DE JONG. *Proc. Acad. Sci. Amsterdam*, 41 (1938), 776–787, 788–799; through *Chem. Abstr.*, 33 (1939), 452. (F. J. S.)

Calcium Bicarbonate—Solubility of. A solution of calcium hydroxide was treated for several hours with carbon dioxide, then it was placed in a collodion bag and immersed in distilled water. Of the 26.8 mg. calcium, calculated as hydroxide, which were placed in the bag, 20.4 mg. were found by titration in the diffusate after an overnight period, 6.2 mg. in the residue. The diffusate examined with a Tyndall beam was optically empty. Evaporation of a portion gave a residue which effervesced upon acidifying with hydrochloric acid. These results are interpreted to confirm the common assumption that a true solution of calcium bicarbonate is formed.—S. S. HUBARD. *J. Phys. Chem.* 42 (1938), 971–972; through *Chem. Abstr.*, 33 (1939), 493. (E. G. V.)

Carbon Dioxide—Absorption of, by Means of Aqueous Solutions of Organic Bases and Salts. The absorption of carbon dioxide from a carbon dioxide-nitrogen mixture (1:4) by 20% solutions of mono-, di- and tri-ethanolamine, the sodium salt of glycine, and the potassium salt of glycine and analine, was determined. Di-ethanolamine solution gave the best absorption. The sodium salt of glycine was only slightly less efficient. The carbon dioxide was removed from the absorbents by heating.—A. GUYER and G. PURNER. *Helv. Chim. Acta.*, 21 (1938), 1337–1345; through *Chem. Abstr.*, 33 (1939), 453. (F. J. S.)

Colloidal Solutions—Stability of. The stability of a colloid can be defined and measured by the osmotic work necessary to separate 1 Gm., or better 6.06×10^{23} micelles, of the colloid from the suspending medium. This work is due primarily to the weight of the micelle and the degree of its ionization. Electrokinetic potential and hydration have no effect or indirect effects.—J. DUCLAUX. *J. chim. phys.*, 35 (1938), 185–188; through *Chem. Abstr.*, 33 (1939), 22. (E. G. V.)

Electrodialysis—Purification of Crystalloids and Colloids by. The simple electrodialytic technic described was suggested by the Adair-Keys method for the determination of total base. The anode and cathode are mercury within cellophane membranes. Crystalloids containing a high percentage of electrolytic impurities can be very efficiently purified within a few hours and the technic can be applied to the purification of colloids as well.—N. R. JOSEPH. *J. Biol. Chem.*, 126 (1938), 403–405; through *Chem. Abstr.*, 33 (1939), 450. (F. J. S.)

Gold Sols—Formation of, in Alkaline Solutions. Experimental quotations show, that, for immediate production of a red gold sol by Zsigmondy's method, the amount of alkali present must be suffieient to convert all the gold into aurate.—L. L. BIRCUMSHAW. *Trans. Faraday Soc.*, 34 (1938), 1230-1233; through *Chem. Abstr.*, 33 (1939), 22. (E. G. V.)

Hydrocarbons—Refraction, Dispersion and Related Properties of Pure. The tables give the following constants for some 500 compounds: boiling point, density, refractive index, dispersion, the refractivity intercept and the specific dispersion.—A. L. WARD and S. S. KURTZ. *Ind. Eng. Chem., Anal. Ed.*, 10 (1938), 559–576. (E. G. V.)

Magnesium Citrate—Dissociation of. The dissociation constant of the magnesium citrate complex was determined both by p_H measurement and by determining magnesium ions. By both procedures an average value of $K = 6 \times 10^{-4}$ was obtained.—R. NORDBO. *Skand. Arch. Physiol.*, 80 (1938), 341–347; through *Chem. Abstr.*, 33 (1939), 454. (E. G. V.)

Physical Methods Used in the Pharmacist's Laboratory. A review of the physical methods and procedures employed by the pharmacist in chemical analysis and testing.—WOLFGANG BRANDRUP. *Pharm. Zentralhalle*, 79 (1938), 329–332. (N L.)

Physical Methods in the Chemical Laboratory. The Measuring of Particle Size and Molecular Weights by Means of the Centrifuge. An extensive treatise covering theory and application. Fifty-two references.—P. v. MUTZENBECHER. *Angew. Chem.*, 51 (1938), 633–640; through *Chem. Abstr.*, 33 (1939), 22. (E. G. V.)

Ultrafiltration and Dialysis—Evolution of Methods and Values for Physico-Chemical Analysis of the Crystalloids in Colloidal Solutions. The author reviews the differential characteristics of dialysis and ultrafiltration, and on the bases of the theory of activity, he examines the meaning and value for a physico-chemical analysis of the crystalloids in colloidal solutions. He points out the value of the analytic measures in regard to the equilibrium and speed of dialysis, to establish the osmotic activity of the single crystalloids in solution, and the inactivating action

exercised by non-dialyzable components and by the dialyzable components of the system.—G. VANZETTI. *Biochim. terap. sper.*, 25 (1938), 297. (A. C. DeD.)

Viscosity—Increase in, in Mineral Oil at Rest. A steel ball, 15 mm. in diameter, was caused to roll with fixed initial velocity along a horizontal groove which was covered with a film of oil about 1 mm. thick. The distance along the groove transversed by the ball before stopping measures the viscosity of the oil. This distance is approximately 25% greater when the oil has been recently placed in the groove than when it has been standing several hours or days. In the latter case several repeated passages of the ball reduce the viscosity to its original value. It is suggested that this is due to the molecules of oil being polarized on standing, but caused by the repeated passages of the ball to take up positions inclined toward the direction of, and so facilitating its movement, whence they take time to recover.—A. MARCELIN. *Compt. rend.*, 207 (1938), 616–618; through *Chem. Abstr.*, 33 (1939), 19. (E. G. V.)

X-ray Diffraction Patterns of Crystalline Sol Rubber Prepared from Ethereal Solution. Included in an earlier publication on the X-ray diffraction patterns of sol, gel and total rubber, obtained from stretched and from frozen specimens, was a pattern of discrete gel rubber crystals which had been formed in an ethereal solution at temperatures between −40° and −50° C. Attempts to obtain a pattern of sol crystals, formed similarly in ethereal solution, failed, in spite of the fact that an examination of them in polarized light indicated a crystalline structure. By using more of the crystalline sol rubber, and a shorter distance from specimen to film in the X-ray technic, a pattern has been obtained, the measurements of which agree with those reported for the crystals mentioned in the previous paper.—G. L. CLARK, S. T. GROSS and W. H. SMITH. *J. Research Nat. Bureau Stand.*, 22 (1939), 105. (F. J. S.)

INORGANIC

Bismuth Carbonate—Some Factors in the Action of Light on. I. Experiments have been performed upon commercial samples of bismuth carbonate which show, in a general way, that the darkening on exposure to light in sugar mixtures follows the purity of the samples; the purer the sample, the greater is the reactivity to light. Impure bismuth carbonates may be obtained which have a greater resistance to light in the sugar test. Investigation on the cause of the light action has been started.—N. GLASS. *Pharm. J.*, 141 (1938), 298. (W. B. B.)

Bromide and Iodide—Determination of Traces of, in Presence of Chloride. The method depends upon oxidation with potassium permanganate and with a potassium nitrite and does not involve a new principle.—S. SACCONI. *Ann. chim. applicata*, 28 (1938), 223–227; through *Chem. Abstr.*, 33 (1939), 501. (E. G. V.)

Calcium Carbonate—Contribution to the History Preparation and Properties of. The formation of deposits of limestone on the earth is traced. There follows a description of the physical properties, crystalline structure and bulkiness of the powder and the factors which control it. The standards of purity, requirements and uses of calcium carbonate are listed. The determination of the specific gravity of the powder, the thickness index and the sources of error are discussed in detail; and the determination of the color, solubility and alkalinity are described briefly.—WALTER MEYER. *Scientia Pharm.*, 9, (1938), 76–80. (M. F. W. D.)

Magnesium Carbonate and Magnesium Oxide—Preparation, Composition, Impurities and Uses of. Magnesium carbonate and oxide are produced in a number of physical grades, varying in bulk density, texture and size of particles. By control of the conditions of precipitation almost any bulk density can be produced from 0.1 to 0.7 apparent specific gravity. In mixing powders of widely differing bulk densities there is a tendency for separation of the powders. This tendency can be avoided by the use of magnesium carbonate of appropiate density. Lime is present as an impurity due to incomplete separation in the manufacturing process of magnesium carbonate. A method is recommended for determining lime present. The impurities in magnesium carbonate are the same as in the carbonate from which it is prepared and are about $2^1/_2$ times as great.—J. S. F. GARD. *Pharm. J.*, 141 (1938), 341. (W. B. B.)

Magnesium—New Method for Determining. It is proposed to dissolve the washed $MgNH_4PO_4.6H_2O$ precipitate in dilute hydrochloric acid and determine the ammonium content of the solution by spot tests on paper impregnated with Nessler solution and comparing the spots with those produced by known quantities of ammonium chloride. No data are given to show the accuracy obtainable.—R. N. COSTEANU. *Bul. Facultăt. Stiinte Cernăuti*, 11 (1937), 132–134, (in French); through *Chem. Abstr.*, 33 (1939), 498. (E. G. V.)

