PHARMACEUTICAL ABSTRACTS

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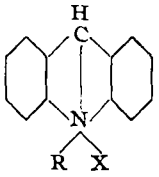
NEW REMEDIES

SYNTHETICS

Acridinium Compounds—Process of Preparation of. An aqueous solution of a salt of an arylarsonic acid is made to react with a water-soluble acridinium compound of the general formula



which may be substituted by amino, alkyl or alkoxy groups and in which R is a lower alkyl or hydroxyalkyl group and X is a mineral acid anion or a lower carboxylic acid anion.—LOUIS BENDA and OTTO SIEVERS, assignors to WINTHROP CHEMICAL CO., Inc. U. S. pat. 2,039,577, May 5, 1936. (A. P.-C.)

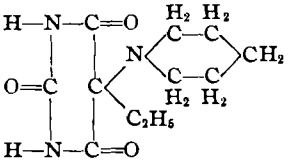
Anesthetic Solution. A solution of propyl-para-aminobenzoylacetyl salicylate in glycol is used as an anesthetic.—DAVID CURTIS. U. S. pat. 2,045,125, June 23, 1936. (A. P.-C.)

Calcium Gluconate—Therapeutic Preparation of. The patent claims as new an aqueous solution containing more than 3% of calcium gluconate stabilized by the addition of aluminum chloride.—LEWIS E. HARRIS, assignor to NORDEN LABORATORIES. U. S. pat. 2.043,211, June 2, 1936. (A. P.-C.)

Cantan is a preparation of ascorbic acid (vitamin C). It is a colorless crystalline substance, easily soluble in water, and with an acid reaction. It is put up in tablets for oral administration containing 0.025 Gm. of the substance, and ampuls containing the same amount in 1 cc. for parenteral treatment. Cantan is rapidly excreted by the kidneys, and is well tolerated by infants and adults. It is recommended for the treatment of vitamin C deficiency diseases, such as scurvy. The dose is from 0.5 to 1 tablet three times daily. By injection, either intramuscularly or intravenously, 1 cc. daily can be given to an adult and proportionately less to children. Cantan is marketed in boxes of five 1-cc. ampuls and as tablets.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 157. (S. W. G.)

Diaminopyridine Ortho-hydroxybenzoic Acids Salts. Ortho-hydroxybenzoic salts of 2,6-diaminopyridine, having the characteristics of forming crystals, are useful in different forms in the treatment of germ diseases.—JACQUES KRASSNY, assignor to OSTEN CHEMICAL CORP. U. S. pat. 2,043,547, June 9, 1936. (A. P.-C.)

Eldoral (Fabrik von Heyden, Radebeul near Dresden) is the latest addition to the ranks of the hypnotics of the barbital series. It is ethyl-piperidyl-barbituric acid.



It is soluble both in alkali and acid (*N*/10 HCl). It is fairly soluble in hot water and may be recrystallized from water. It melts at 213.5° to 214.5° C. Other chemical properties, identity test and precipitation reactions are given.—L. ROSENTHALER. *Scientia Pharm.*, 7 (1936), 50. (M. F. W. D.)

Ergometrin (Merck) is a new alkaloid of ergot which does not produce a continuous contraction of the uterus but a rhythmic contraction, and does not disturb the birth process; the preparation is stable and has a dose of 0.25–0.5 mg.—*Pharm. Monatsh.*, 17 (1936), 94. (H. M. B.)

Genoscopolamine (Polonovski and Nitzberg) introduced into the trade by the Laboratories of Amido-products at Paris is a derivative of scopolamine which has the advantage of being much less

poisonous than the free alkaloid, and still retaining its pharmacodynamic properties. The toxicity is about $^1/_{200}$ that of scopolamine. It is used to improve the syndrome of Parkinson, to reduce trembling, to improve hypersalivation and for disturbances in the automaticity and hypertonicity of the muscles.—*Pharm. Weekblad*, 73 (1936), 516. (E. H. W.)

Nijktogen Tablets (E. Taeschner, Potsdam) contain bromisovalerianylcarbamide diethylmalonylurea. They are employed as a hypnotic.—*Pharm. Weekblad*, 73 (1936), 736. (E. H. W.)

Nourical-Gluconate-Powder is the calcium gluconate placed on the market by N. V. Nourypharma at Deventer. It was reported in error in the *Pharmaceutisch Weekblad* of Feb. 22nd (1936) as Nourical-Powder.—*Pharm. Weekblad*, 73 (1936), 517. (E. H. W.)

Pernoston (Riedel de Haen, New York) contains in each tablet 3 gr. secondary butyl bromallyl malonylurea, and *Pernoston Sodium* is a 10% solution of the sodium salt. It is suggested for use in the treatment of insomnia and restlessness, in convulsions of eclampsia and tetanus, in the treatment of cocaine and strychnine poisoning and in manic and depressive states.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

Superchine (Dr. Weil, Amsterdam) is quinine phenylcinchoninate, a tasteless quinine combination which is given in the same doses as quinine salts in grippe, bronchitis, arthritis, etc.—*Pharm. Weekblad*, 73 (1936), 518. (E. H. W.)

Tasteless Quinine Compound. There is claimed as new the 2,3-dihydroxynaphthalene-*o*-monoacetate of quinine, which crystallizes in needles melting at 195° C., is difficultly soluble in water, rather difficultly soluble in alcohol, and has practically no taste.—MAX HOFFER, assignor to HOFFMANN-LAROCHE INC. U. S. pat. 2,039,415, May 5, 1936. (A. P.-C.)

Valyl (Bayer Products, Ltd., London) consists of valeryl diethylamide and is administered in hysteria, neurasthenia, menstrual disturbances, etc.—*Drug and Cosmetic Ind.*, 38 (1936), 701. (H. M. B.)

Ydromorph Lewenstein is dihydromorphinon which is also on the market under the name of Dilaudid. It is found on the market in tablets of 2.5 mg., in ampuls with 2 mg. per cc., and in suppositories with 2.5 mg. It also appears in combinations in ampuls; ydromorph 2 mg. with atropine sulfate 0.3 mg.; ydromorph 4 mg. with atropine sulfate 0.5 mg.; and ydromorph 2 mg. with 0.3 mg. scopolamine hydrochloride. *Pharm. Weekblad*, 73 (1936), 518. (E. H. W.)

SPECIALTIES

Alkyl Acridinium Salts—Aqueous Solutions of Addition Compounds of, with Heavy Metal Salts. Aqueous solutions of complex addition compounds of water-soluble salts of acridinium bases, substituted at the nitrogen by an alkyl radical of the lower series, with water-soluble salts of heavy metals of carboxylic acids are claimed to possess valuable therapeutic properties.—MAX BOCKMÜHL and LEONHARD STEIN, assignors to WINTHROP CHEMICAL CO., INC. U. S. pat. 2,043,650, June 9, 1936. (A. P.-C.)

Acridine Compound—Therapeutic Aqueous Solutions of. A sparingly soluble salt of an acridine compound with an organic arsonic acid is dissolved in water in presence of an easily water-soluble salt of an acridine compound.—LOUIS BENDA, assignor to WINTHROP CHEMICAL CO., INC. U. S. pat. 2,040,973, May 19, 1936. (A. P.-C.)

Acteum Tablets (Hygiene, Chem. Fabrik, Frankfurt) in packages of 12 contains mercury oxycyanate, quinine hydrochloride and quinosol.—*Pharm. Post*, 69 (1936), 121. (H. M. B.)

Adevitan (N. V. Orgapharm-Cliteur, Amsterdam) (Oleum Hippoglossi) is a vitamin preparation containing 5,000 international Vitamin A units and 2500 international Vitamin D units per gram. It appears on the market in 10-Gm. bottles and in capsules; the dose is 1–3 drops three times a day or 1 capsule 2 to 3 times a day.—*Pharm. Weekblad*, 73 (1936), 516. (E. H. W.)

Albumin Tannate Tablets (Herba A. G., Vienna, 9th dist.) are put up in packages of 10 each containing 0.50 Gm. albumin tannate.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Alcohol Ampuls (Chem.-pharm Werke des Landes Steiermark, Graz) are put up in packages of 3 ampuls of 1 cc. containing 33% ethyl alcohol.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Alkagen granules contain in each teaspoonful, magnesium hydroxide 5 grains; powdered glucose 45 grains; oil of peppermint and a little sugar. It is recommended for the treatment of

dyspepsia, and acidosis, neutralizing the acid without causing flatulence. The dose is 1 to 2 teaspoonfuls. Alkagen granules are supplied in 8-oz. and 16-oz. screw-capped bottles.—*Quart. J. Pharm. Pharmcol.*, 9 (1936), 156. (S. W. G.)

Allisatin is a colloidal association of fresh selected garlic with pure highly activated vegetable charcoal. It is applied in tablets, each being equivalent to 1 Gm. of the fresh drug. The tablets are easily taken and disintegrate rapidly, while the garlic is gradually liberated. They are free from objectionable taste and odor, and disagreeable after-effects are absent. Allisatin is recommended for all forms of colitis, diarrhœa, chronic and amœbic dysentery, enteritis and flatulence. The adult dose is 2 to 4 tablets three times daily after food. The tablets are supplied in bottles of 30, 100 and 250.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 156. (S. W. G.)

Anasken Tabletten (Goda A. G. Breslau) for the elimination of bodily and nervous exhaustion and fatigue, consists of monosodium phosphatetrimethylxanthine biphosphate.—*Pharm. Monatsh.*, 17 (1936), 74. (H. M. B.)

Animasa Forte (Organotherapeutischen Werk G. m. b. H., Osnabrück) used for obstinate hypertension and arteriosclerosis contains in each tablet 0.06 Gm. animasa, 0.005 Gm. of iodine, 0.015 Gm. bromine and 0.001 Gm. nitroglycerin. Animasa is a combination of fresh intima and media, fresh blood and liver. Dose is one tablet three times a day after meals.—*Pharm. Monatsh.*, 17 (1936), 74. (H. M. B.)

Antemin Tablets contain 83⅓% of cerium oxalate with starch, lactose and acacia. It is claimed that the cerium oxalate is converted into a readily soluble form, so that it is absorbed by the mucous membrane of the stomach. It is suggested for the treatment of vomiting of pregnancy, and travel sickness. The dose is 2 tablets, which should be allowed to dissolve on the tongue, when the nausea is felt, or immediately before a journey. The tablets are tasteless, and dissolve rapidly. Antemin is supplied in packets of 12 tablets.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 156. (S. W. G.)

Antigon (Ilmat, Fabrik Chem.-pharm., Laufenburg, Baden) is an antiseptic agent and is an alcoholic potassium soap solution containing *p*-chlor-*sym*-*m*-xylenol and chlorinated cresols chiefly 4-chlor-*m*-cresol besides small amounts of 4-chlor-*o*-cresol.—*Pharm. Monatsh.*, 17 (1936), 74. (H. M. B.)

Antipiol Salve (Lab. med. Chem. Angew. Biologie G. m. b. H., Berlin-Grunewald) consists of 12.5% of a sterile bouillon filtrate of streptococci, staphylococci, pyocyaneous, 28.7% zinc oxide, 3.7% Isarol, 15% petrolatum and 30.1% lanolin and is used for infections of the skin and mucous membranes.—*Drug and Cosmetic Ind.*, 38 (1936), 701. (H. M. B.)

Antirheumaticum Vegetabile Nattermann (A. Nattermann and Cie, Fabrik pharm. Präparate, Köln-Braunsfeld) contains urticaria leaves, betula, senna pods, juniper, fennel, coriander, caraway, ononidis root and magnesium borocitrate. It is used as a tea for arthritis, neuralgia and myalgia.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Antiscleroticum Vegetabile Nattermann (A. Nattermann and Cie), a tea for arteriosclerosis, hypertonia, etc., contains senna pods, *Cratægus oxyacantha*, nasturtium herb, *Viscum album* and *Fucus vesiculosis*.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Aplexil (May and Baker, Ltd., Dagenham, London) is an anti-influenza vaccine supplied in boxes of two ampuls, white and blue label.—*Drug and Cosmetic Ind.*, 38 (1936), 701. (H. M. B.)

Argidal (Boehringer) is said to be a 5% solution of silver hexamethylene tetramine acetylsalicylate with a silver content of 0.2%.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

Asthmasan is a preparation of the adrenal hormone suitable for use as a finely atomized vapor, which can be inhaled so that it penetrates deeply into the lungs. It is recommended for the relief of asthma, but must be used with special sprays capable of producing the finest nebula. A few whiffs of the atomized preparation is claimed to be sufficient to suppress an asthmatic attack. It is also suggested for the treatment of influenza, pneumonia, hay fever, bronchitis and catarrhs of the bronchial tract. Asthmasan suppositories are recommended to be used in conjunction with the spray. They contain adrenaline, belladonna, papaverine, caffeine and calcium and strontium compounds. Two to three suppositories should be used daily during attacks, and one suppository on several successive days will act as a prophylactic. Asthmasan is supplied in bottles containing 12.5 Gm. and 100 Gm. The suppositories are supplied in packages of 10, 50 and 100.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 156. (S. W. G.)

Athensa-Granulat (Athenstädt & Redeker, Hemelingen-Bremen) is a saccharated iron

oxide containing 3% of iron in combination with extracts of orange peel, gentian, cinchona and rhubarb. Arsen-Athensa-Granulat contains in addition 0.06% of arsenious acid.—*Pharm. Zentralh.*, 77 (1936), 8. (E. V. S.)

Austrotonicum (Alte Hofapotheke, Vienna, 1st dist.) contains strychnine nitrate, quinine ferrocitrate, purified caffeine, sodium biphosphide and simple syrup. It is put up in packages of 110 Gm.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Bellergal Tablets contain in each 0.0001 Gm. of bellafoline (levorotatory alkaloids of belladonna); 0.0003 Gm. of femergin (ergotamine tartrate); and 0.02 Gm. of phenobarbitone. It is claimed to be a carefully balanced sedative of the parasympathetic, sympathetic and central nervous systems, and is recommended as a treatment for autonomic dystonia. Bellergal is also suggested for the treatment of anxiety, gastric and cardiac neuroses, Graves' disease, migraine, epilepsy and other conditions. The dose is 3–4 tablets daily, but up to 6 tablets daily can be given. In chronic conditions treatment should be stopped for one week out of every month. Bellergal is supplied in bottles of 25, 100 and 250 tablets.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 157. (S. W. G.)

Betaxine (I. G. Farben) is the antineuritic vitamin B 1, which was isolated by Jansen and Donath in 1927 from rice, and which, in 1931 was obtained in crystalline form in the laboratories of I. G. Farben, Elberfeld and in the University of Göttingen. This antineuritic vitamin has the formula $C_{12}H_{16}N_4OS$. It is a remedy in beri-beri, polyneuritis, cramp of the cervical muscle, lameness of the legs, etc. The vitamin is standardized on pigeons. One pigeon-unit is the quantity sufficient to cure a pigeon suffering from beri-beri in one day. This quantity is from 0.0025 to 0.0035 mg. of the hydrochloride of the vitamin. In humans 5 to 6 injections are usually sufficient. It is also used for sciatica. The ampuls of betaxine contain 400 pigeon-units and are used by intramuscular injection.—*Pharm. Weekblad*, 73 (1936), 735. (E. H. W.)

Bioferol contains all the nutrient substances of blood, so prepared that the hemoglobin is unchanged, combined with liver extract. It is suggested as a nutrient tonic for the treatment of secondary anæmias, and in convalescence. It can be given to children to promote tissue nutrition and prevent loss of appetite. The adult dose is 1 or 2 tablespoonfuls taken during or shortly after meals. Children can take 1 to 2 teaspoonfuls according to age. Bioferol contains 40% of iron hemoglobin, and 3% of liver extract, and is supplied in bottles of approximately 8 fl. oz.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 157. (S. W. G.)

Blenomil (Destinwerk-Hamburg) is a new silver preparation for use in gonorrhœa. It is a complex silver albuminate oil emulsion having the consistency of whipped cream, is absorbed and evidences no corrosive effect on the mucous membrane.—*Scientia Pharm.*, 7 (1936), 26. (M. F. W. D.)

Bronchovydrine (N. V. Medicinal Preparations, Dr. Weil, Amsterdam) is an ointment sold in tubes. It contains papavydrine together with the hormones of the hypophysis and suprarenals, with sodium nitrate. It is used as a nose ointment in allergic colds.—*Pharm. Weekblad*, 73 (1936), 516. (E. H. W.)

Butolan (Bayer Products, Ltd., London) in tablet form consists of *p*-hydroxydiphenylmethane carbaminate and is used in the treatment of threadworms.—*Drug and Cosmetic Ind.*, 38 (1936), 701. (H. M. B.)

Calcidrine Syrup contains in each fl. oz. calcium iodide 7 grains, ephedrine hydrochloride $^3/_8$ grain, with syrup of wild cherry, tolu and aromatics. It is suggested for the treatment of coughs due to acute bronchitis, tracheitis and acute inflammation of the respiratory tract. The dose is 1 or 2 teaspoonfuls every 2 or 3 hours until relieved, then at longer intervals. Proportionate doses should be given for infants and children. Calcidrine is supplied in 6-oz., 16-oz. and 80-oz. bottles.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 157. (S. W. G.)

Calcium Chlorate Ampuls (Herba A. G., Vienna, 9th dist.) contain a 10% solution of calcium chlorate in ampuls; put up in packages of 10 ampuls of 5 and 10 cc.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Camphochin (Karl Max Besch Pharmaceutica G. m. b. H., Berlin-Wilmersdorf) is a sterile ethereal oil solution of 3% basic quinine and 2.5% camphor, and is used as a painless intramuscular or intragluteal injection in bronchopneumonia, etc.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

Capsifor (Chem. Fabrik Helfenberg bei Dresden) contains methyl salicylate, menthol,

capsicum and camphor in a soap jelly; put up in packages of 20 and 46 Gm.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Catgut impregnated with silver is claimed to practically prevent primary and secondary infections.—*Scientia Pharm.*, 7 (1936), 26. (M. F. W. D.)

Cerebrom is an elixir of bromides in which the unpleasant taste of the bromides has been masked. Each fl. dr. contains potassium bromide 5 grains, ammonium bromide 3 grains, sodium bromide 5 grains, calcium bromide 1.5 grains and lithium bromide 0.5 grain. It is suggested for use in any case where bromides are indicated. The dose is 1 to 2 fl. dr. diluted. Elixir Cerebrom is supplied in bottles of 16, 32 and 80 fl. oz.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 158. (S. W. G.)