Mercury and Arsenic—Simple Method for Detecting, when Both are Present. The sulfides of Pb^{++}, Cu^{++}, Cd^{++} and Bi^{+++} are separated from mercuric sulfide and arsenious sulfide by heating with nitric acid (sp. gr. 1.2). The solution containing both Hg^{++} and As^{+++} is treated with hydrogen sulfide. The filtered and washed sulfides are dissolved by boiling with aqua regia. A part of the solution is diluted and tested for mercury with stannous chloride and with a copper plate. The remaining solution is evaporated almost to dryness, and the residue dissolved in hot water. To the solution ammonium hydroxide is added, the solution is filtered and magnesium mixture is added to the boiling filtrate to precipitate $MgNH_4AsO_4.6H_2O$.—S. L. ARKHANGELOV. *Lab. Prakt.* (U. S. S. R.), 3 (1937), 17–23; through *Chem. Abstr.*, 33 (1939), 77. (E. G. V.)

Mercury—Determination of Small Amounts of.—N. S. KRUPENIO. *Lab. Prakt.* (U. S. S. R.), 5 (1938), 23–24; through *Chem. Abstr.*, 33 (1939), 498. (E. G. V.)

ORGANIC

Alkaloids

Alkaloids—Identification of, as Picrates. Replacing the usual aqueous solution of picric acid with a glycero-alcoholic solution considerably increases the sensitiveness of the test. A cold saturated solution of picric acid in 96% alcohol, to which has been added 5% of glycerin, is satisfactory. Good results are also obtained with a reagent consisting of a 5% aqueous solution of picric acid, made alkaline with sodium carbonate, reduced hot with dry glucose and filtered.—A. JONESCO-MATIU and E. ILIESCO. *Bull. Soc. Stiinte Farm. Romania*, 1 (1936), No. 4, 40–63; through *Chimie & Industrie*, 39 (1938), 722. (A. P.-C.)

Alkaloids—Potentiometrical Determination of Hydrochlorides of. A wire of electrolytic silver was applied as an electrode. As a reference electrode a saturated calomel electrode was used. The titration was regarded as finished when the galvanometer showed no current in the circuit.—J. SHAFERSHTEIN and M. BELGOVA. *Trans. Ukrainian Inst. Exp. Pharm.*, 1 (1938), 122. (C. J.)

Alkaloids and Other Organic Drugs—Extraction of, from Viscera. The author defends the use of alcohol for extraction and of lead salts for the purification of alkaloidal residues. The author uses an acid (acetic) solution of lead acetate for the purification of alkaloidal extracts and a basic solution of lead acetate for extracts containing barbiturates. Excess of lead is best removed from the filtrates with hydrogen sulfide but may be removed successfully with sulfuric acid if the solution is made just acid to Congo red paper. Efficient mincing of viscera is important. Good recovery of atropine and cocaine is possible even if the viscera is badly decomposed. These alkaloids are more resistant to hydrolysis than is generally supposed.—F. BAMFORD, *Analyst*, 63 (1938), 645. (G. L. W.)

Aricine—Activity of. The author presents a note of R. Hamet who has studied aricine, an alkaloid discovered by Pelletier and Coriol, in 1829, in certain barks of cinchona and which has not since been the object of systematic research; aricine has a feeble hypotensive action, but it acts as a major sympathicolytic by its inversion of the hypertensive effect of adrenaline. The known major sympathicolytics belong therefore not only to the alkaloids of ergot and to the vegetable bases which by reason of certain color reactions have been grouped around yohimbine, but also to aricine, an alkaloid which appears to be apparent to quinine.—LOEPER. *Presse Medicale* No. 66 (1938), 1256. (W H. H.)

Atropa Belladonna—Microdetermination of the Alkaloids of, in Drugs and Galenicals. The micromethod consists of the following; the powdered raw material is moistened with diluted sulfuric acid and the resinous, dye stuffs, sterins, etc. are extracted with ether. After a further alkalinization of the material, the pure alkaloids are extracted with ether. The micromethods of determining alkaloids in galenicals of the drug have been worked out separately for each form.—M. TROPP. *Trans. Ukrainian Inst. Exp. Pharm.*, 1 (1938), 135. (C. J.)

Cinchona Alkaloids—Action of Resorcinol on the Dihydrochlorides of. When the dihydrochlorides of quinine, quinidine, cinchonine and cinchonidine dissolved in water are mixed with an equimolecular portion of resorcinol, a molecular combination is formed which is the case of quinine and cinchonidine crystallizes with one molecule of water. The mixture is heated on a water bath until complete solution is effected and the pale yellow solution is filtered and set aside

to crystallize. It is purified by recrystallization from water and is air-dried. Quinidine forms long colorless prisms and the remainder form long colorless needles. They are neither hygroscopic nor efflorescent and are very soluble in water and alcohol and insoluble in chloroform, ether and benzene. The aqueous solutions are not fluorescent. On the addition of dilute sulfuric acid the solutions of quinine and quinidine show a blue fluorescence and also respond positive to the thalleioquin reaction. The salts of quinine and quinidine are not affected by air or light but those of cinchonine and cinchonidine are progressively colored a light brown. The following weight of these salts is contained in 100 Gm. of saturated aqueous solution at 15° C.: quinine, 20.5 Gm.; quinidine, 56.7 Gm.; cinchonine, 72.7 Gm.; cinchonidine, 31.2 Gm.—MAX ROSSIGNOL and ANDRE RIBOULLEAU. *Compt. rend.*, 207 (1938), 495. (G. W. H.)

Cinchona Bark—Improved Method for the Determination of Total Alkaloids in. Conditions governing the total extraction by alcohol of the alkaloids from cinchona bark have been investigated, and it has been established that the rate of extraction is greatly augmented by first percolating with alcohol containg alkali, and then continuing with alcohol containing acid, or *vice versa*. A device has been designed to supplement the ordinary apparatus for continued extraction whereby acidified alcohol can be added by means of a controlled capillary to powdered cinchona bark which is undergoing extraction by alcohol in the presence of alkali. A method of assay for the total alkaloids in cinchona bark is described which is based upon the above principle, and is much more expeditious than the method of the B. P. 1932, and, moreover, is capable of yielding an alkaloidal residue of equal, or greater, purity.—N. L. ALLPORT and D. FRIEND. *Pharm. J.*, 141 (1938), 273. (W. B. B.)

Colchicine—Experimental Study of Action of, upon Certain Phases of Cellular Development. The author reports, from the series of experiments of Dustin, that cochicine may act on different organisms. This substance not only produced modification of yeast but determined the acceleration in the development of frog eggs, alteration without multiplication of the generatrix of vegetable roots, and epithelial lesions without a tendency to cause proliferation of tadpoles.—C. M. LAUR. *Presse Medicale*, No. 73 (1938), 1348. (W. H. H.)

Ephedrine and Ma Huang. Ephedra, or its chief alkaloid, ephedrine, is perhaps with one exception now in greater demand than any other alkaloid. It is the first adrenaline-like drug to be effective when given by mouth. Although ephedrine cannot entirely replace adrenaline, because each drug has its own field; yet in the majority of cases ephedrine can and does replace adrenaline with all-round advantages. The botany and pharmacology of ephedrine and its clinical uses are described. Reference is also made to the synthetic ephedrine products which attracted considerable interest when supplies of the natural product were difficult to obtain. Illustrations are given of the various ephedrine products made available for the medical profession and public. Many of these preparations are ethical products and are, of course, sold only on prescription. The commercial side of ephedrine is also described. The subject is completed by some interesting pictures from Professor Small, who himself investigated certain species of ephedra a number of years ago.—K. K. CHEN. *Chemist and Druggist*, 129 (1938), 585. (A. C. DeD.)

Ephedrine and Pseudoephedrine—Volatility of. The following conclusions are given: (1) Ephedrine is very volatile at 100°; in 4–5 hours samples of natural and synthetic ephedrine weighing up to 0.44 Gm. volatilized completely, with a 10% loss in 10 minutes. The procedure for determining ephedrine in ephedrine hydrochloride given in the French Codex 1937 is erroneous. The alkaloid should be dried to constant weight in a desiccator (calcium chloride preferably) instead of in an oven at 100°. (2) Pseudoephedrine and mixtures of ephedrine and pseudoephedrine are also very volatile at 100°. (3) Ephedrine and pseudoephedrine are very much less volatile at 60° than at 100°; still less at 30° and the volatility is practically negligible at lower temperatures.—R. MONNET and P. DURAND. *J. pharm. chim.*, 28 (1938), 145–151. (S. W. G.)

Ergot—New Method of Quantitative Determination of, in Meal. The colorimetric method is based on the following reaction: the solution of paradimethylamidobenzaldehyde in the sulfuric acid (with traces of ferric chloride) gives a blue color with extracts of ergot alkaloids from the meal. The intensity of color is proportional to the amount of alkaloids.—A. ROSENFELD and M. TROPP. *Trans. Ukrainian Inst. Exp. Pharm.*, 1 (1938), 79. (C. J.)

Heroin—Quantitative Determination of, in Mixtures of Heroin Hydrochloride and Procaine. This method makes use of the fact that when procaine is hydrolyzed in acid solution para-aminobenzoic acid is not extracted from an ammoniacal solution to any extent by chloroform

containing 10% of alcohol. Diethyl amino ethanol is insoluble in lime water, whereas morphine, resulting from the hydrolysis of heroin, is extracted from an ammoniacal solution by chloroform containing 10 per cent of alcohol. Morphine is soluble in lime water. The presence of sugar of milk, sucrose and quinine do not alter the final results.—CHARLES R. MILOS. *Am. J. Pharm.*, 110 (1938), 362. (R. R. F.)

Ipecacuanha—Microchemical Determination of Alkaloids of. A microchemical quantitative and qualitative method of determining alkaloids in the roots and galenicals of ipecacuanha has been worked out. For the qualitative determination, the reaction of Frede is used. For the quantitative determination magnesium oxide, tragacanth and a mixture of ether and chloroform are used. This enables one to carry out the determination on 0.1 Gm. of the powdered root.—E. BINOVA and R. RAIGORODSKAYA. *Trans. Ukrainian Inst. Exp. Pharm.*, 1 (1938) 151. (C. J.)

Lobelia—Chemical Estimation of. The method consists of the extraction of alkaloids with ether in an ammoniacal medium, converting them into the hydrochloric salts, an alkalification of hydrochloric solutions with ammonia, an extraction of bases with ether and an acidometric determination of alkaloids after the removal of the ether.—M. TROPP and E. SKLJUTOVSKAYA. *Trans. Ukrainian Inst. Exp. Pharm.*, 1 (1938), 74. (C. J.)

Nicotine—Process for Extracting, from Tobacco. The tobacco is treated with an alkaline reacting substance such as liquid anhydrous ammonia or aqueous solutions of alkalies or ethanolamines. The liberated nicotine is then extracted with a liquefied, normally gaseous hydrocarbon such as butane.—JAMES B. GARNER, assignor to HOPE NATURAL GAS CO. U. S. pat. 2,128,043, Aug. 23, 1938. (A. P.-C.)

Quinine Azorubrate. Quinine hydroxide 3.78 Gm. was dissolved in water with equivalent of hydrochloric acid. 2.31 Gm. of azorubrum was dissolved in water and the solution mixed. The precipitate was collected on a filter and mixed with cold water. The filtrate appeared to be colorless. When dried, the compound weighed 3.712 Gm. and it was of red color not nearly so dark as the corresponding strychnine salt. By precipitation with sodium hydroxide, 0.82 Gm. alkaloid was recovered from filtrate. (1) 0.5 Gm. was heated with an excess of sodium hydroxide and water and was extracted with benzene. This solution was in turn extracted with water and hydrochloric acid. The acid solutions were then rendered alkaline with sodium hydroxide and the alkaloid extracted with carbon tetrachloride. On evaporation this yielded 0.285 Gm. of alkaloid (57.0%). (2) 1 Gm. with 3 Gm. sodium carbonate and 25 cc. water heated to near boiling for half an hour and left for three days, shows no sign of gelatinizing, like the strychnine compound. When filtered, well-washed and dried, the precipitate weighed 0.576 Gm. (57.0 %). The calculated percentage for the di-quinine salt is 58.69% of anhydrous alkaloid. In none of the experiments tried was the quinine obtained free from the red coloring matter. The compound is very slightly soluble in water.—D. B. DOTT. *Chemist and Druggist*, 130 (1939), 401. (A. C. DeD.)

Strychnine—Action of, on Bordeaux B. A description of a compound of strychnine with α-naphthalene-azo-β-naphthol-3:6-disulfonic acid (the acid of Bordeaux B), in which strychnine replaces the two sodium atoms of the dye.—D. B. DOTT. *Pharm. J.*, 141 (1938), 261. (W. B. B.)

Strychnine Azorubrate. Azorubrum is given by the B. P. Codex as Latin equivalent of Bordeaux B. It is assumed that the word may be given in English as sodium azorubrate. When equivalent quantities of strychnine hydrochloride and azorubrum are separately dissolved in water and the solutions mixed, the strychnine compound is precipitated. On filtering, the filtrate is strongly red colored and yields a precipitate of strychnine on addition of sodium hydroxide. The precipitate is very sparingly soluble in water, about 1 in 1000. (1) 6.1 Gm. strychnine hydrochloride and 3.76 Gm. azorubrum were dissolved and the solutions mixed. After several hours the precipitate was filtered and washed, then dried at about 103°. The strychnine recovered from the filtrate and washing weighed 1.69 Gm. One gram of the dried salt was stirred with excess of ammonia solution and extracted in a separator with chloroform which was evaporated. The residue weighed 0.528 Gm. and it was crystalline red in color. (2) 0.592 Gm. of the compound was treated with water and sodium hydroxide at about 60°, cooled and filtered through a tared filter. After washing and drying, the precipitate weighed 0.354 Gm. Of this precipitate, 0.303 Gm. was dissolved in acid and water, it was transferred to a separator, an excess of sodium

hydroxide was added and the strychnine extracted by four treatments with benzene, which solution was exhausted by successive treatments of water containing sulfuric acid. This acid solution was mixed with an excess of soda and extracted with chloroform. The purified strychnine obtained from the chloroform solution weighed 0.246 Gm. From the alkaline filtrate and washings of the strychnine precipitate, 0.016 Gm. strychnine was recovered. These results show 52.06% strychnine in the azorubrate. (3) 0.788 Gm. of the compound was mixed with 4 Gm. sodium carbonate crystals and about 30 cc. water, it was warmed at 60° for over an hour, and was left for five days, when it gelatinized into a stiff jelly. Water was added, and the whole gently warmed. On cooling, the solution again gelatinized. The solution was then well diluted and filtered through a tared filter, and the precipitate washed. The dried precipitate weighed 0.438 Gm. Of this, 0.177 Gm. purified by the benzene treatment gave 0.167 Gm., indicating 52.31% strychnine in the azorubrate.—D. B. DOTT. *Chemist and Druggist*, 130 (1939), 401. (A. C. DeD.)

Ungernia Tadshicorum Vved.—Alkaloids of. Alkaline extraction of dry bulbs of *Ungernia tadshicorum* Vved. (family *Amaryllidaceæ*), growing in Tajikistan (Central Asia), gave 0.31% of alkaloids, of which 90% is a crystalline base, $C_{18}H_{17}NO_4$, melting at 265–266° (decomposition), $[\alpha]_D^{14}$ −119.9° (alcohol), insoluble in water, slightly soluble in hot alcohol and C_5H_5N, poorly soluble in most organic solvents and easily soluble in dilute acids (hydrochloric acid and sulfuric acid). It gives the following salts: hydrogen chloride, $PtCl_4$, picrate, mercuric chloride and perchlorate, decomposing 213°, 210–211°, 195–197° and 229–230°, respectively. It gives Gaebel's test for one methoxy group. It is identical with lycorine isolated from *Lycoris radiata* Herb. by Morishima (*Arch. exptl. Path. Pharmakol.*, 40 (1897), 221). The nature of other bases is being investigated.—N. K. YURASHEVSKII. *J. Gen. Chem.* (U. S. S. R.), 8 (1938), 949–952; through *Chem. Abstr.*, 33 (1939), 1089. (F. J. S.)

Viscera—Toxicological Analysis of, an Investigation into the Methods of. A modified method of extraction of alkaloids from viscera is described which is suitable for any alkaloid. Good yields can be obtained and the amount of contaminating adventitious material is small. The method is as follows: (1) Freeze the tissue over night in the ice compartment of a refrigerator. (2) Mince 400 Gm., or other suitable quantity, into a tared casserole while the material is still frozen. (3) Add 50 cc. of water and 10 cc. of glacial acetic acid and warm, with stirring, to about 50° C. (4) Add sufficient ammonium sulfate (200–300 Gm.) to leave a small amount undissolved and warm, with stirring, to about 65° C.; the protein will then have coagulated and the thick gruel will have become quite fluid. (5) Filter on a large Büchner funnel and wash with about 100 cc. of warm water (65° to 70° C.). (6) Return the residue to the casserole, macerate at about 65° to 70° C. with approximately 200 cc. of water containing 1% of acetic acid until the mixture has been stirred into a thin gruel free from lumps and filter. (7) Repeat the maceration of the residue with hot acidulated water until approximately 1.5 liter of total filtrate has been obtained. (8) Transfer this filtrate to a 2-liter separating funnel and render alkaline with ammonia. Extract five times with 100-cc. portions of chloroform and filter the chloroform extracts. (9) Unite the filtered chloroform extracts and extract successively with 25-, 15- and 10-cc. portions of $3/N$ sulfuric acid, followed by 25 cc. of water, and filter the aqueous extracts in turn through a small filter. (10) Render the united aqueous liquors alkaline with ammonia, extract with five 20-cc. portions of chloroform, and filter into a small carbon dioxide flask. (11) Evaporate the colorless extract to dryness in the flask and weigh. (12) Dissolve the contents in a little dilute acid and filter the solution through a small paper. Wash the flask and paper well with dilute acid (if necessary, the washings can be left separate from the main bulk of concentrated alkaloid solution). (13) Return any small amount of insoluble matter on the filter to the flask by dissolving it in acetone and then in chloroform. Dry and re-weigh the flask, the difference from the previous weight representing the weight of pure alkaloid. This general method serves for all alkaloids except morphine. For that alkaloid, 200 cc. of alcohol are added after (7) above and is extracted with chloroform and alcohol.—C. G. DAUBNEY and L. C. NICKOLLS. *Analyst*, 63 (1938), 560. (G. L. W.)