Cerocol (Coates and Cooper, Ltd., London) is colloidal cerium oxalate in tablet form for use in sea, air and train sicknesses.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

Chinophenyl—Tablets (Dr. Hotes, Schober and Co., Chem. pharm. Fabrik, G. m. b. H., Berlin), for rheumatism and gout, consists of phenylquinolinecarbonic acid.—*Pharm. Monatsh.*, 17 (1936), 74. (H. M. B.)

Cholmodin (Riedel-de Haen, New York) contains 0.1 Gm. deoxycholic acid and 0.05 Gm. aloes. It is recommended for the treatment of acute and chronic constipation.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

Citogranol Oil (Syngala, G. m. b. H., Vienna, 16th dist.) contains catalytically activated high hydrocarbons with sulfur in organic composition (for external use).—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Citrosulf (Nordmark-Werke G. m. b. H., Hamburg) an antipyretic and antineuralgic is sold as tablets and ampuls. The tablets contain 0.3 Gm. of a molecular combination of dimethylaminophenyldimethylpyrazolon and quinine thiosulfate, 0.05 Gm. potassium acid phosphate and 0.01 Gm. pentose nucleotide; the ampuls contain in 3 cc. 0.12 Gm. of the above molecular combination, 0.054 Gm. phenyldimethylpyrazolon and 0.001 Gm. of the nucleotide. It is administered intramuscularly 1–2 ampuls or a tablet 3–4 times a day.—*Pharm. Monatsh.*, 17 (1936), 75. (H. M. B.)

Common Cold Antigen. A preparation for immunization against the common cold and suitable for oral administration to human beings is composed of killed bile-resistant pneumococci of a rough strain and of high heterophile-antigen content adsorbed on starch.—HORACE M. POWELL, assignor to ELI LILLY AND CO. U. S. pat. 2,040,794, May 12, 1936. (A. P.-C.)

Contussan (Dr. Braun and Herberg, G. m. b. H., Hamburg) an expectorant, contains ephedrine, potassium sulfoguaiacolate, bromine salts, calcium gluconate, saponin, thymine, silicic acid, malt extract and honey.—*Pharm. Monatsh.*, 17 (1936), 75. (H. M. B.)

Cosome brand ephetonin cough syrup contains ephetonin, 0.20 Gm.; dionin, 0.04 Gm.; compound syrup of thyme to 100 cc. It is recommended for the relief of coughs of all kinds, such as whooping cough, catarrhal conditions, bronchitis and influenza. The dose for adults is 0.5 to 1 tablespoonful, three or four times daily. Up to one teaspoonful can be given to children over 3 years of age. Cosome is supplied in bottles of approximately 170 Gm.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 158. (S. W. G.)

Cuprosol-Solution H. (Serinol G. m. b. H., Pforzheim Dillst.) is an organic copper preparation; a complex copper-lecithin combination, containing 0.01 Gm. of copper per cc. During the tuberculosis congress in 1912 Professor Gravin of Linden, Meissen and Straus at Rome gave several interesting communications covering chemotherapeutic experiments with iodine-methylene blue and copper salts (Finkler's method). After that the gold salts came into vogue. The cuprosol solution, which like copper salves is employed in various cases of tuberculosis and lupus, is preferably given intravenously because subcutaneous injection is painful.—*Pharm. Weekblad*, 73 (1936), 516. (E. H. W.)

Deriphyllin orale (Chem. pharm. A.-G., Bad Homburg) contains theophyllineoxyamine, Kamilloral and distilled water in packages of 10 cc.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Desitinolan (Desitin-Werk Karl Klinke, Hamburg), a burn, ulcer and wound ointment, is a vitamin-containing raw cod liver oil with 0.03% of organic chlorine in hydrous wool-fat and vaseline.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Desitinolan Solution (Desitin-Werk Karl Klinke, Hamburg) is a 3% isotonic solution of tri-

methylethoxypropenylammonium bromide in water. The material itself is a white crystalline powder having a melting point of 169°. It is soluble in water and in alcohol. The ampuls (1 cc.) are employed intramuscularly or subcutaneously as intestinal tonics. These injections are used to obtain intestinal tonicity after stomach or intestinal operations or prostate operations. Within 15–30 minutes they show influence on intestinal peristalsis, which function is increased. If one ampul does not seem sufficient the contents of a half to one ampul may be injected additionally after three hours.—*Pharm. Weekblad*, 72 (1935), 568. (E. H. W.)

Diskomon Ampuls (Chem.-pharm. Werke des Landes Steiermark, Graz) contains 2% of morphine hydrochloride, 3% of ethylmorphine and 0.025% scopolamine hydrobromide.—*Pharm Presse*, 41 (1936), 189. (M. F. W. D.)

Dispargen Ampuls (Chem. Fabrik Reisholz, G. m. b. H., Düsseldorf) is put up in packages of 6 ampuls of 5 cc. containing 2% of colloidal silver (Dispargen) in distilled water.—*Pharm. Presse*, 41 (1936), 190. (M. F. W. D.)

Ebuskeron (Ernst J. Buchholz, Berlin) is a dark brown glycerin alcoholic plant extract prepared from valerian, equisetum, guaiac wood, frangula and glycyrrhiza with the addition of wine, iodine (Dilution 5), silicea (D5), and flavoring agents. The product contains 17.38% of solid matter and 0.68% of ash.—*Pharm. Zentralh.*, 77 (1936), 8. (E. V. S.)

Ebuvitan (Ernst J. Buchholz, Berlin) is a light brown, slightly aromatic powder containing sugar, yeast, malt, sodium glycerophosphate and iron and calcium in organic combination. It is used as a nutritive and tonic in convalescence.—*Pharm. Zentralh.*, 77 (1936), 9. (E. V. S.)

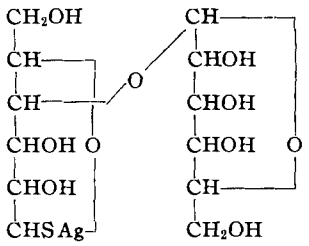
Ephazone Tablets (Ephazone Co., London) are orange-colored tablets containing in each 32 mg. of ephedrine hydrochloride and in addition 28 other (B. P.) drugs. They are used in asthma, bronchitis and other pulmonary affections.—*Pharm. Weekblad*, 73 (1936), 516. (E. H. W.)

Epokan Merck contains in each tablet or ampul 0.03 Gm. pyrazine carbonyl hydrazide, 0.03 Gm. *l*-ephedrine cumarin carbonate and 0.0002 Gm. pseudotropine benzylic hydrochloride and is indicated for use in asthma with a dose of 2–3 tablets or 1–2 ampuls subcutaneously or intravenously.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

Etoscol ampuls (E. Tosse and Co., Fabrik chem.-med. Präparate, Hamburg) contain an oily suspension of bismuth combined with gallic and salicylic acids. It is used as an intragluteal injection.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Eupaco Tablets (E. Merck, Darmstadt) contains in each tablet eupaverine 0.03 Gm., atropine methylbromide 0.0003 Gm., dimethylaminophenazone 0.15 Gm., and phenylethylbarbituric acid 0.015 Gm. They are indicated in all spastic conditions of the smooth muscle such as gastric spasm, gastric colic, hyperemesis gravidarum, gastric ulcer and to relieve pain in colic, spastic constipation and flatulent colic.—*Drug and Cosmetic Ind.*, 38 (1936), 845. (H. M. B.)

Euthagon (Fabrik Grünau) is the silver salt of thiocellobiose, is a yellow-white powder containing 23% of combined silver which is slowly split out in the body and 7% sulfur. It is recommended for septic diseases especially puerperalsepsis.



—*Scientia Pharm.*, 7 (1936), 26. (M. F. W. D.)

Expectal (Troponwerker Dinklage and Co., Köln-Mülheim), used for acute and chronic catarrh of the brochi and trachea with and without irritating cough and similar ailments, is a dark brown syrupy liquid which contains 0.033 Gm. of a molecular union of codeine and dipropylbarbituric acid, potassium guaiacolsulfonate, fluidextract of thyme and aromatics. Adult dose 1 teaspoonful several times a day; children according to age $^1/_2$–1 teaspoonful.—*Pharm. Monatsh.*, 17 (1936), 94. (H. M. B.)

Filtrat Inosepta (Dr. Debat, Paris) is a sterile bouillon of cultures of streptococcus, staphylococcus and bacillus pyocyaneus, which are the cause of inflammation of the ear. For this purpose as well as for ear furunculosis and otis media, the contents of one ampul is placed in the ear two to three times a day and closed with a pledget of cotton.—*Pharm. Weekblad*, 73 (1936), 516. (E. H. W.)

Flavadin Solution (Fa. Cutta and Co., Berlin) is a 2% solution of acridinium-arsenic compound.—*Pharm. Post*, 69 (1936), 121. (H. M. B.)

Formakaylene (Kaylene, Ltd., London) is sold as tablets containing formaldehyde, menthol and Kaylene (colloidal kaolin) and is suggested for the treatment of infections of the throat, mouth and pharynx.—*Drug and Cosmetic Ind.*, 38 (1936), 701 (H. M. B.)

Germose (Laboratories of Lebeault, Besins & Co., Paris) is a medicament in the form of drops containing fluoroform and vegetable substances. It is a specialty for the treatment of whooping cough. The dose is from 4 to 6 up to 10 to 40 drops, depending on age.—*Pharm. Weekblad*, 73 (1936), 517. (E. H. W.)

Gisanit (Dr. Herwarth, Duisburg, Chem.-pharm. Labor. G. m. b. H., Berlin-Britz), a tablet for dyspepsia, liver and gall bladder disturbances, is prepared from plant ferments, especially cellulase, hemicellulase and diastase.—*Pharm. Zentralh.*, 77 (1936), 26. (E. V. S.)

Hæmocavin Suppositories (Dr. H. Remmler A.-G., Fabrik pharm. Präparate, Berlin N), for hemorrhoids or anal fissures, contain bismuth oxyiodogallate, resorcin, zinc oxydate, balsam of peru and ethyl amidobenzoate.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Herbasthmat (Dr. H. Remmler A.-G., Fabrik pharm. Präparate Berlin N.) is a mixture of stramonium, salvia and eucalyptus leaves, grindelia, lobelia and potassium nitrate. The preparation is smoked to relieve bronchial and cardiac asthmas.—*Pharm. Zentralh.*, 77 (1936), 242. (E. V. S.)

Hydronal Tablets (Bayer, I. G. Farben A.-G., Leverkusen on the Rhine) is put up in packages of 30 tablets containing in each 0.50 Gm. of peptized aluminum hydroxide.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Istizin Bonbons (Bayer, I. G. Farben A.-G., Leverkusen on the Rhine), in packages of 12, consists of 1,8-dioxyanthraquinone.—*Pharm. Post*, 69 (1936), 121. (H. M. B.)

Jobecith Tablets (Dr. H. Remmler A.-G., Fabrik pharm. Präparate, Berlin N.) contain in each 0.001 Gm. of iodine, 0.02 Gm. of bromine and 0.17 Gm. of lecithin. They are used in the treatment of arteriosclerosis, hypertonia, etc.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Laxative Composition. A composition for increasing peristaltic action is composed of finely divided, dry, solid pectin, in an amount sufficient, in a readily administered portion, to promote peristaltic action. The individual particles of the pectin are coated with an inhibitor which prevents the pectin from dissolving or swelling in contact with the secretions of the mouth or other aqueous liquids.—CLARENCE G. SPALDING, assignor of one-half to GEORGE R. GOULD. U. S. pat. 2,043,204, June 2, 1936. (A. P.-C.)

Laxoletts (Dr. H. Remmler A.-G., Fabrik pharm. Präparatz, Berlin N.) are laxative tablets containing leptandrin, extract of aloes, euonymin, extract of cascara sagrada, extract of rhubarb, resin of *Ipomœa turpethum* and medicated soap.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Leucotropin (Silten, Ltd., London) is hexamethylenetetramine and is used for intravenous injection in all acute and chronic forms of inflammation of the joints, mucous membranes, etc.—*Drug and Cosmetic Ind.*, 38 (1936), 845. (H. M. B.)

Mistelan (G. A. Reinecke, Fabrik pharm. Präparate, Hannover) is a liquid extract of *Viscum album*, oats, cratægus and equisetum in a compound wine tonic. It is used for arteriosclerosis, mental depression, loss of appetite, etc.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Neogel Deodorant, Mild and Strong (A. Kremel, Vienna, 14th dist.) is put up in packages of 0 pieces containing 0.5 or 2.0% of chlorisopropylcresol in Neogel base.—*Pharm. Presse*, 41 (1936), 190. (M. F. W. D.)

Neo-Viro (Hygiena Chem. Fabrik, Frankfurt) consists of *p*-chlor-*m*-cresol and anesthesin.—*harm. Post*, 69 (1936), 121. (H. M. B.)

Nerm Antiseptic Jelly (Allen and Hambury's, Ltd., London) consists of tannic acid 5 parts, onochlor-*m*-xylenol 0.5, glycerin 2.0, eucalyptus citronella, pulegium and lavender oils each 0.24 and tragacanth jelly to make 100. It is used as a non-greasy application for burns, scalds, cuts, abrasions, insect bites, etc.—*Drug and Cosmetic Ind.*, 38 (1936), 543. (H. M. B.)

New Remedies. The following new remedies appear on the market: Magsorbent, an antacid and adsorbent used in the treatment of peptic ulcer and acid dyspepsia; Novurit Solution, a diuretic; Solution Liver Extract (Parenteral), for intramuscular injection in the treatment of pernicious anemia and sprue; Stellidin, for intramuscular or subcutaneous injection in cases of gastric and duodenal ulcer.—*Pharm. J.*, 136 (1936), 496. (W. B. B.)

Nitronal Tablets (Kronik & Edels, Vienna, 7th dist.) contain 0.025 Gm. sodium nitrite, phenyl-ethylbarbituric acid, purified caffeine and calcium lactate. They are put up in packages of 10 tablets.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Oktyron (Knoll A. G., Ludwigshafen) is a molecular combination between octinum and amidopyrine. It is found on the market in sugar-coated (bean-shaped) pills containing 0.15 Gm. of oktyron bitartrate and in solution containing 3 Gm. of oktyron cinnamylicum per 10 cc. It is employed as an antineuralgic and analgesic.—*Pharm. Weekblad*, 73 (1936), 736. (E. H. W.)

Oljecal Emulsion (O. Ehrmann, Pentosin-Werk, Langenlebarn, N. Austria) contains cod liver oil, calcium hypophosphite, etc., put up in packages of 250 Gm.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Oljefer Emulsion (O. Ehrmann, Pentosin-Werk, Langenlebarn, N. Austria) contains cod liver oil, calcium hypophosphite and saccharated iron oxide, put up in packages of 250 Gm.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Oxyaskarine (Dr. Fr. Brandt & Co., Halle) is Santoninas Aluminicus to which triacetyldiphenolisatine has been added as a laxative. It comes on the market in tablet form and is used as an anthelmintic.—*Pharm. Weekblad*, 73 (1936), 736. (E. H. W.)

Pancresalets (Nu-Organic Remedies, Ltd., London) contain 0.124 Gm. sodium bicarbonate, 0.006 decamethylene diguanidine carbonate, 0.124 asparagin, 0.590 minerals-vitamin and 0.156 pancrazyme in each tablet and are used in the oral treatment of diabetes mellitus.—*Drug and Cosmetic Ind.*, 38 (1936), 701. (H. M. B.)

Pansulina-Fornet (Institut für Mikrobiologie, Saarbrücken) occurs as a large chocolate block containing 96 insulin units and subdivided into smaller blocks containing 4 units in each.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Pavyco (Dr. Weil, N. V. Medicinal Preparations, Amsterdam) is a combination of papavydrine with verasulf and is used as an antispasmodic and analgesic. Gehe's Codex states that papavydrine is a mixture of papaverine and eumydrine, but does not give the proportionate quantities. Verasulf, according to this same authority is a mixture of somnacetine, amidopyrine and strontium sulfosalicylate, and somnacetine is a mixture of sodium diethylbarbiturate, codeine and acetophenetidin. Pavyco is found on the market in tablets, suppositories and ampuls of 5 cc. Dose, 1 tablet or suppository four times a day.—*Pharm. Weekblad*, 73 (1936), 517. (E. H. W.)

Peptopancreasi Serono (Instituto Nazionale Farmacologico, Rome, under the direction of Dr. Cesare Serono) is obtained from the juices of the stomach and the pancreas. It contains the enzymes of these liquids and from the mucous membrane which will hydrolyze fats, carbohydrates and albuminoids. One cubic centimeter of Peptopancreasi will cause 50 Gm. of coagulated egg white to go into solution. It is used in diabetes, gastro-enteritis and other stomach and intestinal disorders. It is given in doses of 10 or more drops, after meals.—*Pharm. Weekblad*, 73 (1936), 517. (E. H. W.)

Pharmit Tablets (Chem.-pharm. Fabrik "Pharmus" Dr. med. Bier and Co., G. m. b. H., Berlin W.) contain testicular, ovarian and anterior pituitary extracts, iron glycerophosphate, colloidal silicic acid, calcium and bromoisovalerianyl urea. They are indicated for use in various nervous disorders.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Physoglandine (Nederlandsche Dieetzoutfabriek, Amsterdam) a hypophysis-thymus-extract obtained after the direction of Dr. Nikolaus Temesvary, is used in obstetrics. It is found on the market in ampuls of 1.1 cc.—*Pharm. Weekblad*, 73 (1936), 517. (E. H. W.)

Pollantin Liquid (Schimmel and Co., Mitlitz bei Leipzig) contains liquid hay fever serum.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Pollantin Powder (Schimmel and Co., Mitlitz bei Leipzig) is put up in packages of 2 Gm. of dried hay fever serum.—*Pharm. Presse*, 41 (1936), 190. (M. F. W. D.)

Pollantin Salve (Schimmel and Co., Mitlitz bei Leipzig) contains dried hay fever serum in an ointment base.—*Pharm. Presse*, 41 (1936), 190. (M. F. W. D.)

Procaine Ampuls (Chem.-pharm. Werke des Landes Steiermark, Graz) is put up in packages

of 3 ampuls of 1 cc. or of 10 cc. containing 0.5% procaine.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Procaine-Adrenalin Ampuls (Chem.-pharm. Werke des Landes Steiermark, Graz) is put up in packages of 3 and 10 ampuls of 1 cc. containing 1% of procaine and 1 drop of adrenalin per cc.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Quinine-Urethane Ampuls (Chem.-pharm. Werke des Landes Steiermark, Graz) is put up in packages of 3 ampuls containing 2 cc. of a solution containing 10% of quinine bichloride and 5% of urethane.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Remlomed Tablets (Dr. H. Remmler A.-G., Fabrik pharm. Präparate, Berlin N.) contain in each 0.05 Gm. of caffeine, 0.2 Gm. of phenacetin, 0.15 Gm. of phenyldimethyl pyrazolone and 0.1 Gm. of aminophenazone. They are used for migraine, grippe and rheumatism.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Rheumichthol (Ichthyol-Gesellschaft Cordes, Hermanni and Co., Hamburg-Lokstedt), a liniment for rheumatic and neuralgic pains, contains 20% of leucichthol (light ichthyol) in camphorated soap spirit with the addition of salicylic acid, potassium iodate and menthol. Rheumichthol forte contains stronger skin irritants for increasing the blood circulation.—*Pharm. Zentralh.*, 77 (1936), 244. (E. V. S.)

Sanodermin (Chem. Fabrik Beringer G. m. b. H., Oranienburg) is a mixture of extract of rhatany, bismuth oxyiodogallate and thymol in a non-irritating ointment base. It is used for rapid epithelization and inciting granulation after burns, and for roentgen and gangrous ulcers or abscesses.—*Pharm. Zentralh.*, 77 (1936), 244. (E. V. S.)

Sodium Chlorate Ampuls (Chem.-pharm. Werke des Landes Steiermark, Graz) is put up in packages of 3 ampuls of 1 cc., of 5 cc., of 10 cc. and of 20 cc., containing sodium chlorate in physiological salt solution.—*Pharm. Presse*, 41 (1936), 189. (M. F. W. D.)

Somna-Tablets (Dr. Weil, Medicinal Preparations, Amsterdam) are about the same composition as the somnacetine tablets of Dr. Weil at Frankfurt, with the exception that they contain pyrasulf in place of codeine. In addition they also contain sodium diethylbarbiturate and acetophenitidin so that they cannot be classified as a harmless somniferant but must be sold on physician's prescription.—*Pharm. Weekblad*, 73 (1936), 518. (E. H. W.)

Sympthyl Chantereau, known as Sympathyl in France, is a combination of extract of cratægus 0.06, extract of boldo 0.01, phenylmethylmalonyl urea 0.01, hexamethylenetetramine 0.06, peptone polyvalent 0.03 per tablet. This medicament with synergistic action serves to remedy equilibrium disturbances of the sympathicus and is used in the treatment of nervous conditions, angina pectoris, endocrine disturbances, etc. Dose 3 to 6 tablets per day.—*Pharm. Weekblad*, 73 (1936), 518. (E. H. W.)

Tempidorm (Dr. Joh. Ph. Palm, Schorndorf (Württ.)), a hypnotic and sedative tablet, contains diethylbromacetylurea, monobromisovalerylurea, allyl-butylbarbituric acid and an absorption promoting purine substance.—*Pharm. Zentralh.*, 77 (1936), 244. (E. V. S.)

Torantil (Bayer, I. G. Farben A.-G., Leverkusen on the Rhine) is a standardized product for the treatment of allergic and intestinal intoxication. It consists of albuminous bodies obtained from the mucous membrane of the intestine, having antiallergic properties. According to the latest research allergic poisoning is due to a histamine-like substance. The mucous membrane of both the large and small intestines contains substances which decompose histamine. Torantil is a white powder, giving the usual albumin reactions and dissolves in water resulting in an opalescent solution which is permanent. The preparation occurs on the market in powder form, in ampuls with one histamine-antitoxic unit and in drageés with 5 units. The drageés are coated with a substance insoluble in the gastric juice, but soluble in the large intestine.—*Pharm. Weekblad*, 73 (1936), 737. (E. H. W.)

Transpulvet (Chem. pharm. A.-G., Bad Homburg) contains basic quinine, camphor ethereal oil and olive oil in packages of 1–20-cc. and 4–5-cc. ampuls.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Trymenthoid (Dr. H. Remmler A.-G., Fabrik pharm. Präparate, Berlin N.), a tablet for angina, laryngitis, stomatitis or rhinitis, contains menthol, anesthesin, borax and diaminomethylacridinium chloride.—*Pharm. Zentralh.*, 77 (1936), 244. (E. V. S.)

Turipol (N. V. Medicinal Preparations Dr. Weil, Amsterdam) is a paraffin oil preparation marketed in bottles with a bakelite stopper in which a dropping pipette is inserted. The liquid is

colored light rose and contains terpenes and pinenes. From the odor it seems to contain pine-needle oil and menthol. Iodine-Turipol contains 0.4% iodine.—*Pharm. Weekblad*, 73 (1936), 518. (E. H. W.)

Varicoid Ampuls (Gehe & Co., A.-G., Dresden) contains 5 or 10% of dried sodium morrhuoleate, benzyl alcohol, alcohol, glycerin and distilled water in ampuls of 1.10, 3.30 and 5.50 cc.—*Pharm. Presse*, 41 (1936), 153. (M. F. W. D.)

Verasulf (N. V. Medicinal Preparations, Dr. Weil, Amsterdam) is a mixture of pyrasulf and somnacetine that appears on the market in the form of tablets which can be broken into halves. According to Gehe's Codex, pyrasulf (Dr. R. and O. Weil, Frankfurt) is amidopyrine-strontium-sulfosalicylate. Somnacetine is also a mixture. Verasulf is employed as an analgesic. It also appears on the market in the form of suppositories.—*Pharm. Weekblad*, 73 (1936), 518. (E. H. W.)

Vermicettabletten (Ries, Berlin) which are tablets containing aluminum subacetate to be used as a vermifuge.—*Scientia Pharm.*, 7 (1936), 30. (M. E. W. D.)

Yo-Androl (Laboratories Iscovesco, Paris) is a preparation containing Vitamin E and various hormones. It contains an extract from the anterior pituitary, a lipoid extract from the testes, and extract of the suprenal cortex, yohimbine and a mixture of various physiological salts. Dose, 6 to 9 pills per day.—*Pharm. Weekblad*, 73 (1936), 519. (E. H. W.)

Yo-Gynine (Laboratories Iscovesco, Paris) is like Yo-Androl a vitamin E preparation containing hormones of the ovary. It is intended for female usage. It contains no lipoids or vita-stearins. Dose, 9 pills per day.—*Pharm. Weekblad*, 73 (1936), 519. (E. H. W.)

BACTERIOLOGY

Actinomyces—Antigenic Grouping. The author recalls that in a previous communication he studied the agglutinating behavior of five anærobic strains isolated from actinomycotic lesions, five ærobic strains from a disease of the hair and nine ærobic strains of saprophytic origin, and found that the ærobic strains fell into one serological group, the hair strains into three, and the saprophytic strains into two groups. He has now studied six more strains, one of them anærobic from actinomycosis of the ileo-cæcal region and five of them ærobic from lesions of the skin or bone in man or cattle. The anærobic strain fell into the same serological group as the previous anærobic strains. The ærobic strains fell into three groups, none of which was identical with any of the groups of the previous series. Altogether, therefore, in a study of twenty-five strains no fewer than nine different serological groups have been established. The author regards it of particular interest to note that all the anærobic strains fell into one group. In a further paper (*Ibid.*, page 200) the author finds that the serological grouping obtained by the complement-fixation reaction is similar to that obtained by agglutination.—M. Aoki. *Z. Immunitäts.* (Feb. 18, 1936), 196; through *Brit. Med. J.*, 3929 (1936), 868D. (W. H. H.)

Anærobic Streptococci—Study of Two Strains with Special Reference to Their Resistance to Heat and Disinfectants. Phenol 1%, mercurochrome 2%, crystal violet 2%, hexyl-resorcinol 1–1000 and merthiolate 1–1000 all show rapid killing of most of the cocci in suspensions but permit the survival of some individuals for long periods. Disinfectant dilutions merthiolate 1–1000 seemed to be the least effective in these *in vitro* tests.—H. J. Sears and D. Vinton. *J. Infect. Diseases*, 58 (1936), 305. (A. H. B.)

Anærobic Streptococcus. The anærobic streptococcus by itself lacks pathogenic properties. The anærobic streptococcus proved virulent for all laboratory animals only when introduced in symbiosis with a strain of another genus of bacteria.—J. C. Henthorne and J. R. McDonald. *J. Immunol.*, 30 (1936), 396. (A. H. B.)

Antidysenteric Serum, Purification of, with Sodium Sulfate. The main purpose of this work was to get rid of most of the seroalbumin in antidysenteric serum and still be able to recover a concentrated, or rather purified but potent, serum. The method used represents a slight modification of that used by Brunner and Pinkus in the concentration of diphtheria antitoxin with sodium sulfate. By following the original method the amount of salt in the purified antidysenteric serum, after repeated freezing and thawing, ranged from 3.99 to 4.08%, and this made the filtration of the serum difficult due to the concentration of salt and gelatinous proteids which clogged the pores of the filter; moreover the filtrate was found to have lost much of its immunologic properties. Instead, therefore, of freezing and thawing the serum, the precipitate was dissolved in water and

immediately dialyzed for not more than three days. By this method the serum after dialysis contained only an average of 0.12% salt, and it filtered easily through a Seitz filter. The serum thus prepared possessed high protective properties against *B. dysenteriæ* (Shiga) and compared favorably in potency with the original unconcentrated serum. Mice were used as test animals.—O. GARCIA, R. VILLAAMIL and C. PANGANIBAN. *Philippine J. Sci.*, 58 (1935), 471. (P. A. F.)

Antigens—Effect of Preservatives on Undenatured Bacterial. Merthiolate in concentrations of 1:50,000 or 1:20,000 produces considerably less denaturation than phenol (0.5%) and tricresol (0.3%). The limit of denaturating influence is usually obtained within the first week. Summer temperature shifts the equilibrium between native and denatured fractions in favor of the latter, which shift is reversed when the temperature is lowered.—A. P. KRUEGER and V. C. NICHOLS. *Proc. Soc. Exptl. Biol. Med.*, 34 (1936), 335. (A. E. M.)

B. Coli in Drinking Water of Ships—Effect of Storage On. *B. coli* die out during storage, with no evidence of any increase either temporary or permanent. The rate at which water becomes free from *B. coli* depends on the temperature to which the tank is subjected, being rapid in the tropics and much slower on voyages through cooler seas.—H. M. R. JONES. *J. Path. Bact.* (British), 42, No. 3 (1936), 605. (A. H. B.)

Chlorine Compounds—Evaluation of the Germicidal Potency of. II. Chloramine-T Products. Commercial products on dilution (I) with water show increased alkalinity, probably as a result of the sodium bicarbonate content. In the range 25–2000 p. p. m., germicidal action (II) declines with (I). With chloramine-T (U. S. P.) (I) increases acidity, and p_H-concentration curves resemble those for hypochlorites. In concentrations less than 1000 p. p. m. (II) increases with (I) to a maximum at approximately 200 p. p. m. and subsequently declines with greater (I).—C. K. JOHNS. *Sci. Agric.*, 15 (1934), 218; through *J. Soc. Chem. Ind.*, 54 (1935), B., 255. (E. G. V.)

Copper—Protective Action of, against Infection with Mycobacterium Tuberculosis (Bobine) in Albino Rats. The natural resistance of the rat to infection with *Mycobacterium tuberculosis* can be raised with supplement of copper to the diet.—DAVID PERLA. *Proc. Soc. Exptl. Biol. Med.*, 34 (1936), 365. (A. E. M.)

Corynebacterium Diphtheriæ—Different Forms of, and Their Significance. Practically all the non-toxigenic strains of *C. diphtheriæ* belong to the mitis type, including forty-five per cent of the strains of *C. diphtheriæ* found in convalescents and carriers.—W. MAIR. *J. Path. Bact.* (British), 42, No. 3 (1936), 635. (A. H. B.)

Diphtheria Prophylaxis—Duration of Immunity Following. Children in a childholding institution immunized with diphtheria toxin-antitoxin mixture, toxoid or alum precipitated toxoid were re-Schicked at periods varying from two to eight years after treatment and were negative. Toxoid and alum precipitated toxoid are the best immunizing agents.—F. G. JONES. *J. Immunol.*, 30 (1936), 379. (A. H. B.)

Escherichia Coli—Kinetics of Lysis of. Bacterial multiplication appears to be essential for phage production. The rate of growth of bacteria in the presence of coli phage, over a wide phage-concentration range, does not differ appreciably from that observed in phage-free controls until the time at which lysis is initiated. The lytic destruction of coli cells appears to be logarithmic with time, the rate of lysis being independent of the concentration of phage.—C. E. CLIFTON and G. MORROW. *J. Bact.*, 31, No. 5 (1936), 450. (A. H. B.)

Euflavine Preparations—Bactericidal Action of Some, against Staph. aureus and B. pyocyaneus. In view of the variable content of diaminoacridine-HCl in Euflavine preparations the most effective content is sought. The bactericide action against *Staph. aureus* is slight, but is greatest with those containing 11.7–26% of the named base. The bactericide action against *B. pyocyaneus* is strong, and is greatest with preparations containing 11.7% or less of diaminoacridine. The Rideal-Walker phenol coefficient of such solutions against *B. pyocyaneus* is around 132.—K. A. KJAER. *Dansk Tids. Farm.*, 10 (1936), 102. (C. S. L.)

Germicidal Substances—Comparison of Resistance of Bacteria and Embryonic Tissue to. VIII. Mercuric Chloride. The highest dilution showing no tissue growth is 1:45,000, inhibiting growth of *Staphylococcus aureus* 1:16,000. The toxicity index is 2.8, the phenol coefficient 246.—A. J. SALLE and A. S. LAZARUS. *Proc. Soc. Exptl. Biol. Med.*, 34 (1936), 371. (A. E. M.)

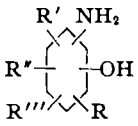
Gonorrhœa—Active Immunization against. The authors record their observations on fifty-eight cases of gonorrhœa treated with living vaccines, and come to the following conclusions:

The method is decidedly superior to the ordinary treatment for the disease. Its efficacy is equal to the administration of combined local and general treatment. The results are sometimes obtained with extraordinary rapidity.—R. BERTOLOTY and L. HERRAIZ. *Urol. and Cut. Rev.* (Feb. 1936), 88; through *Brit. Med. J.*, 3927 (1936), 780B. (W. H. H.)

Hemolytic Streptococci from Tonsils of Cow, Hog and Sheep. Hemolytic streptococci are frequently found in the crypts of the tonsils of cow (84%), hog (96%) and sheep (74%). The streptococci conform to the animal type and differ from the human type and from the St. epidemicus of bovine mastitis and epidemic septic sore throat.—ISADORE PILOT, CATHERINE BUCK and D. J. DAVIS. *Proc. Soc. Exptl. Biol. Med.*, 34 (1936), 233. (A. E. M.)

Neoarsphenamine—Response to, of Wassermann Antibody Induced in Rabbits by Injection of Normal Hamster Tissue. Rabbits receiving hamster tissue intraperitoneally developed Wassermann and Kahn antibodies which persisted for 4–5 weeks. Neoarsphenamine did not influence the duration of presence of these substances.—C. H. HUANG, R. H. P. SIA and C. K. HU. *Proc. Soc. Exptl. Biol. Med.*, 34 (1936), 313. (A. E. M.)

New Bactericide. Pathogenic microörganisms are rendered innocuous in animals by internally administering to the animals aminophenol of the formula



in which the amino and hydroxyl groups are in position other than the meta with respect to each other and in which at least one of the R's represents an alkyl group and each one of the other R's is a member of the alkyl series or hydrogen.—IWAN OSTROMISLENSKY, assignor to OSTRO RESEARCH LABORATORIES, INC. U. S. pat. 2,040,183, May 12, 1936. (A. P.-C.)

Peritonitis—Preventive Inoculation, More Particularly for. Killed colon bacilli in an aqueous suspension of gum tragacanth is used by injection to induce resistance against peritonitis.—BERNARD STEINBERG, assignor to TOLEDO HOSPITAL. U. S. pat. 2,039,940, May 5, 1936. (A. P.-C.)

Phenolic Compounds—Germicidal Properties of. Sec. amyltricresol or pentacresol (**I**), 1% in 2% soap solution, at 20° C. demonstrated high germicidal action toward gram-positive bacteria such as hemolytic streptococcus, but was low in efficacy against gram-negative bacteria such as *E. coli*. A 1% solution in 50% alcohol and 10% acetone served as a much more effective stock solution. Dilutions of the tincture, high enough to rule out the bactericidal action of the solvents, were germicidal toward gram-negative bacteria and readily destroyed *E. typhosa*. In the presence of 20% horse serum **I** was more effective as a germicide against *Staphylococcus aureus* than the six mercurials and the phenol derivative with which it was compared. *o*-Hydroxyphenylmercuric chloride or mercarbolide (**II**), as a tincture, was most effective in germicidal action toward gram-negative bacteria, in contrast to **I**, the phenol coefficient with *E. typhosa* being over 1,100 on the basis of the dry chemical. The different solutions of **II** demonstrated marked bacteriostatic action toward *Staphylococcus aureus*. In the presence of 20% serum, tincture of **II** was reduced in efficacy only slightly, if any, when *S. aureus* was employed as the test organism. There was some reduction in efficacy when *E. coli* was used. Aqueous solution of **II** showed higher germicidal action than the tincture toward *E. typhosa* and *E. coli*, but was not as effective as a bactericide against *S. aureus*. Mercresin (**III**), a mixture of **I** and **II**, was fairly uniform in its germicidal activity toward all the gram-positive and gram-negative pathogens and nonpathogens examined at 20, 30 and 37° C. Germicidal action was especially pronounced toward the hemolytic streptococcus and *E. typhosa*. Bacteriostasis was demonstrated to such a degree that secondary transfers were necessary in most cases to obtain the germicidal values. Short time exposure tests showed **III** to be extremely rapid (almost instantaneous) in germicidal action against *S. aureus*. In the presence of 20% horse-blood serum and using *S. aureus* as the test organism at 30° C., **III** was superior in germicidal activity to all the market mercurials examined except one, to which it was equal in value. **III** has shown no signs of deterioration over long periods of time.—C. G. DUNN. *Ind. Eng. Chem.*, 28 (1936), 609. (E. G. V.)