Essential Oils and Related Products

Caraway—Oil of. The author gives an account of the formation of caraway oil in the plant. The oil appears to be formed in the plant a considerable time before the harvest, and the carvone content does not undergo any substantial alteration. The oil distilled from the flowerine

plant contains about 25% of limonene. As the fruits form, and are in the green stage, the limonene diminishes and the carvone increases. Cadinene is also present, but is only found in the oil distilled from the stems, not in the fruit oil. Carvones are produced in the plant from limonene, with the probable intermediate formation of carveol. The fact that dihydrocarveol and dihydrocarvone are present in caraway oil indicates that reduction as well as oxidation takes place in the life processess of the plant. The author states that a crystalline open chain hydrocarbon is present in caraway oil. It is interesting to note that exactly the reverse is happening in caraway plants of that which happens in orange plants. The composition of orange flower oil is well known, and some years ago Parry showed that in the oil of the unmature fruits, the terpenes had much increased and the oxygenated constituents much diminished.—SANDERMANN. *J. prakt. Chemie*, 151 (1939), 160; through *Chemist and Druggist*, 130 (1939), 215. (A. C. DeD.)

Dill—Oil of. A discussion of the cultivation, distillation and chemical composition of oil of dill seed (*Anethum graveolus* L.). Hungarian dill seeds yield about 2.38–3.50% of oil. Physical properties were found to be: specific gravity at 15° C. 0.940, optical rotation + 58°30′, refractive index at 20° C. 1.4919, carvone content 68%, soluble in 4 volumes of 70% alcohol. The principal constituents are carvone (40–60%), *d*-limonene, phellandrene and paraffins. Dillapiol was not present in German oils. Oil of dill herb is described in a similar manner. The yield is 0.29–1.5%. Properties of Hungarian dill herb oil were found to be: specific gravity at 15° C. 0.878–0.908, optical rotation +81°10′ to +101°4′ refractive index at 20° C. 1.4800–1.4855, carvone content 25.6–42.0%, soluble in 80% alcohol from clear to cloudy solution. American dill herb oil had the following characteristics: specific gravity at 15° C. 0.876–0.908, optical rotation +90°12′ to +8°50′, refractive index at 20° C. 1.4771–1.4830, carvone content 8–27.1%, mostly hazy, if not turbid in 10 volumes of 80% alcohol. Oil of dill herb varies with maturity of the plant and conditions of the herb. Drying of the herb increases the carvone content. The oil contains *d*-α-phellandrene, terpinine, limonene or dipentene, carvone, dillapiol, isomyristicine and myristicine. This oil is used for flavoring pickles; its application for this use is described in detail.—E. GUENTHER. *Am. Perfumer*, 36 (1938), 48–50, 72. (G. W. F.)

Essential oils—Hungarian. A discussion of cultivation, distillation and physical and chemical properties of numerous essential oils: fennel (I), tansy (II), parsley leaves (III), hyssop (IV), cognac (V) and wormwood (VI). Physical properties reported were: specific gravity at 15°–I, 0.9718; II, 0.9208–0.9409; III, 0.965–0.987; IV, 0.940; V, 0.879; VI, 0.8874. Optical rotation—I, + 16° 36′; II, −6° 27′ to −5°70′; III, −1°46′ to 2°47′; IV −18°14′. Refractive index at 20°—I, 1.5301 (25°); II, 1.4547–1.4588; III, 1.5210–1.5250; IV, 1.4318; V, 1.4786. Solubility—I, 7 volumes 80% alcohol; II, 70% alcohol; III, 3.5 volumes of 90% alcohol; IV, 1 volume 80% alcohol; VI 90% alcohol.—E. GUENTHER. *Am. Perfumer*, 37 (1938), No. 1, 42–43. (G. W. F.)

Essential Oils—Testing of, by Ultraviolet Light. The examination of essential oils by chemical and the usual physical methods, such as specific gravity, solubility, refractive index and optical rotation, is often insufficient to prove conclusively the purity of these oils or to detect adulteration. The authors have tested various oils in the pure state and with likely adulterants by ultraviolet light, and have given a series of curves from which the impurity present can be calculated. The oils tested were aniseed, orange, bergamot, cajuput, caraway, clove, chenopodium, cinnamon, lemon, neroli, fennel, mace, lavender, peppermint, turpentine and thyme. The technic of testing is fully described.—D. VAN OS and K. DYKSTRA. *Pharm. Chim. Paris.* 25 (1937), 437–454 and 485–501; through *Perfumery Essent. Oil Record*, 30 (1939), 66. (A. C. DeD.)

Eucalyptus Rostrata—Volatile Oil of, Investigation of. The author reports that the following constituents were isolated from the leaves of *Eucalyptus rostrata* by fractional distillation: cineol, limonene, isoamyl alcohol, linalool, geranial, isovaleric aldehyde, cuminaldehyde, phellandral, cryptal, piperiton and eudesmol. Esters of acetic, formic, butyric and other acids were also found.—A. GANDINI. *Ann. chim. applicata*, 26 (1936), 344–351; through *Seifensieder-Zeitung*, 64; *Der Parfümeur*, 11 (1937), 598. (N. L.)

Longoza Oil. The essential oil of *Hedychium flavosum*, produced at Nossi-Be and known as longoza oil, is a concrete mass melting at 30–32° or completely at 37°. By distillation, 22% of a pale yellow oil was obtained having the following characters: specific gravity at 15° 0.9153; optical rotation −7°20′; ester number 54.6; ester number after formylation 188; phenols 20%; methoxyl value 3.05%. The fraction of the oil which was most highly odorous had a

specific gravity 0.9666; optical rotation −10°40′; refractive index 1.5002 at 20°, and acidity 11.2.—ANON. *Rivista Italiana delle Essenze*, (1938), 350; through *Chemist and Druggist*, 129 (1938), 716. (A. C. DeD.)

Magnolia. Magnolia flowers treated immediately after cutting with low-boiling petroleum ether yielded 0.12 to 0.163% of greenish yellow, fairly brittle concrete, with acid number 28, ester number 84, melting point (Pohl) 58° to 60° C. Steam distillation of two samples of concrete produced in June and July yielded 9.57 and 10.1%, respectively, of semi-solid, light greenish yellow essential oil having the following characteristics: specific gravity at 15° C. 0.900, 0.903; optical rotation at 20° C. (25% solution in benzene) 0°50′, 4°36′; refractive index at 20° C.—, 1.5143; acid number 11.84, 9.33; ester number 11.2, 13.07; bromine in chloroform (Sabetay's test) gives no coloration. From the first sample there was extracted an insoluble, semicrystalline fraction, with melting point 42° to 44° C., which may possibly be a paraffin in C_{22}. Both the concrete and essential oil are as yet only laboratory curiosities.—GEORGES IGOLEN. *Rev. Marques Parfums de France*, 16 (1938), 31–33. (A. P.-C.)

Neroli Industry in Tunis. The production of neroli in Tunis on a commercial scale with its subsidiary product, orange flower water is steadily increasing. Limited quantities of oil of petitgrain and dried orange peel are also being produced. The production of oil of petitgrain from the leaves of bitter orange trees depends largely on the quantity of foliage brought in the distillery by the small native growers. Another secondary product of the industry is dried orange peel. All the neroli produced is sold in England.—ANON. *Chemist and Druggist*, 128 (1938), 765. (A. C. DeD.)

Oil of Orange Leaf Water. Oil extracted from the aqueous distillate from the distillation of orange tree sprouts had the following characteristics: specific gravity at 15° C. 0.8988, optical rotation could not be read, refractive index at 20° C. 1.4682, soluble in 2.6 volumes of 60% alcohol with slight turbidity on dilution, acid value 1.12, ester value 4.9, ester value after formylation 286.3. These constants, determined on oil obtained in the course of large-scale commercial operations, differ considerably from those generally given for oil or orange flower water.—ETABLISSEMENTS ANTOINE CHIRIS. *Parfums de France*, 16 (1938), 167. (A. P.-C.)

Peppermint Oil—Synthetic. Manufacturing process is described in which synthetic menthol is mixed with synthetic menthone, menthyl acetate and isovalerianate, and the natural by-products of peppermint and eucalyptus oil purification.—ANON. *Perfumery Essent. Oil Record*, 29 (1938), 381. (A. C. DeD.)

Ylang Ylang Oil—Distillation of. A discussion of methods of distillation with yields and quality product. Illustrations of direct and indirect stills are included—E. GUENTHER. *Am. Perfumer*, 37 (1938), No. 4, 44–46. (G. W. F.)