Poliomyelitis—Experimental, Induced by Intracutaneous Inoculation. Some strains of

poliomyelitis virus will differ in their ability to produce the experimental disease when injected intracutaneously in relatively small doses, but after intracerebal inoculation paralyses were more extensive and the incubation period was shorter.—J. D. TRASK and J. R. PAUL. *J. Bact.*, 31, No. 5 (1936), 528–30. (A. H. B.)

Soaps—Effect of the Chemical Constitution of, upon Their Germicidal Properties. Pneumococci are susceptible to the action of certain unsaturated soaps, such as sodium oleate, linoleate. The hydroxylated and saturated soaps, are less effective in killing this organism. *Streptococcus lactis* is more resistant to the action of soaps than the pneumococcus. The two saturated soaps, sodium oleate, linoleate, linolenate, clupanodonate, ricinoleate and abietate, as well as the two sulfate esters, are very effective in killing it.—M. BAYLISS. *J. Bact.*, 31, No. 5 (1936), 503. (A. H. B.)

Spores—Killing of, by Mercuric Chloride and Silver Nitrate. Anthrax spores are killed more rapidly by silver nitrate than by mercuric chloride. Colloidal silver chloride solutions (0.1%) do not kill spores but inhibit germination. Addition of ethyl alcohol increases the toxicity of silver nitrate and lowers that of mercuric chloride. With both substances, toxicity increases with temperature.—A. BAUER. *Arch. Hyg. Bakt.*, 113 (1934), 65; through *J. Soc. Chem. Ind.*, 54 (1935), B., 700. (E. G. V.)

Staphylococcal Leucocidin and Antileucocidin. A modification of the Neisser and Wechsberg technic for the estimation of staphylococcal (Neisser-Wechsberg) leucocidin (N. W. L.) and antileucocidin (anti-N. W. L.) is described, and the accuracy of the tests discussed. One strain of staphylococcus "Wood 46," produced N. W. L. of high titre consistently, over a period of eight months. Thirty-three filtrates were prepared from different staphylococcal strains. None of seven toxins prepared from strains derived from non-pathological sources contained N. W. L., whereas twenty-six toxins prepared from strains isolated from pathological lesions yielded N. W. L. varying in titre from 1 in 25 to 1 in 200 or more. N. W. L. is thermolabile at 56° C., and is largely destroyed by heating to 40° C. for one hour, being identical in this respect with α-hæmolysin and differing from β-hæmolysin which is thermostable at 56° C. Of twenty-nine toxins prepared from different strains of staphylococci twelve contained neither N. W. L. nor α-hæmolysin. In the remaining seventeen the titres they ran roughly parallel, *i. e.*, where the N. W. L. titre was high, the α-hæmolysin was also high and vice versa. In no toxin was the one found without the other. Absorption of N. W. L. and α-hæmolysin by leucocytes gave inconclusive results. Sixty-six sera from man, rabbits and horses, normal and "immunized," had in nearly all cases corresponding titres of anti-N. W. L. and anti-α-hæmolysin, expressed in decimal fractions of "standard" antitoxin "K." In the few exceptions the titres fell within the limits of error of the tests. It is suggested that N. W. L. and α-hæmolysin of staphylococcal filtrates prepared by the method referred to in this paper are identical, and that anti-N. W. L. and anti-α-hæmolysin are the same antibody.—J. WRIGHT. *Lancet*, 230 (1936), 1002. (W. H. H.)

Staphylococcal Septicemia—Intravenous Vaccine Treatment of. The author records three cases of staphylococcal septicemia in men aged 26, 27 and 30, successfully treated by the intravenous injection of autogenous vaccines. The disease in each case was of the subacute type, being secondary to furunculosis in two and in one probably to a septic condition of the mouth. Excellent results were obtained although the treatment was started late, from a month and a half to more than four months after the onset. The initial doses of the organism ranged from one and three millions in the first and third cases to twenty millions in the second. Recovery occurred rapidly in one case and more slowly in the other two.—V. DE ANTONI. *Il Policlinico, Sez. Prat.* (April 27, 1936), 763; through *Brit. Med. J.*, 3937 (1936), 1284B. (W. H. H.)

Staphylococcal Skin Lesions—Toxoid Treatment of. Staphylococcal toxoid injected intramuscularly is a safe antigen giving rise to a relatively small number of minor reactions. Staphylococcal toxoid gives a good clinical result in a high proportion of cases of recurrent and resistant furunculosis and is useful in the treatment of stys and carbuncles. It is not effective in pustular acne and sycosis with the dose employed in this series. Staphylococcal toxoid (and any other imunizing agent) is ineffective for skin lesions where the skin itself is, by occupation or disease, peculiarly susceptible to infection. The optimum dose of the toxoid is an individual factor. Those in whom the antigen produces an exacerbation should receive small doses. The antihemoglobin titre is of small value for prognostic purposes but is of some value for estimating optimum dosage.—L. E. H. WHITBY. *Lancet*, 230 (1936), 1454. (W. H. H.)

Staphylococcus Food Poisoning. The consumption of raw milk from cows with a staphylococcus mastitis was the cause of a small epidemic of food poisoning. A hemolytic staphylococcus of the albus variety was isolated from the incriminated milk which, under suitable laboratory cultivation, produced a toxic substance capable of causing vomiting in monkeys and man.—H. J. SHAUGNESSY and T. C. GRUBB. *J. Infect. Diseases*, 58 (1936), 323. (A. H. B.)

Staphylococcus Toxin and Staphylococcus Toxoid. The results obtained suggest the feasibility of immunization with unaltered staphylococcus toxin through the intracutaneous injection method, and also the possibility of using a skin reaction as a convenient criterion of the establishment of an antitoxic immunity to staphylococcus.—M. B. SULZBERGER and G. RUBIN. *J. Immunol.*, 30 (1936), 386. (A. H. B.)

Therapeutic Serums—Titration of, by Neutralization of the Antibodies in Vitro. A continuation of the method used for antipneumococcic serum (*Compt. rend.*, 200 (1935), 2039) and antistreptococcic serum (*Compt. rend.*, 201 (1935), 100). Using a modification of the method for antipneumoccic serum, it was found possible to successfully titrate antiscarlet fever serum. It has also been applied to antianthrax serum as well as to two serums which can not be titrated *in vivo*, antimeningococcic and antigonococcic.—LOUIS COTONI and JACQUES POCHON. *Compt. rend.*, 202 (1936), 1121. (G. W. H.)

Toxi-infection of Alimentary Origin. A detailed description of post mortem, serological and bacteriological tests carried out in a case of localized epidemic affecting about 30 persons (2 deaths), and which was traced directly to sausage contaminated with paratyphoid B. bacilli.—C. SIMONIN and R. LEGUYON. *Ann. Méd. Légale Criminol. Police Sci.*, 15 (1935), 826–848. (A. P.-C.)

Toxins and Antitoxins—Detection and Analytical Control of. A sterile filtrate such as one containing the toxin of *B. typhosus* is injected into a test animal (suitably, intradermally into a rabbit) and subsequently, after an incubation period sufficient to insure a sensitizing of the animal by the toxin, a fluid containing a reactive toxin (and suitably also antitoxin) is intravenously injected. Various details and modifications of procedure are described suitable for use in determining the biological potency of toxins and antitoxins.—GREGORY SCHWARTZMAN. U. S. pat. 2,036,649, April 7, 1936. (A. P.-C.)

Trypanosoma Rhodesiense—a Possible Reservoir Host of. The modern theories on the epidemiology of trypanosomiasis are reviewed. The existence of a reservoir host in man is emphasized. The case of such an individual is presented. The spread of sleeping sickness through the agency of a human host is described. The results which would follow the liberation of the case under reference are suggested. The location of the reservoir host is made the crucial point in the investigation of future outbreaks of the disease.—W. H. LAMBORN and C. H. HOWAT. *Brit. Med. J.*, 3995 (1936), 1153. (R. H. H.)

Typhoid Carriers—Study of Their Disease Producing Potentialities Over a Period of Years as Indicated by a Study of Cases. Most carriers infect or immunize their immediate environment within (5 to 10) years. This explains the rapid decline in the incidence of the residual typhoid after water-borne and milk-borne infections have been eliminated or reduced to a minimum.—G. W. ANDERSON, A. D. HAMBLEN and H. M. SMITH. *Am. J. Pub. Health*, 26 (1936), 396. (A. H. B.)

Wines—Germicidal Value of. A German scientist has examined the action on the typhoid bacillus of five wines, four white and one red, with interesting results. The bacilli are apparently killed by pure wine in 15 to 45 minutes, and by equal parts of wine and water in $1^1/_2$ to $2^1/_2$ hours, whereas a dilution of one part wine with three parts water required $3^1/_2$ hours to two days to be effective.—ANON. *Pharm. J.*, 136 (1936), 243. (W. B. B.)

BOTANY

Cananga of the Pacific Islands. *Dipteryx odorata* has given profitable crops of tonca beans in Western Samoa; the nutmeg tree (*Myristica fragans*) is among the most profitable also. *Cananga odorata* bears twice annually, on the underside of its lateral branches, masses of greenish yellow flowers. These are very fragant, and may be easily gathered under conditions of proper cultivation, the trees being "topped" and the lateral growth of branches induced. Cananga trees raised from seed have afforded over 200 pounds of flowers per tree in the sixth year (flowering commences at three years); 200 pounds of cananga flowers yielded on distillation, 14 ounces of

essential oil. In cultivation, the planting distance should be 20 feet each way between the trees. The seed is best planted at "stake," *i. e.*, where the trees are to grow. The seedling soon develops a long tap-root, and therefore they do not transplant well. In planting the seed, all that is required with a soil of light or porous nature is to dig and loosen the surface soil with an iron implement, draw the soil around the stake and plant the seeds at about 4 inches apart. On light porous, sandy or stony soils, such as are best suited to the cananga tree, it will be found an advantage to plant a cover crop in preference to the upkeep of the area as "clean" or "black-weeded," because the soil under a "cover-plant" is kept "active" in the production of several essential constituents which form plant-foods, and the conservation of moisture by the "cover-plant" will benefit the trees, under tropical conditions, and prevent "sun scorch." The "papaw" (*Carica papaya*) forms one of the best "covers." Cananga trees may be "topped" at the height of about 20 feet. Lateral branches are thus induced to grow, from which the flowers are easily gathered. In the process of distillation care should be taken not to cram the flowers too tightly into the receptacle when charging. The cananga oil should be stored in glass-stoppered bottles and excluded from strong light by a wrapping of dark paper.—H. C. REED. *Perfumery Essent. Oil Record*, 27 (1936), 211. (A. C. DeD.)

Eucalyptus Citriodora—Cultivation of, for Oil in the Seychelles. The first trees were grown from seeds obtained from sources in South Africa. The seed is planted in small parcels of earth contained in bamboo pots or "pots" fashioned from banana leaves, and in this fashion allowed to remain in nurseries until the plant is strong enough to be planted out. The nurseries are light constructions of wood about three feet high, thatched with coconut leaves, and minus side coverings. They give shade and protection from the tropical sun and rain. During the early stages of growth, *Eucalyptus citriodora* is tender and delicate. When the plant has reached a height of about two feet or so it is transferred from the nursery to the plantation proper. In the early stages of this plant the leaves are large, tender and have surfaces covered with hairs (pilosus form), while with age the tree produces leaves somewhat different in shape, smaller, tough in character and free from hairs (glabrous form). The operation of cropping may be effected by the complete removal of stems or branches bearing the leaves or the simple collection of the leaves only. Periods of four months appear to be the maximum time necessary between the croppings of leaves from the *Eucalyptus critriodora* in the Seychelles, while the tree, if allowed to grow without the removal or collection of the leaves, will proceed very rapidly to form, potentially, a source of wood that may well be utilized as fuel. Oil may be obtained from these leaves by distilling in any type of still. The percentage of oil to distillate is high and the product is "water white" and easily separated. Fresh leaves from plants six months old, *i. e.*, leaves in the hairy or polosus form yield with distillation 16.2 liters of oil per ton of leaves, and a second crop four months later, from the same plants gave 16.6 liters per ton. With fresh leaves in the glabrous form taken from three year old trees, the yield was 19 liters of oil per ton of leaves. After a period of four months material from the same source, *i. e.*, the second crop, yielded 16 liters of oil per ton of material distilled. Using the sodium bisulfite method of absorption all the oils obtained had an absorption of over 98 per cent, while the odor of the oil distilled from the pilosus form of leaves was sweeter and possessed a finer higher "note" than the oil resulting from the older or glabrous form of leaves. The essential oil content of this eucalypt when grown in the Seychelles appears to be roughly twice that obtained in other places.—W. HOLDSWORTH-HAINES. *Perfumery Essent. Oil Record*, 27 (1936), 109. (A. C. DeD.)

CHEMISTRY

INORGANIC

Magnesium Compounds from Ocean Water. Sea water is chlorinated, softened and treated with filtered calcium hydroxide to form hydrated magnesium hydroxide which is rapidly settled. From this there are produced 13 grades of basic carbonate, 3 of hydroxide, hydroxide paste and dry powdered hydroxide. Details of apparatus are given.—H. H. CHESNY. *Ind. Eng. Chem.*, 28 (1936), 383. (E. G. V.)

ORGANIC

Alkaloids

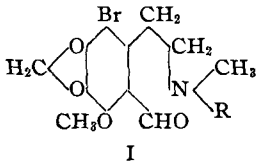
Adrenaline and Ephedrine—Halogen Analogues of. II. Derivatives of Acetophenone.

The methods of preparation and properties of the following are given: 3-chloro-4-hydroxy-ω-aminoacetophenone, 3-bromo-4-hydroxy-ω-aminoacetophenone, 4-chloro-ω-aminoacetophenone, 4-bromo-ω-aminoacetophenone, 3-chloro-ω-aminoacetophenone, 3-bromo-ω-aminoacetophenone.—R. P. EDKINS and W. H. LINNELL. *Quart. J. Pharm. Pharmacol.*, 9 (1936), 75–109. (S. W. G.)

Alkaloids in Poppy Heads. The material is extracted with dilute acetic acid and after precipitation with barium chloride, filtration and concentration, morphine is extracted with acid (hydrochloric with 25% phenol in chloroform) and titrated.—B. A. KLJATSCHKINA. *Khim. Farm. Prom.*, No. 4 (1934), 29; through *J. Soc. Chem. Ind.*, 54 (1935), B., 828. (E. G. V.)

Apomorphine—Preparation of. Morphine is heated with phosphoric acid in an open vessel and hydrogen chloride passed through the mixture. The yield is approximately 42% (greater than that by autoclaving with hydrochloric acid).—A. B. KARASINA and B. SMIRNOV. *Khim. Farm. Prom.*, No. 5 (1934), 18; through *J. Soc. Chem. Ind.*, 54 (1935), B., 828. (E. G. V.)

Cotarnine—Derivatives of. Through the use of a bromine-water solution reacting on a solution of hydrocotarnine in hydrobromic acid, the authors obtained a bromhydrocotarnine and a perbromide compound; the last named compound decomposes in the presence of water into bromcotarnine and hydrobromic acid. The building up of bromcotarnine could not be verified. Other investigators claim that when they obtained bromcotarnine it was always in an impure form; others obtained bromcotarnine from cotarnine hydrochloride with bromine water and then reduced the perbromide with hydrogen sulfide. In brominating the narcotine in cold acetic acid it leads to the formation of 5-bromnarcotin-perbromide-dihydrobromide. When this is reduced it yields 5-bromnarcotine. Oxidizing the last named compound with nitric acid, besides a small quantity of opionic acid, 5-bromnarcotine is obtained, which is identical with the compound obtained during the bromination of cotarnine. A new compound was obtained namely 5-bromnarcine, when *p*-toluolsulfonicacidmethylester was reacted with bromnarcotine. The position of the bromine atom in these derivatives was proved through the conversion of 5-bromcotarnine into 5-bromcotarnone and the oxidation of the last named compound to 5-bromcotarnonelactone and finally to 5-bromcotarnic acid. It was further observed that 5-bromcotarnine and 5-bromnarcotine could be condensed in using formaldehyde which is known to be attached to the fifth position in the ring only when that position is free. Either of the following structural formulas I or II were given to these compounds.



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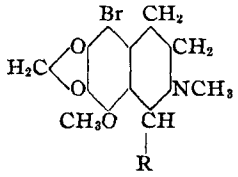


II

—B. B. DEY and T. K. SRINIVASAN. *Chem. Zentr.*, 107 (1936), 347. (G. B.)

Ephedrine Synthesis. I. Preparation of Propiophenone Diethyl Acetal and of 1-Phenyl-1-Ethoxy-Propene-1. Since ephedrine ($C_6H_5.CHOH.CH(NHCH_3).CH_3$) contains two asymmetric carbon atoms, four optically active forms may exist together with racemic or other mixtures of the four. "The two active forms in which the hydroxyl and methylamino groups are adjacent were believed to represent *l*- and *d*-ephedrine: the two in which these are on opposite sides of the axis, to represent *l*- and *d*-pseudoephedrine." The exact relation between ephedrine and pseudoephedrine seems to be in doubt. The experimental work hoped to throw light on the question. Detailed procedure is given of the attempt to synthesize ephedrine but it resulted in a new compound, propiophenone diethyl acetal. Physical constants were determined, then the acetal was converted into an unsaturated compound, 1-phenyl-1-ethoxy-propene-1. Physical constants were determined and an attempt made to convert it into racemic ephedrine. Difficulties were encountered but the investigation is being continued.—ERNEST L. BEALS with F. A. GILFILLAN. *J. Am. Pharm. Assoc.*, 25 (1936), 426. (Z. M. C.)

Ergot—New Alkaloid of. A new crystalline alkaloid, which is sparingly soluble in water, has been isolated from ergot. It has phenolic properties, decomposes at about 228° with the

formation of black tar, is sparingly soluble in methanol and has $[\alpha]_{5461}^{20}$ +522°. It crystallizes well from aqueous methyl acetate and gives the typical color reactions of known ergot alkaloids. Preliminary analyses of the base indicate the formula $C_{30}H_{35}O_5N_5$, but the authors have been unable to prepare crystalline salts for confirmatory analysis. The naming of the alkaloid has been deferred until more is known concerning its relationship with other alkaloids.—S. SMITH and G. M. TIMMIS. *Nature*, 137 (1936), 111; through *Squibb Abstract Bull.*, 9 (1936), A-232.