Glycosides, Ferments and Carbohydrates

Amylases—Wheat, Action of, on Soluble Starch. Normal wheat contains primarily β-amylase. α-Amylase (2) prepared from germinated wheat by heat treatment of the extract followed by alcoholic precipitation was a very active and quite pure dextrinizing amylase while the α-amylase (1) prepared by direct alcoholic precipitation appeared to be a mixture and acted much like commercial malt diastase. Hydrolysis of soluble starch by the β-amylase preparations was about 60%, by α-amylase 2 about 40% and by α-amylase 1 and malt diastase about 85%, as determined by the reducing power in terms of available maltose. α- and β-amylase apparently attack the same portion of the starch molecule. With a yeast-manometric method and soluble starch as substrate it was apparent that the pure α-amylase 2 produced mainly non-fermentable reducing dextrins together with some fermentable reducing sugars. The other enzyme preparations produced fermentable reducing sugars equivalent to the reducing value.—O. E. STAMBERG and C. H. BAILEY. *J. Biol. Chem.*, 126 (1938), 479–488; through *Chem. Abstr.*, 33 (1939), 1001. (F. J. S.)

Amyloid—Chemical Nature of. Amyloid gives a true metachromasia with toluidine blue because the amyloid contains sulfuric acid esters of high molecular weight perhaps chondroitinsulfuric acid.—G. A. JOHANSSON and F. WAHLGREN. *Acta Path. Microbiol. Scand.*, 15 (1938), 358–361; through *Chem. Abstr.*, 33 (1939), 1002. (F. J. S.)

Carbohydrate—Influence of, on Protein Metabolism. A lecture.—D. P. CUTHBERTSON. *Chemistry and Industry*, 57 (1938), 815–818. (E. G. V.)

Cellulose Derivatives—Chemistry of. The derivatives of cellulose may be classified broadly as esters and ethers, although other classifications based on degree of substitution and solubility characteristics are possible. The chemical and physical characteristics of substituted celluloses are determined largely by the nature of the substituent groups, the degree of substitution and the extent to which the cellulose is degraded, although other factors such as uniformity and impurities are also important.—R. F. CONAWAY. *Ind. Eng. Chem.*, 30 (1938), 516–523. (E. G. V.)

Cocarboxylase—Synthesis, Isolation and Identification of. The synthesis of cocarboxylase is given. Through its mild acid hydrolysis, its cleavage products and its coenzyme activity, it is shown to be identical with the natural cocarboxylase, the pyrophosphoric acid ester of thiamin.—JOHN WEIJLARD and HENRY TAUBER. *J. Am. Chem. Soc., 60,* (1938), 2263. (E. B. S.)

Digitalis—Digitoxin Contents of Various Species of. The determination of digitoxin by the colorimetric method of Knudson and Dresbach (cf. *C. A.*, 16, 3711) in several varieties of digitalis gave: *Digitalis lutea* L. 0.5, *Digitalis lanata* 1.2–1.3, *Digitalis ferruginea* 2 (calculated on the basis: digitoxin content of *Digitalis purpurea* = 1).—A. ZANOTTI. *Fitoterapia*, 14 (1938), 95–97; through *Chem. Abstr.*, 33 (1939), 1089. (F. J. S.)

Enzyme Activity in Frozen Vegetables. The activity of catalase, phenolase, ascorbic acid oxidase and peroxidase enzymes of artichoke hearts was studied in relation to their discoloration in air. The time necessary for the complete destruction of catalase and ascorbic acid oxidase was closely related to that necessary to prevent discoloration. The phenolase and peroxidase activity was easily destroyed by heating although there is some evidence that the peroxidase activity cannot be accurately measured by the method used. The acetaldehyde content is closely related to catalase activity. Attention is called to the very high tannin content of the artichoke and to the presence of leucoanthocyanins. Because of these factors the enzyme-substrate system in the artichokes is quite complex and similates that of fruit rather than that of other vegetables. This is understandable because botanically the globe artichoke (*Cynara scolymus*) is a flower or bud.—M. A. JOSLYN, C. L. BEDFORD, and G. L. MARSH. *Ind. Eng. Chem.*, 30 (1938), 1068–1073. (E. G. V.)

Fruit Sugars. The origin of fruit sugars has a place in the various processes of reduction, oxidation, salifying of organic acids and chlorophyll photosynthesis. The temperature necessary should be about 300° C.—U. ZANINI. *Farm. ital.*, 5 (1937), 524. (A. C. DeD.)

Fusaria—Demonstration of Pentose Oxidase and Catalase in. Fusaria contain enzymic systems which effect true alcoholic fermentation of hexoses similar to that of living yeast. They also contain a very strong catalase which is reversibly inhibited by hydrogen cyanide.—A. HAYASIDA. *Biochem. Z.*, 298 (1938), 169–178; through *Chem. Abstr.*, 33 (1939), 199. (F. J. S.)

Glucose and Levulose—Determination of. The determination of reducing sugars is usually carried out in alkaline solution, but the results are not altogether satisfactory owing to the action of the alkali on the sugar. Glucose may now be determined in the presence of levulose by oxidation with iodine in weak alkaline solution, while levulose is a ketose and may be oxidized in acid solution to glycollic acid and erythritic acid. Two new methods of assay are based on this reaction. *Polarimetric Method:* Forty cc. of the sugar solution (about 3%) is treated with 30 cc. of sulfuric acid (50% by weight) and a quantity of hydrogen peroxide (30%) equal to about 2.2 times the amount of levulose present. The mixture is heated to 69–70 ° for exactly two hours, cooled and made up to 100 cc. The rotation of the solution is taken before and after the oxidation which destroys the levulose but does not affect the glucose. For a 2% solution and using a 200 mm. polarimeter tube, 1° of dextro-rotation corresponds to 0.95 Gm. of glucose, and 1° of levo-rotation to 0.54 Gm. of levulose. *Volumetric Method:* Ten cc. of a sugar solution, containing not more than 1% of levulose, is treated with 80 cc. of water, 20 cc. of hydrochloric acid (d. 1.125) and 20 cc. of ferric chloride solution (2.6 Gm. of anhydrous ferric chloride and 20 Gm. of hydrochloric acid of density 1.125 in 100 Gm. of water). The air above the liquid is replaced by carbon dioxide, and the acidity reduced by the addition of 4 Gm. of anhydrous sodium carbonate. Twenty cc. of a 10% solution of potassium iodide is added, and the mixture is allowed to stand for twenty minutes, being then titrated with $N/10$ thiosulfate. A blank titration is carried out under the same conditions. One cc. of thiosulfate corresponds to 4.5 mg. of levulose. The presence of glucose, lactose or dextrin, except in large quantities, does not interfere with the determination,

for which a limit of error of ±1% is given.—F. LUCIUS. *Z. Untersuch. Lebensm.*, 74 (1937), 113; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 272. (S. W. G.)

K-Strophanthin-β—Manufacture of. An enzyme preparation containing α-glucosidase is made to act upon glucosides from *Strophanthus kombé* containing more than one molecule of glucose, and the *K*-strophanthin-β is separated by means of chloroform alcohol.—JANY RENZ, assignor to CHEMICAL WORKS formerly SANDOZ. U. S. pat. 2,129,285, Sept. 6, 1938. (A. P.-C.)

Papain—Enzymic Activity. The authors report that the accepted definition of enzymic activity of natural papain requires correction. They find that the fresh latex from fruits of *Carica papaya* split both gelatin and Witte's peptone, whereas the usual view is that such hydrolytic power is only acquired by treatment with certain "activators" such as hydrogen cyanide. From the ether-soluble part of the latex, a solid fraction was obtained which shows full activity toward peptone (*i. e.*, hydrogen cyanide does not enhance its action). Ether extracted latex yields on centrifuging two fractions: (1) a supernatant fluid showing the hydrolytic properties of the sap; and (2) the centrifugate presenting the enzymic features attributed to papain (splitting of gelatin and no action on Witte's peptone). On boiling, the supernatant liquid loses its hydrolytic properties, but it can still serve as a specific activator of peptone cleavage.—M. FRANKEL, R. MAIMIM and B. SHAPIRO. *Nature*, 3510, p. 249; through *Chemist and Druggist*, 128 (1938), 180. (A. C. DeD.)

Papain Product and Method of Preparing Same. A dry substance having a natural content of amygdalin and emulsin (such as dry yeast and defatted cocoa powder) is added to dry commercial papain to produce a dry papain preparation capable of being activated by moisture.—ALFRED KLOTZ. U. S. pat. 2,130,137, Sept. 13, 1938. (A. P.-C.)

Peroxidase Reaction—Short-Timed New Technic of. The normal shortest peroxidase stain time of the Tôhoku Pediatric Method is 4 seconds and a prolongation of the time is a symptom of B-avitaminosis. The short-timed peroxidase reaction can be shown more precisely by the Tôhoku Pediatric Method than by the original method, because a prolongation of the shortest peroxidase stain time is exaggerated in the former method.—T. SUZUKI and S. SHIRAISHI. *Tôhoku J. Exp. Med.*, 34 (1938), 24. (A. C. DeD.)