Isoquinoline and Other Alkaloids. There is much biological and chemical evidence of tyrosine being a precursor of a large group of isoquinoline alkaloids. In any case, there is a consensus of opinion about the formation of the heterocyclic ring of these alkaloids; 4 C-atoms and the N-atom are derived from an amino acid or the corresponding amine, the 5th C-atom, effecting ring closure, is derived from an aldehyde. The supposed methods of formation of a very large number of isoquinoline and related alkaloids are discussed.—GEORGE BARGER. *IX Congreso internac. quím. pura y aplicada, Madrid* (Apr. 5–11, 1934); *conferencias de introduccion*, 177; through *Squibb Abstract Bull.*, 8 (1935), A-1907.

Lycopodium—Alkaloids of European Species of. The systematic investigation of *Lycopodium alpinum* L., *L. annotinum*, *L. clavatum*, *L. complanatum*, *L. inundatum* and *L. selago* furnished evidence of the existence of alkaloids in these plants possessing a consiine-like action. In a preliminary pharmacological investigation an aqueous extract of lycopodium herb (1:5) when injected into frogs elicited complete paralysis in 15–30 minutes. Depending upon the dose, the animals either recovered or died in an asphyxial condition within periods varying from one hour to several days. Toxic doses and alkaloidal contents are given, respectively, as: *L. selago*, 0.2–0.25 Gm.; *L. annotinum*, 0.25–0.30 Gm., 1–1.5%; *L. inundatum*, 0.30–0.35 Gm.; *L. complanatum*, 0.40–0.50 Gm., 0.2–0.3%; *L. clavatum*, 0.40–0.60 Gm. Two kinds of lycopodium bases are recognized, *viz.*, volatile and solid. The bases may be obtained according to the usual methods by chloroform extraction of alkalinized extracts of the drug followed by subsequent treatment with diluted acids. The alkaloidal salts, as thus obtained, are yellow, amorphous, hygroscopic and bitter tasting. They are readily soluble in water and diluted alcohol, less readily soluble in acetone and absolute alcohol. They are precipitated from 1–2% aqueous solutions by sodium hydroxide, ammonia or carbonates. The volatile bases are readily water-soluble and cannot be removed completely by shaking with chloroform. The residual alkaloids in the form of solutions of their salts produce the characteristic paralysis in frogs. The volatile bases continue to pass over in the distillate after prolonged distillation. By evaporation of 1,150 cc. of distillate, obtained from 100 Gm. of *Lycopodium selago* and then neutralized there remained a residue of 0.77% of hydrochloride. An alkalinized extract remaining after shaking out with chloroform, on the other hand, afforded only 0.3–0.4% of volatile bases as hydrochlorides. The alkaloids are provisionally designated by names corresponding to the species in which they occur. They are: annotine, clavatine, complanatine, inundatine and selagine.—J. MUSZYNSK. *Arch. Pharm.*, 273 (1935), 542.

(L. L. M.)

Opium Juice—Morphine Content of. Fresh juice (32.5–33.6% of solids) from opium poppy capsules contains more morphine, calculated on solids, than does the derived opium (*e. g.*, 18.4% and 11.6%, respectively). This decomposition of morphine occurs in the capsules during storage and is due to enzymic oxidation.—N. N. VOROSCHCOV, JR., and A. T. TROSCHTSCHENKO. *Compt. rend. acad. sci., U. S. S. R.*, 2 (1935), 555; through *J. Soc. Chem. Ind.*, 54 (1935), B., 1022.

(E. G. V.)

Scoparius—Alkaloidal Content of Oregon-Grown. Report is made of a study of the alkaloids of *Cytisus scoparius* L., or Scotch broom. The authors summarize their findings as follows: "Sparteine is monoacidic to most indicators. Methyl red is quite satisfactory, phenolphthalein invariably gives low results, while hematoxylin, cochineal or bromthymol blue give good results in the absence of interfering impurities. In analyses where extraction is used, volumetric results are apt to be slightly lower than gravimetric, probably due to loss of free alkaloid during volatilization of the solvent. The total alkaloid content of Scotch-broom tops, calculated as pure sparteine, reached, between January and June, a maximum of somewhat over 1% in March, declined then increased again slighly in June."—F. A. GILFILLAN and FELIPE PATRICIO LOGAN. *J. Am. Pharm. Assoc.*, 25 (1936), 505.

(Z. M. C.)

Theobromine—Manufacture of. Theobromine is produced from cocoa waste by heating a mixture of defatted comminuted cocoa waste and lime, mixing the mass with water, fermenting

the moist powder at approximately 60° C. in the absence of added ferment, treating the resulting product with an aqueous medium, thereby extracting crude theobromine in the form of theobromine calcium, and treating the latter with an acid-reacting compound, thereby precipitating crude theobromine.—ERNST ALFRED MAUERSBERGER. U. S. pat. 2,041,561, May 19, 1936. A. P.-C.

Essential Oils and Related Products

Alcohols—Determination of, in Sandalwood Oil. A comparative study of four methods. The Codex 1908 method involves acetylation by refluxing with acetic anhydride for one and a half hours. In the Verley and Böhing method acetylation is carried out in presence of excess of pyridine by boiling on the water-bath for 15 mins. The Delaby and Breugnot method uses an acetylating mixture consisting of equal parts of acetic anhydride and pyridine which is allowed to act on the sample for 30 mins. on the water-bath. In the Radcliffe and Chadderton method, the sample is treated with a mixture of 50 Gm. of phthalic anhydride and 250 Gm. of pure pyridine. The Codex method gives results that are approximately 10% higher than by the other methods. This is not due to acetylation of alcohols other than santalol which are not acted upon in the other methods, nor to fixation of acetic acid by the oil, but is shown to be due to combination of acetic acid with $C_{15}H_{24}$ and higher hydrocarbons and also to the fact that esters are counted as santalol. Acetylation in presence of pyridine is preferable because it determines only free alcohols, which are present to the extent of 74% to 80%, and not 90% as required by the Codex.—R. DELABY and Y. BREUGNOT. *Bull. Sci. Pharmacol.*, 42 (1935), 385–391; through *Chimie & Ind.*, 35 (1936), 885–886. (A. P.-C.)

Cypress Wood—Oil of. Oil obtained in 2.55% yield by distillation of the wood of *Cupressus sempervirens* L. had the following characteristics: specific gravity at 15° C. 0.9538, optical rotation 5.32°, refractive index 1.4995, acid value 1.40, ester value 23.15, ester value after acetylation 40.68, ester value after formylation 70.14, soluble in 4 to 7 vol. of 90% alcohol (sometimes with slight turbidity), soluble without turbidity in 20 vol. of 80% alcohol and in 2 vol. of 85% alcohol. These values are quite different from those given by Gildemeister and Hoffmann for the oil obtained from twigs and are somewhat similar to those reported for the oil obtained from the wood of *C. sempervirens pyramidalis* by Rutovskii, Vinogradova and Koslov: specific gravity at 20° C. 0.9296, optical rotation 4.7°, refractive index 1.4955, acid value 0.35, ester value 17.54, ester value after acetylation 31.02, soluble in 0.9 vol. of 90% alcohol.—ÉTABLISSEMENTS ANTOINE CHIRIS. *Parfums de France*, 14 (1936), 103 (in French and English). (A. P.-C.)

Essential Oils—Distillation of. The contents of essential oils in successive fractions of the steam-distillate do not diminish in geometrical series. The duration of distillation should be determined empirically for each oil.—J. G. BORISIUK and E. E. LADVEZ. *Ukrain. Chem. J.*, 9 (1934), 171; through *J. Soc. Chem. Ind.*, 54 (1935), B., 286. (E. G. V.)

Essential Oils of the Seychelles. A few interesting paragraphs taken from the report of the Department of Agriculture of the Colony of Seychelles which supply supplemental information to the recent articles in the *Perfumery Essent. Oil Record* by W. Holdsworth-Haines are given.—ANON. *Perfumery Essent. Oil Record*, 27 (1936), 252. (A. C. DeD.)

Essential Oils from Seychelles. Constants and properties of the following oils are given: *Cymbopogon Nardus, C. citratus, C. confertiflorus, C. Martini* (palmarosa oil), *Eucalyptus citriodora Ocinum basilicum, O. viride, O. americanum, O. sanctum*, Ocimum oil No. 3, Cinnamon root-bark oil and Patchouli oil.—ANON. *Bull. Imp. Inst.*, 32 (1934), 511; through *J. Soc. Chem. Ind.*, 54 (1935), B., 523. (E. G. V.)

Eucalyptus Australiana (Baker and Smith) and its Physiological Forms—Essential Oils of. Investigations of the chemical constituents of the essential oils of the various forms of *E. Australiana*, supported by field experience, indicates the fallacy of describing new species of closely allied Eucalypts on very slender evidence. For instance, the new species described by Blakely under the name *E. Robertsoni* is considered by the authors to be merely a physiological form of *E. Australiana*. They summarize the classification of this species and its various forms as follows. *E. Australiana*, type. The essential oil contains cineol, 70%; phellandrene, not detected by the B. P. test; principal alcohol, α-terpineol; small quantities of citral. *E. Australiana*, var. A. Essential oil contains phellandrene and γ-terpinene with very little cineol, usually under 10%; principal alcohol, terpinenol-4, about 20%. *E. Australiana*, var. B. Essential oil contains cineol, 35 to 50%; phellandrene, 35 to 40%; principal alcohol., α-terpineol.—A. R. PENFOLD

and F. R. MORRISON. *J. Roy. Soc. N. S. W.*, 69 (1935), 111; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 123. (S. W. G.)

Lavender in Tasmania. The history of Bridestowe lavender from 1921 to 1936 is summarized.—C. KEITH KENNY. *Perfumery Essent. Oil Record*, 27 (1936), 194. (A. C. DeD.)

Pine Oil. Yields and chemical characteristics of oil from fresh pine needles are recorded.—F. SOLODKI. *Lesokh. Prom.*, 3 (1934), 16; through *J. Soc. Chem. Ind.*, 54 (1935), B., 829. (E. G. V.)

Pine Oils—Comparison of American and French. Two French commercial pine oils have about the same composition as has "Yarmor" oil and all increase the wetting-power of sulfonated castor oil emulsions to the same extent.—G. BRUS and BONICHON. *Bull. Inst. Pin*, (1935), 1; through *J. Soc. Chem. Ind.*, 54 (1935), B., 524. (E. G. V.)

Pine Oils—Oxidation of. Pine oil and the least volatile fraction thereof are oxidized to different products according to their nature and the catalyst used (zinc, iron or galvanized iron). Zinc leads mainly to formic acid.—TERPOUGOV. *Bull. Inst. Pin*, (1935), 6; through *J. Soc. Chem. Ind.*, 54 (1935), B., 524. (E. G. V.)

Primary and Secondary Alcohols—Determination of Free, in Essential Oils in Presence of Tertiary Alcohols by Acetylation Employing Pyridine. In the presence of pyridine, acetic anhydride reacts with primary and secondary, but not tertiary alcohols. The determination of alcohols by this method is preferred to that in which phthalic anhydride in acetic anhydride is employed.—R. DELABY and S. SABETAY. *Bull. soc. chim.*, [V], 2 (1935), 1716; through *J. Soc. Chem., Ind.*, 54 (1935), B., 1118. (E. G. V.)

Primary and Secondary Alcohols—Rapid Determination of, in Essential Oils. The oil is treated for 15 minutes with acetic anhydride-phosphoric acid at less than 50° and acetate determined in the product.—S. SABETAY. *Compt. rend.*, 199 (1934), 1419; through *J. Soc. Chem. Ind.*, 54 (1935), B., 333. (E. G. V.)

Terpenes—Removal of, from Essential Oils. A review of available methods.—G. LOUVEAU. *Rev. Marq. Parfum. Savonn.*, 12 (1934), 204, 231, 260, 293; through *J. Soc. Chem. Ind.*, 54 (1935), B., 701. (E. G. V.)

Volatile Oils—Examination of, by Measuring the Absorption Bands of, in Ultraviolet Light. The following volatile oils were examined using the Carl Zeiss apparatus and curves drawn showing the absorption: anise, orange, cajeput, clove, chenopodium, cinnamon, citron, fennol, lavender, mace, peppermint, rose, rosemary, santal and turpentine. The author concludes from his results that the measuring of absorption in ultraviolet light is, in many cases of great value in the investigation of volatile oils, not alone for their identifieation but also for their constants and adulterants and in special cases for the quantitative determination of their active constituents, as examples of which the following are named: anethol, anthranilic acid methyl ester, ascaridol, camphor, cineol, l-citronellol, cumarin, *p*-cymol, decylaldehyde, eugenol, fenchone, geraniol, cinnamic aldehyde, limonene, linallol, linalyl acetate, menthone, methyl chavicol, myristicin, phenylethyl alcohol, α-pinene, santalol, benzoic acid ester, benzyl alcohol, cedar oil, gurjun balsam oil, cinnamon leaf oil, phthalic acid ester, salicylic acid ester and terpinyl acetate.—K. DIJKSTRA. *Pharm. Weekblad*, 73 (1936), 502. (E. H. W.)

Washington Conifers—Leaf Oils of. Abies Grandis. The leaves and twigs from this tree yielded by steam distillation 0.62% of a volatile oil, the general constants of which were determined. Analysis showed the oil to be composed of the following constituents, approximately in the percentages stated: esters of borneol, chiefly bornyl acetate, 28.7; *l*-camphene, 23.87; *l*-α-pinene, 14.0; *l*-β-pinene, 5.87; free borneol, 4.96; high boiling residue, 2.5; *l*-β-phellandrene, 2.37 per cent.; also traces of free acids and phenols. No evidence of the presence of sesquiterpenes could be obtained.—CHARLES SCHWARTZ, JR. *Am. J. Pharm.*, 108 (1936), 152. (R. R. F.)

Washington Conifers—Leaf Oils of. Abies Lasciocarpa. The leaves and twigs of this tree yielded 0.78% of a volatile oil. The general constants of the oil were determined. The following constituents were found to be present in approximately the percentages stated: *l*-β-pinene, 26.56; *l*-β-phellandrene, 24.0; esters, chiefly bornyl acetate, 16.45; free borneol, 7.76; *l*-camphene, 5.11; high-boiling residue, 4.44; *l*-α-pinene, 4.11; salicylic acid, presumably as ester, 0.5%; also traces of free acids. Sesquiterpenes, if present, occurred in small amounts only.—CHARLES SCHWARTZ, JR. *Am. J. Pharm.*, 106 (1936), 152. (R. R. F.)

Washington Conifers—Leaf Oils of. Tsuga Mertensiana. Leaves and twigs yielded

0.27% of a volatile oil, the general constants of which were determined. The oil was found to consist of over 52% of *d*-α-pinene, together with approximately 23.63% of *d*-β-phellandrene; 8.46% of esters, calculated as bornyl acetate; 2.91% of free borneol; also free benzoic acid and traces of phenols. Acetic and benzoic acids constituted the major part of the combined acids. No positive evidence of the presence of sesquiterpenes could be obtained.—CHARLES SCHWARTZ, JR. *Am. J. Pharm.*, 108 (1936), 99. (R. R. F.)

Glycosides, Ferments and Carbohydrates

Carbohydrates—Therapeutic Alkali Metal Mercaptide Compounds of. An acetohalogen compound of a carbohydrate such as acetobromo-glucose or -arabinose or -xylose is caused to react with a salt of a thio acid such as potassium thioacetate and the ester thus formed is decomposed by saponification with a compound such as ammonium or sodium methylate to form a thiosate of a salt of the acid.—ERWIN SCHWENK and MAX GEHRKE, assignors to SCHERING-KAHLBAUM A.-G. U. S. pat. 2,038,609, April 28, 1936. (A. P.-C.)

Cellulose—Nitration of. In adding N_2O_3 in increased quantities during the nitration process of cotton with nitric acid, the cellulose is disintegrated, the stability and viscosity of the nitrocellulose is decreased, and the nitrogen content is increased to a maximum. In adding smaller quantities of N_2O_5 to nitric acid, there is no disintegration; during the addition of N_2O_3 the cellulose was not strongly oxidized; with nitric acid no gelatinizing or lumping takes place on the surface. On the addition of 5% N_2O_5, the N-content is increased from 13% to 13.7–13.8% which is explained not only through the water combination, but perhaps principally by the action of nitric acid and the immediate diffusion of the N_2O_5 into the inner fibers and the speed by which it is esterified. In nitrating the fibers with 96% nitric acid and P_2O_5 the N-content is increased; it is decreased in the presence of N_2O_5; 5% acetic anhydride has no influence over the N-content of the compound. Adding of N_2O_4 to 95% nitric acid, the N-content is increased more than in using N_2O_3, but less when N_2O_5 is used. In increasing the quantity of N_2O_4 the viscosity and stability of the compound is lowered which never takes place when N_2O_5 is used.—S. ROGOWIN and K. TICHONOW. *Cellulosechem.*, 16 (1935), 11. (Moskau); through *Chem. Zentralb.*, 107 (1936), 77. (G. B.)

Digitalis and Squill—Glycosides of. Scillaren A in squill is decomposed by the naturally present scillarenase to proscillaridin A and glucose, the former of which gives scillaridin A and rhamnose on acid hydrolysis. On the other hand, the treatment of scillaren A directly with acid gives scillaridin A, and the sugar scillabiose which may be split into glucose and rhamnose. Scillaridin A has the *cyclo*pentanophenanthrene structure of the other cardiac aglycones, but the terminal lactone ring is six- instead of five-membered. For clinical administration, scillaren A was found less suitable than the combined total glucosides of squill, which together are more soluble and stable in solution. One mg. is given in suppositories, 0.5 mg. intravenously or 0.8 mg. as a single dose orally, repeated three or four times daily. The hydrolysis of the digilanids in digitalis leads to a series of products of great interest. Digilanid A, on alkaline hydrolysis gives acetic acid and desacetyl-digilanid A, which with the plant enzyme gives the familiar substances, glucose and digitoxin. When, however, this enzyme acts directly on digilanid A, glucose and acetyl-digitoxin are obtained. Desacetyl-digilanid A is one of the principal genuine glycosides of *D. purpurea* leaves (purpurea glycoside A). Digitoxin, itself, on hydrolysis yields the aglycone digitoxigenin, $C_{23}H_{34}O_4$, and three molecules of the sugar digitoxose, $C_6H_{12}O_4$. Digilanid B is decomposed into desacetyl digilanid B (purpurea-glycoside B), a further constituent of *D. purpurea* leaves, and, on further hydrolysis gives gitoxin, which yields the aglycone gitoxigenin, $C_{23}H_{34}O_5$ with three molecules of digitoxose, as before. Digilanid C similarly yields in turn desacetyl-digilanid C, digoxin, and the algycone digoxigenin $C_{23}H_{34}O_5$, but there are no *purpurea* products represented in this C group.—A. STOLL. *Pharm. J.*, 136 (1936), 555. (W. B. B.)

Sugars—Arsenic Derivatives of. Therapeutic arsenic compounds of sugars are produced by reaction of a sodium salt of a sugar, such as the sodium salt of diacetoneglucose, with an arsenic halide such as arsenic tribromide, and hydrolyzing the resulting arsenic-halogen compound to form an arsenite compound of the sugar. Monoacetoneglucose-3-meta-arsenite melts at 193° to 194° C. and is readily soluble in water and organic solvents.—PAUL J. DAUGHENBAUGH, assignor to SHARP & DOHME, INC. U. S. pat. 2,032,263, Feb. 25, 1936. (A. P.-C.)

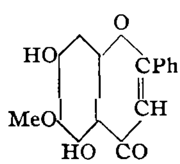
Other Plant Principles

Cubebin. VIII. Identity of Cubebinolide with Hinokinine. Cubebinolide, $C_{20}H_{18}O_{16}$ m. p. 63–64°, [α] −33.39°, the lactone obtained by the oxidation of cubebin with alkaline hypobromite, was shown to be identical with hinokinine obtained from hinoki oil by Yoshiki and Ishiguro (*Chem. Zentr.*, 1 (1933), 3202). It is soluble in alkaline hydroxide. The dinitro and dibromo derivatives and the sodium salt of the corresponding acid, m. p. 183–184°, 137–138° and approximately 205°, respectively. The chloro-methyl derivative, $C_{21}H_{21}O_6Cl$, m. p. 92–95°, [α] +13.89–14.64°. Cubebin is formulated as R. $C_6H_8(OH)_2$.R, cubebinolide as R.($C_6H_8O.CO$).R, and the corresponding acid as R.($C_6H_6(OH)COOH$).R, where R is 3,4-methylenedioxy-phenyl.—EFISIO MAMELI. *Gazz. chim. ital.*, 65 (1935), 886; through *Squibb Abstract Bull.*, 8 (1935), A-1899.

Cubebin—VII. New Structural Formula for. The chemical behavior of cubebin is reviewed and discussed with respect to the structure thereof. The most suitable formula appears to be that previously proposed by M.: $C_{20}H_{20}O_6$ of structure $HOCH_2CH(R)CH.CHOH$ (with CH_2CHR joined below $CH.CHOH$). The formula of Ginzberg and Gertschikow (through *Chem. Zentr.*, 1 (1932), 1380) is discussed in detail.—EFISIO MAMELI. *Gazz. chim. ital.*, 65 (1935), 877; through *Squibb Abstract Bull.*, 8 (1935), A-1899.

Matai (Podocarpus Spicatus)—Further Resinol from. From the mother-liquors of matairesinol, a small quantity of a further resinol, conidendrin (m. p. 254–255°) was obtained. The dimethyl ether had a m. p. 178.5–179°. Both of these melting points were not depressed when authentic samples were added.—L. H. BRIGGS and D. A. PEAK. *J. Chem. Soc.* (1935), 724. (G. W. F.)

Oroxylin-A—Constitution of. Oroxylin-A is a yellow coloring matter obtained from the root-bark of *Oroxylum indicum* Vent. by extraction with acetone and precipitation with 50% alcohol. The substance (m. p. 231–232°) was found to have the structure (I) and to be 6-O-methyl baicalein (5:7-dihydroxy-6-methoxyflavone).

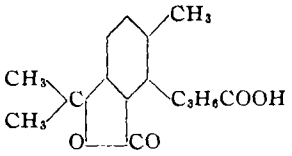


(I)

—R. C. SHAH, C. R. MEHTA and T. S. WHEELER. *J. Chem. Soc.* (1935), 591–593. (G. W. F.)

Picrotoxin—Contribution to Knowledge of. XII. Decomposition of Picrotinic Acid, $C_{15}H_{18}O_4$ and Dibasic Acids, $C_{14}H_{14}O_6$ and $C_{12}H_{10}O_6$. Fusion of picrotinic acids with potassium hydroxide yielded a dibasic acid, $C_{12}H_{14}O_6$ and acetone, according to the euqation: $C_{15}H_{11}O_4 + H_2O \rightarrow C_{12}H_{14}O_4 + CH_3COCH_3$. The yield is only about 30% that of the material used and the product is contaminated by a quantity of unchanged starting material. Oxidation of picrotinic acid by alkaline potassium permanganate proceeds quantitatively to yield a dibasic acid, $C_{15}H_{16}O_6$. This is obtained upon vacuum distillation as a yellow brittle distillate. A portion undergoes decomposition during distillation to carbon dioxide, water and a carbonyl-containing compound of the formula $C_{14}H_{14}O_3$ which forms an oxime, a phenylhydrazone and a semicarbazone. An unequivocal test for the nature of the compound $C_{14}H_{14}O_3$ is given by oxidation with nitric acid. The oxidation products consist of two dibasic acids, $C_{14}H_{14}O_6 + H_2O$ and $C_{12}H_{10}O_6 + H_2O$. The latter decomposes at 293° when the temperature is slowly raised; at 209–210°, if rapidly raised, but solidifies and melts again at about 290°. This difference is ascribed to anhydride formation. The acid $C_{14}H_{14}O_6$, when heated above its melting point, decomposes in a manner analogous to the acid $C_{15}H_{16}O_6$, as shown by the equation, $C_{14}H_{14}O_6 + C_{13}H_{12}O_3 + H_2O + CO_2$. The compound $C_{13}H_{12}O_3$ contains a carbonyl group and affords a well characterized phenylhydrazone and semicarbazone. By the oxidation of this ketone a dibasic acid, $C_{12}H_{10}O_6 + H_2O$, is obtained. This

evidence, in connection with earlier investigations, points to the following constitution for the acid $C_{15}H_{18}O_4$.



— P. HORRMANN. *Arch. Pharm.*, 273 (1935), 433. (L. L. M.)

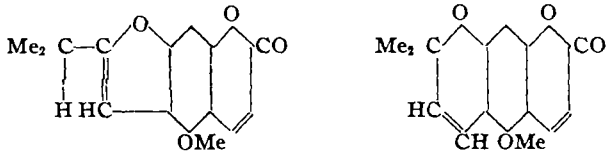
Picrotoxin—Identification of, in Cocculus Indicus. According to the literature, no crystalline product was obtained on the microsublimation of cocculus indicus berries. In addition, pure picrotoxin gave no crystals. The authors succeeded in obtaining crystals by subliming pure picrotoxin in 150° C. and 12 mm. of Hg at a distance of 3 to 5 mm. The sublimate collected in oily drops which on scratching with a needle rearranged to needles. When powdered cocculus indicus berries were treated similarly no crystals were obtained, apparently because of the presence of large amounts of fatty acids in the sublimate. The powdered berries were then extracted twice with petroleum ether containing 5 to 15% of absolute alcohol or ether for 1/4 hour under a reflux condenser, and the sublimation repeated. Crystals exhibiting a micromelting point checking with that of pure picrotoxin (200 to 201° C.) were obtained.—R. FISCHER and H. EHRLICH. *Scientia Pharm.*, 7 (1936), 57. (M. F. W. D.)

Pyrethrin Concentrates—Process for Purification of. Fatty acids are removed from pyrethrin concentrate by dissolving the concentrate in aniline, treating the aniline solution with an aqueous alkali solution, removing the aqueous solution and separating the aniline from the pyrethrins by means of a mineral acid.—HERBERT L. J. HALLER and FREDERICK B. LA FORGE, assignors to HENRY A. WALLACE. U. S. pat. 2,044,502, June 16, 1936. (A. P.-C.)

Red Sandalwood—Constituents of. Homopterocarpin. The contention of H. Dieterle and H. Leonhardt that two of the oxygen atoms in homopterocarpin are present in a lactone ring is held to be untenable in view of new evidence. The presence of a carbonyl group is indicated by condensation of the compound with 2,4-dinitrophenylhydrazine. The dinitrophenylhydrazone, $C_{23}H_{20}O_7N_4$, is obtained from pyridine in the form of small brown-red needles which decompose at 292° C. Further evidence of the existence of this group is the replacement of an oxygen atom by two atoms of hydrogen upon catalytic hydrogenation. 1-Dihydrohomopterocarpin ($C_{17}H_{18}O_4$, m. p., 153–154°), obtained by reduction of homopterocarpin with platinum black, contains, in contrast to homopterocarpin, which is hydroxyl-free, a phenolic hydroxyl group. This is interpreted to imply that one of the oxygen atoms is firmly bound to a benzene ring in an ether-like linkage. It is this oxygen atom that is lost in the conversion of homopterocarpin to dihydrohomopterocarpin. The remaining two oxygen atoms are present as was shown by Dieterle and Leonhardt, as methoxy groups. Pterocarpin, like homopterocarpin, contains a carbonyl group, and one oxygen is bound in a similar ether-like linkage. It contains but one methoxy group. Oxidation of 1-dihydrohomopterocarpin with chromic acid or with perbenzoic acid yields a crystallizable, sublimable yellow compound, $C_{17}H_{16}O_5$, m. p., 178.5°. The latter forms a *p*-nitrophenylhydrazone, $C_{23}H_{21}O_5N_3$, m. p., 148°; a dinitrophenylhydrazone, $C_{23}H_{20}O_8N_4$, decomposing at 258°; and an oxime, $C_{17}H_{17}O_5N$, decomposing at 225°. The oxime condenses further with a mole of dinitrophenylhydrazine, forming $C_{28}H_{21}O_8N_5$ obtained from aqueous pyridine in copper-colored needles which decompose at 199°. Two of the oxygen atoms of $C_{17}H_{16}O_5$ (designated dihydropterocarpone) are thus present as carbonyl groups in the 1,4 positions. Treatment of dihydropterocarpone with zinc dust and acetic anhydride gives a colorless crystalline compound which elementary analysis proves to be a diacetyl derivative, $C_{21}H_{22}O_7$, m. p., 122, 123°.—H. LEONHARDT and E. OECHLER. *Arch. Pharm.*, 273 (1935), 447. (L. L. M.)

Sesame Seed Protein. Sesame seed contains about 22% vegetable protein, namely, globulin, which has properties similar to vegetable casein and may be applied as a plastic and as an adhesive. The solubility of the sesame protein in the common protein solvents, sodium chloride, hydroxide and carbonate, is shown to be not seriously affected by previous treatment with gasoline, or by a temperature of 100° C., while treatment with methanol causes a decided decrease in solubility especially in sodium chloride and sodium carbonate solutions.—W. H. ADOLPH and I. LIN. *Ind. Eng. Chem.*, 28 (1936), 734. (E. G. V.)

Xanthoxyletin. Xanthoxyletin is obtained from the bark of *Zanthoxylum americanum* Mill. by extraction with ether, washing the crystallized material with light petroleum and either repeated crystallization from ethyl or methyl alcohol or by treatment with sodium hydroxide, animal charcoal and carbon dioxide, and recrystallizing from 80% methyl alcohol. After lengthy experimental work, it is concluded that xanthoxyletin (m. p. 131.5–132.5) has either of the following structures:



—JANET C. BELL, ALEXANDER ROBERTSON and T. S. SUBRAMANIAM. *J. Chem. Soc.* (1936), 627–633. (G. W. F.)

Fixed Oils, Fats and Waxes

Cacao Butter—Component Glycerides of. Cacao butter glycerides are shown to be made up approximately as follows (wt. %): oleopalmitostearins 52, oleodistearins 19, stearodioleins 12, palmitodioleins 9, oleodipalmitins 6, palmitostearins 2%. Much of the trebly mixed glyceride must be β-palmito-oleo-stearin; β-oleodipalmitin and β-oleodistearins are probably the isomerides of these types mainly present, while both α- and β-stearodiolein may occur.—T. P. HILDITCH and W. J. STAINSBY. *J. Soc. Chem. Ind.*, 55 (1936), 95T. (E. G. V.)

Caprified Fig-Seed Oil. The cold expressed oil was bright yellow, did not solidify at 10° and gave n_D^{25} 1.4775, iodine value 169.4, acid value 0.87, acetyl value 6.1, unsaponifiable 1.07%; the fatty acids contained oleic, linoleic, linolenic, palmitic, stearic and arachidic acids.—G. S. JAMIESON and R. S. MCKINNEY. *Oil and Soap*, 12 (1935), 88; through *J. Soc. Chem. Ind.*, 54 (1935), B., 640. (E. G. V.)

Fats—Ketone Formation in. III. Behavior of Fat Acids at Elevated Temperatures. Ketone formation occurs on heating fat acids, the amount decreasing with prolonged heating due to a decomposition similar to that of methyl nonyl ketone in aqueous or paraffin solution. Octoic and lauric acids form ketones more readily than palmitic, stearic and oleic acids.—K. TAUFEL, H. THALER and M. MARTINEZ. *Margarine Ind.*, 26 (1933), 37; through *J. Soc. Chem. Ind.*, 54 (1935), B., 416. (E. G. V.)

Fats—Ketone Formation in Purified. IV. Acids above 2 carbon atoms (saturated and unsaturated) become ketonic on exposure to light, atmospheric oxygen favoring the reaction. Lauric acid becomes more and not less ketonic on prolonged heating at 110° C.—H. SCHMALFUSS, H. WERNER and A. GEHRKE. *Margarine Ind.*, 26 (1933), 3, 87; through *J. Soc. Chem. Ind.*, 54 (1935), B., 416. (E. G. V.)

Fats and Oils—Behavior of, towards Air, Light and Plant Enzymes. The action of air, oxygen, hydrogen peroxide, diffused daylight, direct sunlight and ultraviolet light and of extracts from soya and castor-oil beans on the physical properties and oxidation of soya oil is investigated.—L. M. HOROVITZ-VLASSOVA, E. E. KATSCHANOVA and A. D. TKATSCHEV. *Z. Unters. Lebensm.*, 69 (1935), 409; through *J. Soc. Chem. Ind.*, 54 (1935), B., 859. (E. G. V.)

Fats and Oils—Rancidity and the Preservation of. The ketonic components of rancid oils may be removed by treatment with semicarbazide hydrochloride and sodium acetate or sodium stearate, amide or hydroxyl amine salts and alkali. Oils so treated do not give the Täufel-Thaler reaction for ketones. Camphor (0.3–0.5%) acts as a preservative against rancidity in the case of oils and may be removed by heating or extracting with ethyl alcohol.—K. STEPHEN. *Chem.-Ztg.*, 59 (1935), 416; through *J. Soc. Chem. Ind.*, 54 (1935), B., 596. (E. G. V.)

Fatty Oils—Alcohol Extraction Process of. III. Extraction of Cottonseed Oil. Optimum conditions are the use of 85 weight % of ethyl alcohol in water at 78°. On cooling the micella separates into an upper layer containing some oil and most of the color, and a lower layer from which oil very free from color and acidity can be obtained.—M. SATO, T. INABA and K. KITAGAWA. *J. Soc. Chem. Ind., Japan*, 38 (1935), 50B; through *J. Soc. Chem. Ind.*, 54 (1935), B., 559. (E. G. V.)

Fishy Flavor—Investigations on. Experiments show that with increasing fishiness of fish oils and of ether extracts of fish products, the total nitrogen and the organically combined nitrogen increase. The brown color of these materials also increases with increasing nitrogen content. Varying amounts of the total nitrogen, up to 30%, can be liberated and distilled from fishy oils after treatment with various reagents. Nitrogen can enter into organic combination with various oils, notably linseed oil, by keeping the oil for a period of weeks in contact with a source of nitrogen such as casein, betaine or lecithin; this can also be accomplished in a short time by heating oils with trimethylamine oxide at 105°. Linseed oils treated in this manner invariably develop an unmistakably fishy odor. When oils are heated with trimethylamine oxide, considerable reduction to trimethylamine also occurs. Neither cholesterol nor the unsaponifiable matter of vegetable and animal fats nor glycerol give fishiness with trimethylamine oxide at 107°. Only a slight browning of the reagents occurs. The fatty acid fraction of linseed oil, however, reduces trimethylamine oxide appreciably and some nitrogen enters into organic combination. A fishy flavor is also produced. Maleic acid in aqueous solution (100°) does not react with trimethylamine oxide. In glycerol solution (120–130°) some reduction to trimethylamine occurs, but no odor of fishiness can be detected. Fishy oils and their extracts and steam distillates, after treatment with various reagents, give positive reactions for formaldehyde in the phloroglucinol and Schryver tests for formaldehyde; the tests for peroxide and trimethylamine by phloroglucinol (purple) are also given. Fishiness appears to be associated with traces of peroxides, formaldehyde and tertiary nitrogen either in the form of the volatile base, trimethylamine or as its oxide (or a mixture of both).—W. L. DAVIES and E. GILL. *J. Soc. Chem. Ind.*, 55 (1936), 141T. (E. G. V.)

Indian Oil-Seeds. A lecture.—F. J. F. SHAW. *J. Soc. Arts*, 83 (1935), 945; through *J. Soc. Chem. Ind.*, 54 (1935), B., 859. (E. G. V.)

Oils and Waxes—Electrical Conductivity of. The increase in conductivity of heavy oils and of paraffin wax near the melting point with fall in temperature may be due to progressive crystallization with a fall in temperature, the substances behaving as 2-phase systems.—A. GEMANT. *Nature*, 135 (1935), 912; through *J. Soc. Chem. Ind.*, 54 (1935), B., 660. (E. G. V.)

Palm Oil—Solid and Liquid Components of. The stearin is separated from the crude oil by filter-pressing. The crude solid is melted slowly, cooled and pressed in a screw press, the process being repeated 2 or 3 times. During the separation, fatty acids and carotene tend to accumulate in the olein. The color remaining in the stearin is insufficient to necessitate bleaching.—T. A. BUCKLEY. *Malay. Agric. J.*, 23 (1935), 315; through *J. Soc. Chem. Ind.*, 54 (1935), B., 859. (E. G. V.)

Vegetable Oils—Constituents of. A review dealing particularly with the lesser known constituents.—H. A. BOEKENOOGEN. *Chem. Weekblad*, 32 (1935), 230; through *J. Soc. Chem. Ind.*, 54 (1935), B., 509. (E. G. V.)

Waxes—Chemistry and Metabolism of Plant and Insect. New methods have been devised to separate the various components of waxes, and the products thus obtained have been investigated by means of X-rays.—A. C. CHIBNALL. *J. Soc. Chem. Ind.*, 55 (1936), 259. (E. G. V.)