Reducing Sugars—Determination of, and of Dextrose and Levulose in Cane Molasses. The reducing effect of dextrose only, and of levulose only, in the presence of sucrose, on Fehling solution has been determined for the method of Munson and Walker, and the results are given in the form of a table. By combining this method for the determination of total reducing sugars with that of Jackson and Matthews for the determination of apparent levulose, the dextrose and the levulose can be calculated from the two equations. Check analyses gave satisfactory results.—C. ERB and F. W. ZERBEN. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 246–250. (E. G. V.)

Ouabain and Strophanthin—Detection and Estimation of. I. Reactions Due to the Sterol Structure. The color reactions of the glycosides with concentrated sulfuric acid take place equally well on adding the acid to an acetic anhydride solution of the glycoside. Strophanthin and ouabain give color reactions when an acetic acid solution of the glycoside is heated with zinc chloride and acetyl chloride. **II. Reactions Due to the Carbohydrate.** Strophanthin gives color reactions with a hydrochloric acid solution of phenol or resorcinol; ouabain does not. A new test developed is as follows: Add 0.3 cc. of a freshly prepared solution of naphthoresorcinol in concentrated hydrochloric acid to the substance in a test-tube and heat the tube in a water bath at 50° C. for 10 minutes. Ouabain gives no color at first; after heating, it gives a pink color or precipitate. Strophanthin-*k* gives an immediate yellow color turning to green; strophanthin-*e* gives an immediate yellow color turning to red. Dilute this solution to 1 cc. and add 0.3 cc. of amyl alcohol, after shaking a pronounced greenish fluorescence in the amyl alcohol layer indicates ouabain. Add 0.3 cc. of a mixture of equal volumes of acetone and hydrochloric acid to 1 cc. of the solution to be tested and heat in a boiling water bath for 10 minutes. Remove, add a few drops of acetone and a few drops of chloroform, shake and allow to separate. A red color in the upper acid layer indicates a methyl pentose which is characteristic of ouabain. **III. Reactions of the Lactone Ring.** (*a*) Dissolve the glycoside in 0.5 cc. of 50% alcohol, add 0.25 cc. of a 1% solution of *m*-dinitrobenzene in absolute alcohol and place in an ice bath for a short time. Add 0.1 cc. of 20% sodium hydroxide solution. An indigo blue color indicates ouabain, strophanthin or related compound. (*b*) Dissolve the glycoside in 2 cc. of 50% alcohol. Add

0.2 cc. of a freshly prepared solution of *o*-nitrobenzaldehyde in 50% alcohol and 0.5 cc. of 20% solution of sodium hydroxide. Mix and allow to stand in a dark place for 15 minutes. The resultant red color may be matched in a micro colorimeter against a standard solution of ouabain. **IV. Hepta-Acetylanhydro-Ouabain.** The method of preparation and microchemical characteristics of this compound are described. It melts sharply at 283–284° C.—W. D. RAYMOND. *Analyst*, 63 (1938), 478. (G. L. W.)

Other Plant Principles

Cassia Fistula—Active Constituent of. A yellowish substance was extracted from the pulp, which turned red with alkalies. Microsublimation failed to reveal the presence of hydroxymethylanthraquinone.—P. LIPTAK and I. SZENTGALI. *Magyar Gyógyszerészy. Tars. Ert.*, 13 (1937), 271–274; through *Chimie & Industrie*, 39 (1938), 1152. (A. P.-C.)

Curarin from Calabash Curare. Methanol extracts about 35 to 45% of the crude curare and water extracts an additional 25%. The methanol extract, which is almost completely soluble in water, was precipitated with mercuric chloride, the mercury removed with hydrogen sulfide, the material transformed into the reineckate, which was purified by chromatographic adsorption on alumina from acetone solution, transformed into the hydrochloride and precipitated from ethanol by acetone and ether. This yields toxiferin, $C_{25}H_{27}O_2N_3$, the light brown hydrochloride of which has an activity of 20 to 30γ. The anthraquinone-β-sulfonate is light yellow, melts at 278° C. with decomposition, gives a deep dark blue color with chromic-sulfuric acid mixture and a green color with nitric acid. Toxiferin does not contain any methoxyl nor phenolic hydroxyl group, and is not catalytically reduced. The crude acids from this curare contains protocatechuic acid; succinic acid was not found.—H. WIELAND, W. KONZ and R. SONDERHOFF. *Liebigs Ann. Chem.*, 527 (1937), 160–168; through *Chimie & Industrie*, 39 (1938), 934. (A. P.-C.)

Heliotropin—Preparation of, from Camphor. A review of the chemistry involved in the synthetic production of heliotropin from camphor and a discussion of the intermediate and by-products involved.—R. Fornet. *Seifensieder-Ztg.*, 65; *Der Parfümeur*, 12 (1938), 44–45. (N.L.)

Indigofera Linifolia, Retz—Chemical Examination of. Isolation of Its Active Principle. *Indigofera linifolia*, Retz. is a common annual herb belonging to the natural order *Leguminoceæ*. An alcohol extract of *Indigofera linifolia*, Retz. yielded an unsaturated lactone $C_{26}H_{50}O_2$ (linifolin), melting point 95–96, and a wax $C_{42}H_{84}O_2$, melting point 78–79, which is a ceryl ester of palmitic acid, in addition to tannins, phylobaphenes and glucose.—M. P. GUPTA and S. DUTT. *Proc. Natl. Acad. Sci. India*, 8 (1938), 49–52; through *Chem. Abstr.*, 33 (1939), 533. (F. J. S.)

Myrcenal and Myrcenol. The author has treated the open-chain terpene, myrcene, with selenium oxide and alcohol. The aldehyde myrcenal $C_{10}H_{14}O$ was obtained, boiling at 116–119° at 17 mm. pressure, and the primary alcohol, myrcenol $C_{10}H_{16}O$, boiling at 123–128° at 17 mm. pressure. Some ketones and a second alcohol are also obtained.—*Bulletin de la Société Chimique de France*, 5 (1938), 931; through *Chemist and Druggist*, 128 (1938), 354. (A. C. DeD.)

Pinus Halepensis Oleoresin from Cyprus. A 15-lb. sample yielded on steam distillation 18.8% of water-white oil of turpentine with the following characteristics: specific gravity at 15.5° C. 0.8717, optical rotation at 22° C. −17.5°, refractive index at 20° C. 1.4724, nonvolatile residue 3.2%. Fractionation at 760 mm. gave: from 152° to 160° C. 55%, from 160° to 170° C. 33%, above 170° C. 12%. The oil contained a large proportion of α-pinene. The residual rosin was very unattractive owing to contamination with vegetable debris; after purification by solution in ether, filtration and evaporation of the solvent, a type "G" product was obtained having the following characteristics: softens at 68° C., melts at 76° C., acid value (direct method 177.7, ester value 4.7; completely soluble in alcohol, acetone, benzene and oil of turpentine, and only partially soluble in hot 10% sodium hydroxide solution.—ANON. *Bull. Imp. Inst.* 36 (1938) 157–162. (A. P.-C.)

Rotenone—Colorimetric Determination of. Of the three methods at present in use for determining rotenone (crystallization in the cold from ether, polarimetric and colorimetric) the colorimetric seems to be the most specific and the best suited when a large number of determinations must be carried out. The technic is described. The other two may be retained as control methods.—S. SCHONBERG. *Compt. Rend. 17me Congr. Chim. Ind., Paris*, (Sept.–Oct. 1937) 947–952. (A. P.-C.)

Rotenone and Related Substances—Alkaline Ring-Fission of, and the Composition of Derris Extract. The mechanism of the reactions is given.—R. S. CAHN, R. F. PHIPERS and J. J. BOAM. *Chemistry and Industry*, 57 (1938), 451–452. (E. G. V.)

Terpenes—Autoxidation of, in Petroleum Solvent. Solutions of terpenes in petroleum hydrocarbons oxidize on long storage. This oxidation can be largely prevented by the use of relatively small quantities of triethanolamine or aliphatic alcohols such as methanol, ethanol, etc. Less effective antioxidants are sodium hydroxide, aqueous ammonia and also anethole.—J. N. BORGLIN. *Ind. Eng. Chem.*, 30 (1938), 639–640. (E. G. V.)

Terpenes—Recent Progress in the Chemistry of. A review, with 89 references, limited to terpenes in C_{10} and dealing with methods of investigation, studies on terpene structure and some recent complete syntheses, and concluding with a brief outline of theories proposed to explain the origin of terpenes in plants.—R. DULOU. *Chimie & Industrie*, 40 (1938), 3–18. (A. P.-C.)

Fixed Oils, Fats and Waxes

Animal and Vegetable Oils and Fats—Stabilizing. In order to inhibit rancidity of oils or fats, there is mixed with them about 1% or less of catechol monododecyl ether or other suitable phenol of the benzene series having at least one alkoxy group in a position *o*- or *p*- to a hydroxyl group and containing 12 carbon atoms in such alkoxy group.—PAUL L. SALZBERG, assignor to E. I. DU PONT DE NEMOURS & Co. U. S. pat. 2,124,749, July 26, 1938. (A. P.-C.)