Waxes—Preparation and Application of Artificial. A review.—R. STRAUSS. *Angew. Chem.*, 48 (1935), 279; through *J. Soc. Chem. Ind.*, 54 (1935), B., 560. (E. G. V.)

Unclassified

Acetaldehyde—Conversion of, into Acetic Acid. A review.—H. THOMMEN. *Chem.-Ztg.*, 59 (1935), 133; through *J. Soc. Chem. Ind.*, 54 (1935), B., 261. (E. G. V.)

Alcohol—Dehydration of. Methods available for the dehydration of ethyl alcohol are described. Ethyl alcohol, initially 88.5 weight %, on treatment with suitable proportions of potassium acetate and subsequent distilation, was dehydrated to 94.5% in one stage, 97.25% in two and 99.22% in three stages. Loss of potassium acetate during its recovery from the exhausted solution is minimized by addition of potassium hydroxide. Improved apparatus for the dehydration is figured and described.—H. D. SEN and G. M. GUPTA. *J. Sci. Tech. India*, 1 (1935), 69; through *J. Soc. Chem. Ind.*, 54 (1935), B., 745. (E. G. V.)

Alkyl Resorcinols. Germicidal and antiseptic compounds such as secondary heptyl, octyl and nonyl resorcinols are prepared by condensing resorcinol with alcohol or alkyl halide such as

secondary heptyl bromide, secondary octanol, etc.—WILLIAM E. AUSTIN, assignor to BANK OF THE MANHATTAN CO. U. S. pat. 2,030,423, Feb. 11, 1936. (A. P.-C.)

Aminoarsenobenzene—Method of Purifying. Toxic by-products are removed by suspending impure aminoarsenobenzene in a lower aliphatic alcohol in the presence of a strong mineral acid, neutralizing the mixture by cautious addition of alkali, whereby a pseudo-solution of the aminoarsenobenzene is produced, and separating the undissolved toxic by-products.—STANISLAW KIELBASINSKI. U. S. pat. 2,042,259, May 26, 1936. (A. P.-C.)

Antimonyl Gluconic Acid—Multivalent Metal Salts of. Water-soluble organic antimony compounds are obtained by dissolving antimony oxyhydrate in an aqueous solution of a multivalent metal salt of a polyhydroxy monocarboxylic acid such as calcium gluconate, calcium glucinate, magnesium gluconate, copper gluconate, nickel gluconate, calcium mannonate or calcium lactobionate, compounds suitable for technical and therapeutic purposes being thus formed.—WALTER KUSSMAUL, assignor to CHEMISCHE FABRIK VORM. SANDOZ. U. S. pat. 2,031,268, Feb. 18, 1936. (A. P.-C.)

Aristolochia Indica L.—Chemical Analysis of Root of. The ethereal oil obtained from the root of *Aristolochia indica* had the following properties: D_{25}^{25} 0.9525; n_D^{25} 1.5023; $[\alpha]_D^{25}$ −33.11°; acid number 2.0; ester number 7.3; ester number after acetylization 22.5. It is soluble in 95% alcohol and practically insoluble in 70% alcohol. After the saponification with hot 5*N* alcoholic potassium hydroxide solution, palmitic and oleic acids were obtained, and a trace of camphor. Through a fractional distillation process new sesquiterpene compounds were obtained which had the following characteristics: Ischwaren, $C_{15}H_{24}$, colorless flakes, m. p. 130–132°; b. p. 102–104°; D_{25}^{25} 0.9227, n_D^{25} 1.5035, $[\alpha]_D^{25}$ −42.37°; Ischwaren hydrochloride, $C_{15}H_{24}HCl$, b. p. 128–130°; D_{30}^{30} 1.0200; n_D^{30} 1.5017; $[\alpha]_D^{30}$ −18.7°. Ischwarone, $Cl_5H_{24}O$, is a ketone and appears in colorless flakes, b. p. 118–120°; D_{30}^{30} 1.0290; n_D^{30} 1.5122; $[\alpha]_D^{30}$ −46.47°. A semicarbazone $C_{16}H_{25}ON_3$ appears as needles, m. p. 240°. *p*-Nitrophenylhydrazone, $C_{21}H_{27}O_2N_3$, separates in yellow flakes from acohol, m. p. 186.5°. 2,4-Dinitrophenylhydrazone, $C_{21}H_{26}O_4N_4$, separates in yellow needles from alcoholic solution m. p. 167.5°. From the production of the oxime, a new compound was obtained ($C_{15}H_{23}ON$) which crystallizes from methyl alcohol; it was insoluble in alkalis and seemed to have an active hydrogen; it probably has an isoöxime derivative. Ischwarol, $C_{15}H_{22}O$, was obtained as a yellowish oily substance, D_{30}^{30} 0.9926; n_D^{30} 1.5098; $[\alpha]_D^{30}$ −7.29°.—U. S. KRISHNA RAO, B. L. MANJUNATH and K. N. MENON. *Chem. Zentr.*, 107 (1935), 359. (G. B.)

Azo Dyes—Mercury Derivatives of. Since azo dyes, such as the hydrochloride of 2,4-diamino-4-ethoxy azobenzene, are used as antiseptics in infections of the urinary tract, several compounds having a hydroxy-mercuri group attached to one of the benzene nuclei were prepared and studied but were found to be too insoluble for biological testing.—W. BRAKER and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 25 (1936), 499. (Z. M. C.)

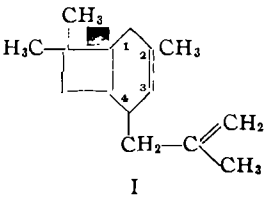
Bactericidal Organic Acids. Various details are given of the preparation of acids such as 4,4-dimethyl-1-carboxypentane; 5,5-dimethyl-1-carboxyhexane; 5,5-dimethyl-1,1-dicarboxyhexane; 6,6-dimethyl-3-carboxyheptane; 6,6-dimethyl-3,3-dicarboxyheptane; 7,7-dimethyl-3-carboxyoctane; 7,7-dimethyl-3,3-dicarboxyoctane; 2,2,10,10-tetramethyl-6-carboxyundecane; and 2,2,10,10-tetramethyl-6,6-dicarboxyundecane; *e. g.*, the first mentioned of these compounds is prepared by allowing potassium cyanide to react upon 4,4-dimethyl-1-bromopentane to form a nitrile and then hydrolyzing the latter.—FRANK C. WHITMORE, AUGUST H. HOMEYER, DAVID M. JONES and WALTER R. TRENT, assignors to MALLINCKRODT CHEMICAL WORKS. U. S. pat. 2,032,159, Feb. 25, 1936. (A. P.-C.)

Benzoyl Persulfide—Preparation of. There being indications that benzoyl persulfide might be useful in some types of dermatosis where pruritis is a predominating symptom made it necessary to provide sufficient amounts for extensive trial. Reference is made to laboratory methods used in the past. The use of iodine as an oxidizing agent is discussed at some length in order to lead up to the use of hydrogen peroxide which was the one decided upon. Reactions which occur when iodine is used are shown as well as those with hydrogen peroxide. In using hydrogen peroxide, a solution of potassium hydrosulfide and of potassium thiobenzoate is prepared as usual, then the following procedure is carried out. "Without filtering off the potassium chloride and with continuous stirring, 1,200 cc. of concentrated hydrochloric acid are added in a fairly rapid drip, whereupon some additional potassium chloride precipitates. This is now filtered off and washed with two liters of alcohol, adding the washings to the filtrate. This is diluted with three liters of water

at room temperature. Finally 1,200 cc. of a 30 per cent solution of hydrogen peroxide is added in a fairly rapid drip with stirring and cooling externally with cold water. When the alcoholic solution of thiobenzoic acid is oxidized with hydrogen peroxide the benzoyl persulfide does not separate at once with each increment of hydrogen peroxide, as in the case when iodine is used. It may begin to separate slowly during this addition, or it may not separate at all until all the hydrogen peroxide is added, after which most of it separates during a period of one-half to one hour. This separation is accompanied by a rise in temperature, which is kept at 30° C. or below by external cooling with water. It is easy to observe the point where the reaction is complete since the yellow reaction mixture turns milky white fairly suddenly, representing a suspension of a white crystalline substance in a water-white, clear mother liquor of alcohol. It is best to permit the mixture to stand overnight in the cold, before filtering, since if the suspension were to be filtered at once, only about 83 per cent of the yield would be obtained at this stage, the rest crystallizing from the mother liquor on standing over night. By allowing the whole reaction mixture to stand over night we obtain the total yield with one filtration. The crude product is pure enough not to need recrystallization, but may be recrystallized once from hot ethylene dichloride if desired."—E. MONESS, W. A. LOTT and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 25 (1936), 397. (Z. M. C.)

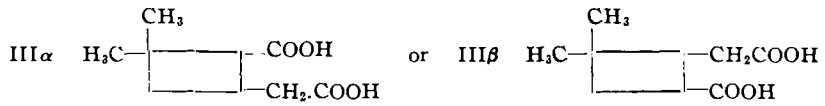
Bismuth Salts of Camphoric Acid Esters. Preparation and Toxicity of. Use of lipoid-soluble bismuth preparations in the therapy of syphilis has increased interest in bismuth salts that are soluble in vegetable oils and have a low toxicity. In this connection ortho-methyl, ethyl and *n*-butyl esters of the bismuth salt of camphoric acid were prepared and their solubility in oil investigated. The toxicity of the oil solutions was determined by intramuscular injections into white rats. Details of experimental work are reported. Solubilities and toxicities are tabulated. —W. M. LAUTER and H. A. BRAUN. *J. Am. Pharm. Assoc.*, 25 (1936), 394 (Z. M. C.)

Caryophyllene—Constitution of. The classification of the known compounds of *caryophyllene* leads to the formation of a compound I

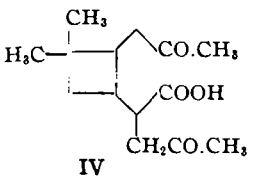


I

which is the chief constituent of caryophyllene (sesquiterpene-mixture). This compound will render new principles. In ozonizing the compound I, it will render a diketonic acid compound $C_{14}H_{22}O_4$; when this is further oxidized, it changes over to caryophyllenic acid (either IIIα or IIIβ). To the diketonic acid

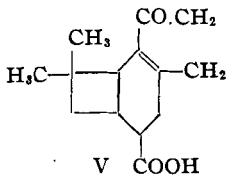


the formula IV was



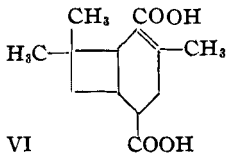
IV

assigned because through the application of alkaline solution of bromine water it splits up, probably because of the influence of the formation of an unsaturated ketonic acid ($C_{14}H_{20}O_3$) V



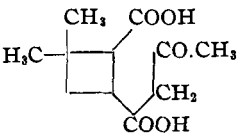
V

which is further oxidized to a crystalline unsaturated dicarbonic acid compound ($C_{13}H_{18}O_4$) VI; continuing from this point in using the



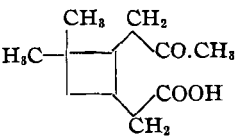
VI

hydration process as a catalyzer, a crystalline compound dihydro acid and the compound VI, a new crystalline substance is recovered: ketodicarbonic acid ($C_{12}H_{18}O_5$) VII,



VII

which loses one molecule of water when heated at 200°. The possibility is discussed in the attachment of methyl or iso-butenyl groups to the cyclic ring, especially in formula I; also during the formation of compound VII and VIII.

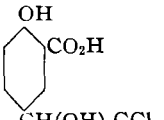


VIII

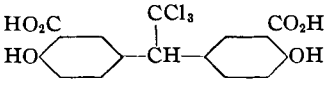
Another ketonic acid $C_{11}H_{18}O_3$ compound is formed during the ozonizing of the compound in I which was oxidized to caryophellenic acid (either IIIα or IIIβ).—L. RUZICKA. *Chem. Zentr.*, 107 (1936), 349. (G. B.)

Chloral—Condensation with Salicylic Acid. Condensation of chloral with salicylic acid by the action of sulfuric acid produced, when poured into ice-water, a microcrystalline precipitate. This precipitate, in methyl alcohol solution, was treated with hydrogen chloride and yielded $\beta\beta\beta$-trichloro-4:4′-dihydroxy-3:3′-dicarboxy-$\alpha\alpha$-diphenylethane ($C_{16}H_{15}O_6Cl_3$) (II) (m. p. 200–202°). 2-Hydroxy-5-$\beta\beta\beta$-trichloro-α-hydroxyethylbenzoic acid ($C_9H_7O_4Cl_3$) (I) (m. p. 180–182°) was obtained from the aqueous acid mother-liquor. The acid (II) yields a monoacetyl derivative (m. p. 190–192°) but not a diacetyl derivative. By the action of diazomethane, a methyl ester (m. p. 97–99°), which was easily monoacetylated (m. p. 90–92°), was prepared. Upon treatment with warm sulfuric acid, the acid (II) produced hydrogen chloride and 6-hydroxy-

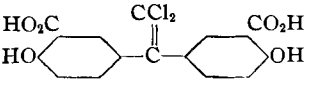
isophthaldehydic acid (m. p. 248–250°). This acid is likewise produced by the action of alcoholic potassium hydroxide. Upon oxidation of the aldehydic acid with permanganate, 4-hydroxyisophthalic acid (m. p. 308–310°, decomp.) is produced. The diphenylethane derivative (I) gives a dimethyl ester (m. p. 120–122°) which forms a diacetyl derivative (m. p. 290–292°). The dimethyl ester is reduced to ββ-dichloro-4:4′-dihydroxy-3:3′-dicarboxy-αα-diphenylethylene (III) (m. p. 170–172°) by the action of potassium hydroxide.



(I)



(II)

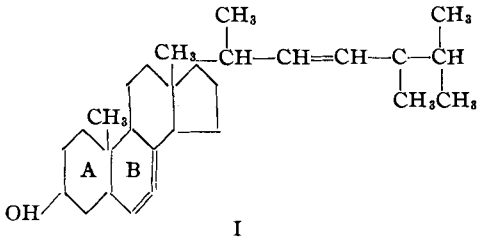


(III)

—FERNANDO CALVET and MARIA N. MEJUTO. *J. Chem. Soc.* (1936), 554–556. (G. W. F.)

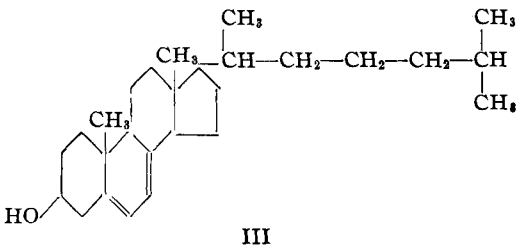
4-Chlororesorcinol—Alkyl Ethers of. Details are given on the manufacture of germicidal ethers of 4-chlororesorcinol such as the mono-butyl ether, which boils at 128° to 130° C. under a pressure of 1 mm., and the monohexyl ether which boils at 152° to 162° C. under a pressure of 2 mm.—ROLAND R. READ, assignor to LAMBERT PHARMACAL CO. U. S. pat. 2,036,827, April 7, 1936. (A. P.-C.)

7-Dihydrocholesterin—Properties of. The authors state that characteristic of ergosterin (I)



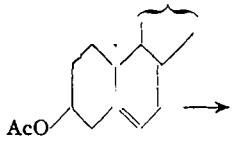
I

is that both double bonds are located at the C_5-C_8 atoms in the ring B; this case of attachment causes the typical ultraviolet absorption reaction; it also has the first position in the molecule throughout all reactions. Above all the antirachitic acitivity of the compound seems to depend especially on this point of attachment. All isomers and similar sterins in which the double bond is differently attached are not active; contrary to this another compound 22, 23-dihydroergosterin (II) is identical with (I) except for the absence of a double bond at the C_{22}-C_{23}; this compound becomes active after it is irradiated, although it remains 30 times less active than (I). The authors made the attempt to prove the antirachitic activity of other sterins which have the double bond in the B ring. Such a sterin, *i. e.*, 7,8-dihydrocholesterin (III)



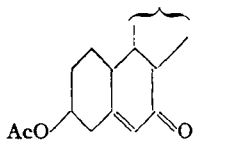
III

was prepared from cholesterin as follows: cholesteryl acetate (IV)



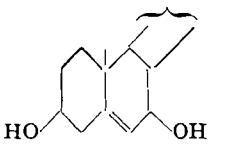
IV

was oxidized to 7-oxy-derivative (V)



V

and in turn reduced to 7-oxycholesterin (VI)



VI

The dibenzoate of (VI) loses one molecule of benzoic acid at 200°, and forms a benzoate of (III). (III) is strongly levorotatory and has the same absorption spectrum and other similar properties as (I) and (II); through irradiation with ultraviolet rays, it is changed over into a compound having a high antirachitic potency. Nevertheless its activity is half as much as (I). Remarkable of this compound, was that, because of the absence of a methyl group at the C_{24}, it caused a 15 times increased activity of the vitamin reaction against the irradiated compound (II). The results of this experiment are important in that it leaves no doubt that there is a sharp difference between the natural vitamins D and D_2.—A. WINDAUS, H. LETTRE and F. SCHENECK. *Chem. Zentr.*, 107 (1936), 355. (G. B.)

Diphenol Isatin—Method of Acetylating. Diphenol isatin is acetylated to form the diacetyl compound by adding acetic anhydride to a solution of diphenol isatin in aqueous alkali solution under conditions (including that of temperature) preventing substantial hydrolysis of the acetic anhydride, and after the reaction has taken place rendering the solution substantially neutral.—JOHN W. ORELUP. U. S. pat. 2,041,856, May 26, 1936. (A. P.-C.)

Gluconic Acid—Study of Bismuth Salts of. Bismuth preparations used in the treatment of syphilis are water-soluble, oil-soluble and suspensions of insoluble compounds (named in order of decreasing rates of absorption and excretion). The present report has to do with water-soluble bismuth salts of gluconic acid which had not previously been described. A mono-sodium di-bismuthyl gluconate and a mono-sodium tri-bismuthyl gluconate were prepared; also a product of higher bismuth content, probably a mixture. Methods of preparing the salts and analyzing them are given in detail. The mono-salt contained 59.6% bismuth and the tri- 67.6%. When injected intravenously they showed a minimum fatal dose of approximately 7 mg. of metallic bismuth per Kg. which agrees with similar toxicity observed for some water-soluble tartrates and citrates injected into rats.—W. M. LAUTER and H. A. BRAUN. *J. Am. Pharm. Assoc.*, 25 (1936), 497. (Z. M. C.)