Cacao-Waste Fats—Extracted. Full analyses of 5 or 6 samples of commercial crude and refined fats (iodine values 41.3–44.6, unsaponifiable matter 1.3–2.0%) extracted from factory cacao waste (shells, germs, dust, etc.) are given. The high oleic acid content (up to 41.8% of the fatty acids) of the refined fats appears to be due to a selective accumulation of linoleic and saturated acids (as well as of oxidized acids) in the soap stock during refining. In spite of the removal of some unsaponifiable matter during refining, the high content of unsaponifiable matter (average 1.5%) compared with that of cacao-nib butter (maximum 0.4%) remains the best method of identification of these fats. The content of unsaponifiable matter may be used to calculate the approximate content of cacao-shell fat.—K. H. BAUER and L. SEBER. *Fette u. Seifen*, **45** (1938), 342–345; through *J. Soc. Chem. Ind.*, 57 (1938), 1184. (E. G. V.)

Carrot Seed Oil. The author gives the following properties of the oil obtained from carrot seed: density 0.902–0.926 (15°), rotation −14 to −20°, index of refraction 1.480–1.486, acid number 1.5–3.5, ester number 19.2–40.5, ester number after acetylization 76–90.2.—G. LOUVEAU. *Rev. des marques parfum. savonn.*, 15 (1937), 13–14; through *Seifensieder-Ztg.*, 65; *Der Parfümeur*, 12 (1938), 45. (N. L.)

Cod Liver Oil—Constants of Genuine. I. Unsaponifiable Matter Content. Since adulterants have very high values, the unsaponifiable matter content of cod liver oil is an important figure. The average of 150 samples landed in Hull, England, was 1.07%, while that for 107 other samples was 1.09%. The amount in genuine cod liver oil does not exceed 1.5% and the lower limit is almost 0.9%. The examination of the characteristics and nature of the unsaponifiable matter may give a more valuable means of testing the genuineness of a cod liver oil.—C. C. HARRIS. *Chemistry and Industry*, 57 (1938), 508–509. (E. G. V.)

Cod Liver Oil—Evaluation of. A series of experiments with different oils and emulsions indicated, among other things, that the values of the cod liver oil substance run parallel with the vitamin A values.—F. ZIPPEL. *Pharm. Ztg.*, 82 (1937), 112–113; through *Chimie & Industrie*, 39 (1938), 933. (A. P.-C.)

Drugs—Variation in. Fat Content of Bahia Cacao. The kernel was rubbed fine with sand and extracted in a Soxhlet extractor with petroleum ether in which theobromine is practically insoluble. The solution was filtered into a tared flask and the solvent removed. The results of the assay of 100 seeds is compiled in a table. The per cent fat ranged from 39.88 to 58.25% with an average of 52.70%. The average weight of the shells was 10% of the average weight of the kernels.—L. ROSENTHALER. *Pharm. Acta Helv.*, 13 (1938), 103. (M. F. W. D.)

Edible Oils—Continuous Steam Deodorization of. Plant is described (with some typical results) wherein the preheated oil falls through a de-aerating section situated at the top of the high vacuum deodorizing tower, and after further heating flows downward through the deodorizing section over a series of bubble trays in countercurrent to the steam admitted at the foot of the tower. The properties of Dowtherm vapor (eutectic mixture of biphenyl and phenyl ether) and

its application as a heating medium for the above process are discussed.—D. K. DEAN and E. H. CHAPIN. *Oil and Soap*, 15 (1938), 200–202; through *J. Soc. Chem. Ind.*, 57 (1938), 1185. (E. G. V.)

Fats—Meso- and Micro-Methods for Analysis of. II. Thiocyanogen Value. A meso- (semi-micro-) method for the determination of the thiocyanogen value of fats, which requires only 0.01–0.03 Gm. of sample and 4 (for non- and semi-drying oils) to 12 hours (linseed oil) reaction time, is described.—H. P. KAUFMANN and L. HARTWEG. *Fette u. Seifen*, 45, (1938), 346–349; through *J. Soc. Chem. Ind.*, 57 (1938), 1184. (E. G. V.)

Fats and Oils—Determination of the Thiocyanogen Number of. A collaborative study carried out on refined corn oil and on refined cottonseed oil showed that the Kaufmann method gives results that are closer to the theoretical and that are much better both in regard to the average variation and the maximum variations from the accepted average value, than the F. A. C. method. It was subsequently found that it was necessary to use 100 to 150% excess of reagent in determining the thiocyanogen number of an oil; with larger excess, the values are about 3 points higher than the calculated or theoretical values. It is preferable to use a pipet rather than a buret to measure the thiocyanogen solution to prevent undue exposure of the solution to the air. The technic, incorporating these minor modifications, is described in detail in *J. Assoc. Official Agr. Chem.*, 21 (1938), 87–88.—R. S. MCKINNEY. *J. Assoc. Official Agr. Chem.*, 21 (1938), 443–445. (A. P.-C.)

Fats—Viscometry of. The relation of viscosity to iodine value is complicated by many factors and does not appear to be usable as an expression of the molecular structure of stand oils. If polymerization were a simple change of monomeric into a definite polymeric form, the iodine value of the product during polymerization would decrease simply according to the law of mixtures, while viscosity would alter logarithmically, so that the ratio of viscosity to iodine value should be a straight line. In practice the viscosity increases more than this, especially at higher temperatures. Further other reactions, for example, isomerization, as well as polymerization, contribute to the fall in iodine value when linseed oil is heated.—H. WOLFE and G. ZEIDLER. *Fette u. Seifen*, 45, (1938), 349–350; through *J. Soc. Chem. Ind.*, 57 (1938), 1185. (E. G. V.)

Fatty Acids—Free, Determination of. The National Cottonseed Products Association's (N. C. P. A.) method for free fatty acids in crude oils was studied collaboratively and gave satisfactory result; its adoption as official is recommended. Collaborative comparison of the N. C. P. A. method, present A. O. A. C. method, and a cold titration method for determining free fatty acids in refined oils showed that the N. C. P. A. method gives the best results, and its adoption as official is recommended. The technic of the N. C. P. A. methods is described in detail in *J. Assoc. Official Agr. Chem.*, 21 (1938), 88.—R. S. MCKINNEY. *J. Assoc. Official Agr. Chem.*, 21 (1938), 445–447. (A. P.-C.)

Fish Liver Oils—Analytical Classification of. VI. The Iodine Value of the Unsaponifiable Matter. The range of values for the iodine value of the unsaponifiable matter of medicinal cod liver oils is from 100 to 130. Oils from individual species of the family *Gadidæ* also give values lying within a similar range. Oils from various fish of the order *Elasmobranchii* (which includes the sharks, rays, skates and dog fish) generally give lower values, except such shark liver oils as contain large amounts of squalene which have much higher values. A number of miscellaneous fish liver oils other than those from *Gadiæ* and *Elasmobranchii* have given a wide range of values from 72 to 313. In view of the above findings that shark liver oil may give higher or lower values than cod liver oil, according to the species, it is considered that the determination is of little value in detecting shark liver oil in cod liver oil. It may, however, be useful as a supplementary analytical characteristic. Shark liver oil is always accompanied by a high percentage of unsaponifiable matter, and this is no doubt a more reliable indication of adulteration.—D. C. M. ADAMSON, N. EVERS and W. SMITH. *Pharm. J.*, 141 (1938), 271. (W. B. B.)

Halibut Liver Oils—Artificial or "Reinforced," Use of Mammalian (Whale) Liver Oils and Concentrates in the Preparation of. True halibut liver oil and cod-liver oil as well as the liver oils of man, the gorilla, dog, cat and rat show selective absorption in the ultraviolet spectrum with a maximum at 328 mμ. Pure whale liver oil shows a maximum at between 290 and 310 mμ. In mixtures of whale liver oil with halibut liver oil the absorption curve is flatter and its maximum moves toward 290 mμ with increasing proportion of the former. Liver oils showing this maximum absorption at 290 mμ have been shown to have only $^1/_{20}$ the activity of vitamin

A but it has not been proven that the biological activity is associated with the factor having this characteristic. The authors conclude that "it is unwise to accept estimates of vitamin A based on spectroscopic examination of samples containing appreciable amounts of this substance until the cause of the discrepancies to which Pritchard and his co-investigators [*Biochem. J.*, 31 (1937), 258] have drawn attention, has been more thoroughly studied. In our opinion the only acceptable assay of vitamin A potency of an oil showing a maximum at 290–320 mμ is one derived from a satisfactory biological test."—R. T. M. HAINES and J. C. DRUMMOND. *Analyst*, 63 (1938), 335. (G. L. W.)

Nut Oil of the "Dum" Palm—Original and Hydrolyzed. Data for the nut oil (melting point 24°, density at 40°, 0.902, refractive index at 40°, 1.4534, acid value 2.1, saponification value 225, iodine value 27.1 , Reichert-Meisel value 5.58, unsaponifiable matter 1.72%) and for the oils extracted from the plant and its hydrolysate (dilute sulfuric acid) are tabulated. The nut oil contains octoic (1.31), decoic (2.74), lauric (31.58), myristic (14.68), palmitic (13.69) and stearic acid (4.71%) and unsaturated acids (30.45%).—I. UBALDINI. *Ann. chim. applicta*, 28, (1938), 191–199; through *J. Soc. Chem. Ind.*, 57 (1938), 1185. (E. G. V.)

Oils and Fats—Refractive Dispersion of. I. Dispersion of Ghee and Vegetable Oils. The n_F and n_C for butter fats from Jersey and Sindhu cows and buffalo, measured on a Pulfrich refractometer, give dispersion constants which are sufficiently different from those of vegetable oils to account for the color fringes found with a simple butyrorefractometer. Mixtures of the oils having the same consistency as ghee do not have both the n_D and $n_F - n_C$ of the unadulterated product. Oils and fats are classified into three groups based on the value of m and C in $n_F - n_C = m(n_D - 1) - C$; ghee has m 0.00015 and C −0.05996, while the usual adulterants have either m 0.000097, C −0.036069 or m 0.00014, C −0.056018.—V. T. ATHAVALE and S. K. K. JATKAR. *J. Indian Inst. Sci.*, 21A (1938), 15–25; through *J. Soc. Chem. Ind.*, 57 (1938), 1187. (E. G. V.)

Olive Oil. Grades, properties and uses are discussed.—W. H. DICKHARD. *Food Ind.*, 10 (1928), 330, 360–362; through *Chem. Abstr.*, 33 (1939), 421. (F. J. S.)

Olive Oils—"Emulsion Number" of. A 1% solution of the oil in benzene is prepared. The volume is measured of a given number of drops of water (V′) and of the same number of drops of sodium hydroxide solution of definite concentration (V″) as discharged from a buret into this solution. The "emulsion number" is given by 100 $(V' - V'')/V'$. The value can be considered as a physical constant of oils and affords a rapid and reliable means of determining their purity.—M.-TH. FRANÇOIS, G. P. ARÇAY and J. ROUZIOUX. *Ann. Fals.*, 31 (1938), 211–215. (A. P.-C.)

Vegetable and Animal Oils.—New Method for Iodation and Chlorination of. The method consists of four steps, as follows: (1) The removal of any free fatty acids of a vegetable or animal oil, by treating it with alcohol and $N/2$ sodium hydroxide. (2) Preparation of the iodizing and chlorinating solution, yielding an aqueous solution of iodine monochloride. (3) The iodation and chlorination of the vegetable or animal oil in ether solution, by means of the aqueous iodine monochloride. (4) The removal of free iodine and any free fatty acids or free acidity by means of alcoholic sodium hydroxide. These four steps will yield an iodized and chlorinated oil of great stability toward heat and light and possessing practically no irritating properties. It seems that the presence of chlorine, firmly found adjacent to the firmly bound iodine, stabilizes the iodine combination in the oil.—FREDERICK R. GREENBAUM. *Am. J. Pharm.*, 109 (1937), 407. (R. R. F.)

Unclassified

Acetophenone-*p*-Arsonic Acid—Derivatives of. A good yield (76%) of *p*-aminoacetophenone-arsonic acid is easily obtained by treating diazotized *p*-aminoacetophenone with arsenic trichloride. Condensation of this acid with isatine gives α-(4-phenylarsine)-γ-quinoline carboxylic acid, which seems to possess interesting physiological properties. The yield of the condensation is between 70 and 80% of theoretical relatively to the original acid.—P. G. SERGUEIV and D. G. KOUDRIACHEV. *J. Obchtch. Khim.*, 7 (1937), 1488–1494; through *Chimie & Industrie*, 40 (1938), 115. (A. P.-C.)

Enol Acylates—New. Some new, interesting, enolic acetates have been described by the author. The following were prepared by boiling molecular proportions of the aldehyde and acetic anhydride: Citral enol acetate; described as a limpid oil of the odor of geranyl acetate,

d_{15} 0.914, b. p. 110°/7 mm. Isodecyl aldehyde enol acetate; a colorless oil with a pleasant odor. Hydrocinnamic aldehyde enol acetate; a colorless, limpid oil with a pleasant odor similar to cinnamic ester. The method of preparation mentioned above was not found suitable for obtaining similar derivatives from cyclic ketones but by the use of a mixture of acetic anhydride and phosphoric acid in the cold the following were prepared in good yield.—Menthone acetate; having an odor of menthyl acetate, d_{15} 0.942, α_D + 64°. Pulegone enol acetate; a colorless oil with an odor of mint, d_{15} 0.963, α_D + 53° 57′, n_{D20} 1.47593. Isopulegone enol acetate; having an odor similar to menthyl acetate, d_{15} 0.960, α_D + 22° 16′.—SCHMIDT. *Schmimel and Co., Report*, 1938, 124–126; through *Perfumery Essent. Oil Record*, 30 (1939), 16. (A. C. DeD.)

Alkanol—Ammonium Antimonyl Tartrates. By refluxing a solution of the desired alkanol-ammonium bitartrate in the presence of antimonious oxide and separating any unreacted antimony oxide, products are obtained such as ethanol-, diethanol- and isopropanol-ammonium antimonyl tartrates which may be used intravenously in treating protozoal and trypanosomal infections.—HORACE A. SHONLE, assignor to ELI LILLY AND CO. U. S. pat. 2,118,769, May 24, 1938. (A. P.-C.)

4-Aminobenzenesulfonanilide—Derivatives of. The following compounds were prepared and characterized; -4-acetaminobenzenesulfon-2′-nitroanilide; -3′-nitroanilide; -4′-nitroanilide; -2′-aminoanilide; -3′-aminoanilide; -4′-aminoanilide; the three hydroxyanilides and -4′-acetaminoanilide. Also 4-aminobenzenesulfon-3′-nitroanilide; -4′-nitroanilide; and the amino- and hydroxyanilides.—T. L. WEBSTER and L. D. POWERS. *J. Am. Chem. Soc.*, 60 (1938), 1553. (E. B. S.)

Amino Compounds of Therapeutic Value—Aromatic, Preparation of Water-Soluble. Sulfanilamide is condensed with an aromatic, araliphatic or unsaturated aliphatic aldehyde and an alkali acid sulfite (1 mol. in the case of a saturated, and 2 mols. for an unsaturated aldehyde). The compound from sulfanilamide, benzaldehyde or phenyl acetaldehyde, and sodium bisulfite (equimols.), and from sulfanilamide (1 mol.), phenyl acrylicaldehyde, acrylicaldehyde or Δ^2-crotonicaldehyde (1 mol.), and sodium bisulfite (2 mols.) are described. Alternatively, the Schiff base from sulfanilamide and the aldehyde may be condensed with an alkali acid sulfite.—G. ELLIS, from Soc. des Usines Chim. Rhone-Poulenc. Brit. pat. 487,378; through *J. Soc. Chem. Ind.*, 57 (1938), 1930. (E. G. V.)

Antimonous Oxide and Sulfide—Action of, on Thiol Acids. Antimonous oxide and sulfide react on thiol acids in a manner similar to that on the hydroxy acids (*Compt. rend.*, 206 (1938), 1904). Antimonio-thioglycollic acid was thus directly prepared and also its sodium, ammonium, zinc and magnesium salts. It is a colorless cyrstalline compound, m. p. 201–202°, soluble in water and insoluble in organic solvents. Its aqueous solutions as well as those of its salts can be heated to boiling without hydrolyzing. Antimonio-thiolactic acid and its sodium and barium salts were prepared. It consists of colorless needles, m. p. 192°, soluble in water and insoluble in organic solvents. Its solutions hydrolyze more readily upon heating than those of the thioglycollic acid.—YVES VOLMAR and ERNEST WEIL. *Compt. rend.*, 207 (1938), 534. (G. W. H.)

Aryl Mercury Salts of Aliphatic Polycarboxylic Acids. Details are given of the production of antiseptic and germicidal compounds such as the diphenylmercury salt of succinic acid, of maleic acid and of adipic acid (melting point 207° C.), dixylylmercury adipate (melting point 135° C.), diphenylmercury azelate (melting point 165° C.), diphenylmercury sebacate (melting point 173° C.), triphenylmercury tricarballylate (melting point 212° C. with decomposition), diphenylmercury oxalate (melts at 150° C. with decomposition), naphthylmercury tolylmercury pyrotartrate (melting point 155° to 156° C.), diphenylmercury citraconate (melts at 214.5° C. with decomposition), triphenylmercury aconitate (melts at 145° to 147° C. with decomposition), monophenylmercury succinate (melting point 230° C.), and monophenylmercury monosodium succinate (melting point 223° C.).—CARL N. ANDERSEN, assignor to LEVER BROS. CO. U. S. pat. 2,118,033, May 24, 1938. (A. P.-C.)

Cinnamic Alcohol and Cinnamic Acid—Esters of. I. A review of the chemistry of ethyl cinnamate, cinnamyl acetate, methyl cinnamate, cinnamyl-formate, propyl cinnamate and cinnamylpropionate.—R. FORNÉT. *Seifensieder-Ztg.*, 64; *Der Parfümeu*, 11 (1937), 887–888. (N. L.)