Halogen-tannins—General Reaction of. When a few drops of freshly prepared chloro-tannic or bromo-tannic solution is added to water containing electrolytes, the mixture turns violent pink, as in the case of iodo-tannic solutions. The color is not due to nascent iodine liberated by hydrolysis or oxidation of a hypothetical iodo-tannic compound, but rather to the presence

of carboxyl and hydroxyl groups in the aromatic nucleus.—F. ALLEGRI. *Boll. chim. Farm.*, 7 (1935), 555–556; through *Chimie & Industrie*, 35 (1936), 886–887. (A. P.-C.)

Hydroxydiphenylisatin Condensation Derivatives. The patent claims as new condensation products of a phenol selected from the group consisting of ortho, meta or para-hydroxydiphenyls having a halogen nuclearly substituted on the hydroxylated phenyl nuclei and hydroxydiphenyls having an alkyl group of the lower aliphatic series nuclearly substituted on the hydroxylated phenyl nuclei and isatin.—WALTER G. CHRISTIANSEN and SIDNEY E. HARRIS, assignors to E. R. SQUIBB AND SONS. U. S. pat. 2,043,282, June 9, 1936. (A. P.-C.)

8-Hydroxy-Quinoline—Miscellaneous Derivatives of. The alkylation of phenolic germicides frequently increases the activity of the compound. 5-Propyl-7-chloro-8-hydroxy-quinoline was found to be less active than the non-alkylated compound. An attempt was made to prepare metho-chloride of 5-chloro-8-hydroxy-quinoline in order to obtain a water-soluble product but its activity was found to be considerably less than the original salt. Anhydro-mercuri-5-chloro-8-hydroxy-quinoline and anhydro-mercuri-5-nitro-8-hydroxy-quinoline were insoluble and so were not tested. 5-(Diethylaminoethylamino)-8-hydroxy-quinoline showed no activity as a trypanocide and 8-diethylaminoethoxy-quinoline, though active was inferior to other well-known trypanocidal agents. Diethyl-aminoethyl ester of 5-carboxy-8-ethoxy-quinoline was found to be only slightly anesthetic. Anhydro-mercuri-5-nitro-8-hydroxy-quinoline was only slightly soluble in dilute alkali. Details of experimental work are reported.—E. MONESS and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 25 (1936), 501. (Z. M. C.)

Kojic Acid—Production of, from Xylose, by Aspergillus Flavus. The experimental results of a study of the effects of environmental changes upon the stability of a strain of *Aspergillus flavus* to produce kojic acid from xylose are presented. Yields corresponding to over 20% (by weight) conversion of xylose were obtained. The fermentation process is similar to that by which citric acid is made commercially and, likewise, could probably be adopted to the production of kojic acid in commercial quantities. The structure of kojic acid is such that it lends itself to the preparation of numerous derivatives.—H. N. BARNHAM and B. L. SMITS. *Ind. Eng. Chem.*, 28 (1936), 567. (E. G. V.)

Luminal—Polymorphism of. Luminal occurs in three modifications, all apparently members of the monoclinic system. They may be identified by their refractive indices, melting points and in part by their gross forms. There are one stable and two unstable forms. The stable melts at 174° C., one of the unstable at 156–157° C. and the other at 166–167° C.—A. KOFLER and R. FISCHER. *Arch. Pharm.*, 273 (1935), 483. (L. L. M.)

Organic Mercapto Compounds—Complex Compounds of. The physiological activity of auro-glutathionate and similar metal compounds is increased by combining with glutathione, ergothionine, etc., or aliphatic, aromatic or heterocyclic mercapto compounds such as cysteine, mercaptopropionic acid, thiosalicylic acid, 4-amino-2-mercaptobenzene sulphonic acid, xanthic acid, etc., or thiosubstituted carbohydrates such as thioglucose, thiogalactose, thiocellobiose, etc., or inorganic thio compounds such as thiosulphates, etc.—ADOLF FELDT, WALTER SCHOELLER and HANS-GEORG ALLARDT, assignors to SCHERING-KAHLBAUM A.-G. U. S. pat. 2,036,208, April 7, 1936. (A. P.-C.)

Pharmaceutical and Phytochemical Preparations—Preparation of, Procedures for the. Procedures for preparing (1) hydrazobenzene, (2) benzidine, (3) calcium phosphate ($CaHPO_4 \cdot 2H_2O$), (4) ferrous iodide, (5) aniline, (6) quinone, (7) hydroquinone, (8) sulfanilic acid, (9) methyl orange and (10) exsiccated ferrous sulfate.—C. A. ROJAHN. *Apoth. Ztg.*, 51 (1936), 674–675, 782–784. (H. M. B.)

Phenolic Derivatives—Water-Soluble. A water-soluble condensation product of (1) an alcohol containing a primary alcohol group, and (2) a member of the group consisting of the hydrohalide and sulfuric acid salts of complex phenolic amines, is obtained by the intercondensation of a phenol with at least molecular equivalent quantities each of formaldehyde and a secondary amine of the formula X—NH—X′, in which X and X′ are each alkyl or ring methylene groups.—HERMAN A. BRUSON and OTTO STEIN, assignors to ROHM AND HAAS CO. U. S. pat. 2,045,517, June 23, 1936. (A. P.-C.)

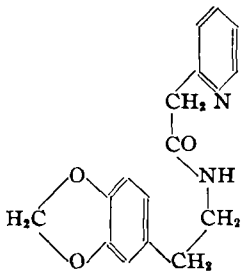
***p*-Methoxy Cinnamic Acid—Phenolic Esters of.** The guaiacol ester, α-naphthol ester and resorcinol esters were prepared. Methods used are described and properties of the products given. In the work on resorcinol esters the di-ester was obtained but attempts to separate the

mono-ester gave such a small yield that its characterization was not possible.—C. W. SONDERN. *J. Am. Pharm. Assoc.*, 25 (1936), 418. (Z. M. C.)

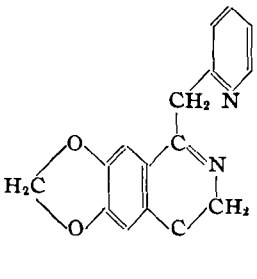
Phenylcarbamic Acid—Esters of. In the production of compounds such as the hydrochloride of the phenylurethane of gamma-dibutylaminopropyl alcohol, phenyl isocyanate (or other aromatic or substituted aromatic isocyanate or one of the corresponding carbamyl chlorides) is added to an equimolecular quantity of a dialkylaminopropyl alcohol in ether as a solvent. The mixture is heated for a short time to ensure completion of the reaction after which the hydrochloride of the ester is precipitated by passing dry gaseous hydrochloric acid into the reaction mixture. The ether is decanted and the insoluble product is dissolved in a hot mixture of acetone and ethyl acetate which on cooling precipitates the desired hydrochloride which possesses anæsthetic properties. As being new products, general claim is made to compounds of the formula Ar—NH—CO—OCH_2CH_2—$CH_2NR'R''$.HA, in which R' and R'' represent alkyl radical or in which R' and R'' together represent a pentamethylene chain, both ends of which are attached to N, in which Ar represents a radical of the benzene series, and in which HA represents a highly ionized inorganic acid.—THEODORE H. RIDER. U. S. pat. 2,033,740, March 10, 1936. (A. P.-C.)

Phenylethyl Alcohol—Esters of, with Organic Acids. I. Action as Antiseptics. II. Toxicity. The alcohol and a number of its esters are effective antiseptics for soy and saké, and in suitable amounts do not affect the quality of the fermentation product. The esters are nontoxic to white rats.—T. TAKAHASSI. *J. Agric. Chem. Soc. Japan*, 10 (1934), 970; through *J. Soc. Chem. Ind.*, 54 (1935), B., 572. (E. G. V.)

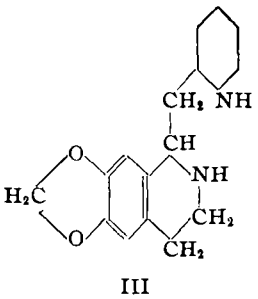
α-Picolylisoquinolines—Synthesis of. These compounds were synthesized as possible antimalarials. Refluxing pyridyl-2-acetic ester and β-3:4-methylenedioxyphenylethylamine at 200° resulted in the amide (I) (m. p. 89°). This underwent ring closure when refluxed with phosphorus oxychloride to form 6:7-methylenedioxy-1-α-picolyl-3:4-dihydroisoquinoline (II) (m. p. 105°), monopicrate (m. p. 210°, softens 205°), dihydrochloride (m. p. 210°). It is reduced to 1:2:3:4-tetrahydro-compound (b. p. 215°/1 mm.) by means of zinc in sulfuric acid and by hydrogenation in presence of platinum to 6:7-methylenedioxy-1-α-pipecolyl-1:2:3:4-tetrahydroisoquinoline (III) (b. p. 210°/1 mm.), picrate (m. p. 236°), hydrochloride (m. p. 293°). Attempted dehydrogenation of II to form 6:7-methylenedioxy-1-α-picolylisoquinoline was unsuccessful, the products being α-picoline and 6:7-methylenedioxyisoquinoline (picrate m. p. 293°).



I



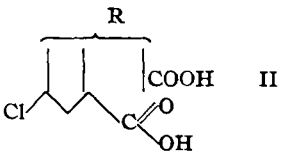
II



III

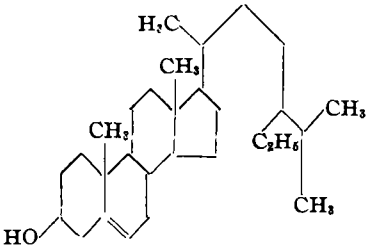
—G. R. CLEMO, H. MCILWAIN and W. MCG. MORGAN. *J. Chem. Soc.* (1936), 610–611. (G. W. F.)

Sitosterins—Structure of. Through the analysis of many sitosterin derivatives, the authors prove that the sitosterin molecule contains 27 C-atoms. The reaction product of the open ring in formula (II) explains the fact that it contains a six-ring molecule which has a double bond in the



II

same position as cholesterin. The energetic oxidation power of the side chain group yields acetone and another substance which has the odor of menthol; this compound is different from methyl-heptone, a compound obtained from cholesterin. So far sitosterin is different from cholesterin in



I

the building up of the side chain. The authors recommend formula (I) for sitosterin.—M. VANGHELOVICI and B. ANGELESCU. *Chem. Zentr.*, 107 (1936), 356. (G. B.)

Sterols and Related Compounds—Recent Developments in the Chemistry of. A review.—I. M. HEILBRON. *J. Soc. Chem. Ind.*, 55 (1936), 129T. (E. G. V.)

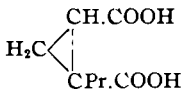
Tertiary Butylacetyl Halides. Therapeutic hypnotic, sedative and soporific compounds, produced by methods described in detail, consist of tert-butylacetyl chloride, boiling at 79° to 81° C. under 150-mm. pressure; α-bromo-tert-butylacetyl chloride, boiling at 93° to 97° C. under 36- to 38-mm. pressure, and α-bromo-tert-butylacetyl bromide, boiling at 82° C. under 18-mm. pressure.—FRANK C. WHITMORE and AUGUST H. HOMEYER, assignors to MALLINCKRODT CHEMICAL WORKS. U. S. pat. 2,034,850, March 24, 1936. (A. P.-C.)

Thiazole Compounds. Particular claim, as being a new compound, is made to the thiazole compound of the formula $N{:}C.C_6H_5.S.CH{:}CCH_2CN$, boils at 180° to 185° C. under 4- to 5-mm. pressure, and produced by digesting molecular quantities of 2-phenyl-4-chloromethylthiazole and of potassium cyanide in alcohol, separating the split-off inorganic salts by filtration, evaporating the excess of solvent and extracting the reaction product with ether. Production of various similar compounds is also described, including: 2-phenyl-4-phthalimidomethylthiazole, melts 151° to 152° C.; 2-phenyl-4-thiazylmethylamine di-hydrochloride, melts 217° to 218° C.; diethyl-2-phenylthiazole-4-methylmalonate, melts 112° to 113° C.; 2-phenylthiazole-4-methylmalonic acid, melts 151° C.; bis(2-phenylthiazole-4-methyl)malonic acid, melts 156° to 157° C.; 2-*p*-methoxyphenylthiazole-4-methylmalonic acid, melts 97° C.; 2(3,4-dimethoxyphenylthiazole-4-methyl)-malonic acid, melts 141° C.; 2-phenyl-4-phenoxymethylthiazole, melts 72° to 73° C.; and 2-phenyl-4-phenylmercaptomethylthiazole, melts 48° C. Various of these compounds may be used as therapeutic agents or as intermediates in the preparation of therapeutic agents.—TREAT B. JOHNSON, assignor to WINTHROP CHEMICAL CO. U. S. pat. 2,030,373, Feb. 11, 1936. (A. P.-C.)

Tri or Tetramethylenedicyanide—Condensation of, with Resorcin and Phloroglucin. In condensing phloroglucin with malonyl nitrile (HCl) and then hydrolizing the intermittent compound, *i. e.*, imidehydrochloride, two new compounds were obtained: 1,*o*-cyanacetylphloroglucin and 2,4,6,2,4,6-hexaoxydibenzoyl methane. Other investigators in trying to isolate a diketone from ethyldicyanide and resorcin obtained a ketonic acid instead. The author succeeded in completing the reaction of the higher homologs of ethylenedicyanide. He obtained, however, a monoketonic acid and a diketone. During the condensation of the dicyanide with resorcinol, a monoketonic acid was readily obtained. From the reaction between tetramethylenedicyanide and resorcin and then with phloroglucin, respectively, the expected diketone and monoketone were obtained; in the last-named experiment only the diketone was obtained.—M. YAMASHITA. *Chem. Zentr.*, 107 (1936), 337. (G. B.)

Umbellularic Acid—Synthesis of. The synthesis of this acid gives definite proof of the presence of the cyclopropane bridge in the terpenes of the thujane series which has been accepted for many years, although without synthetic evidence. Ethyl isopropylfumarate was condensed with diazomethane by the Buchner-Curtis method. The resulting pyrazoline lost nitrogen on distillation to yield ethyl 1-isopropylcyclopropane-1:2-dicarboxylate (b. p. 121–122°/13 mm., 94–96°/0.6 mm.) which hydrolyzed to give the *dl*-cis- and -trans-acids, the former (m. p. 98–99°)

being soluble in acetyl chloride, the latter (m. p. 197°) insoluble. The trans-acid was resolved by means of its brucine salt to form the *l*-trans-acid (m. p. 155°, $[\alpha]^{21°}_{6461}$ −236.2° (l = 2, c = 1.317 in acetone) and the *d*-trans-acid (m. p. 155°, $[\alpha]^{17°}_{6461}$ +232.1 (l = 2, c = 0.983 in chloroform). The cis-acid was likewise resolved into monohydrates m. p. 78–79° (anhydrous m. p. 119–120°), $[\alpha]^{16°}_{D}$ +86.9° and −88.8 (anhydrous). This proved to be identical to umbellaric acid, the structure of which is thus:



H. N. RYDON. *J. Chem. Soc.* (1936), 829–832. (G. W. F.)

BIOCHEMISTRY

Acacia—Rate of Disappearance of, from the Circulation, with a New Colorimetric Blood Acacia Method. Rate of disappearance of acacia after intravenous injection in dogs and rabbits was followed by a modification of the qualitative test for hexoses of Foulger. To 1.0 cc. of Folin-Wu filtrate is added 1.0 cc. of concentrated HCl, the mixture is heated on a water-bath for ten minutes, then 3.0 cc. of reagent (HCl, 100; urea, 40; $SnCl_2$, 2) are added and the mixture heated for 6 minutes. Comparison is made with an acacia solution similarly treated. Hexoses and phosphate are not present in sufficient concentration in the filtrate to interfere with color development by the pentoses resulting from hydrolysis of the pentosan. Results confirmed those of Peoples and Phatak, indicating virtually complete disappearance of acacia from the circulation within 14 days. The early part of the curve up to the 6th hour was found to be much less smooth than previously reported, discounting the value of using acacia content of the blood as a blood volume assay method. Inasmuch as the colorimetric method is as accurate as, and more rapid than distillation, reduction or spectroscopic methods, it is recommended for use as a clinical quantitative test.—GEORGE A. EMERSON and NILKANTH M. PHATAK. *J. Pharmacol., Proc.*, 57 (1936), 121. (H. B. H.)

Albumin—Quantitative Determination of, in Urine. The authors have carried out comparative determinations with all of the customary methods of determining albumin. An exact determination of albumin can only be made by gravimetric analysis, however, this is usually not necessary in practice, since for clinical purposes the estimation of the precipitated albumin is sufficient. The gravimetric analysis method of Scherer-Bang in which the acetate-acetic acid buffer solution of Sörensen is added to the acid urine gives good results. The authors found: the Esbach method (modified) gives very erratic results, the Tsuchija method gives totally useless results, the Porsio method gives results only 10 to 20% of the gravimetric results, Aufrecht's method gives large variations from the gravimetric results, the approximate method of Seifert-Müller gives the closest checks on the gravimetric method, the method of Roberts and Stolnikoff as modified by Hammarsten and Brandberg gives fair results in a very short time, the method of Kerridge could not be checked, and the polarization method is not reliable for small amounts of albumin.—H. KAISER and E. RIEDEL. *Süddeut. Apoth.-Ztg.*, 75 (1935), 1122; through *Scientia Pharm.*, 7 (1936), 62. (M. F. W. D.)

Alcohols and Brandies—Purification of. II. Absorption of Impurities by Various Charcoals. III. Elimination of Methyl Alcohol. The quantitative removal of isoamyl alcohol (I), butyl alcohol (II), furfuraldehyde (III), methyl aldehyde, (IV), acetic acid (V), and ether from an aqueous alcoholic solution (plum brandy) by absorption on blood, wood and two types of active charcoal has been determined. In general, (III), (IV) and (V) are more completely absorbed than (I) and (II), but the absorptive power of charcoal depends on its origin and method of preparation. Henry's law is obeyed in every case. It is impossible to remove the 1–2% of methyl alcohol (VI) present in the brandy by absorption on charcoal. Determinations of density on fractions obtained by distilling various ternary mixtures of water—ethyl alcohol—(VI) (concentration of (VI) is 1 or 2%) shows that the removal of (VI) by this method is impossible. The (VI) content of the brandy is principally derived from the fermented skins and pulp of the plum.—A. ZAHARIA, E. ANGELESCU and D. MOTOC. *Bul. Soc. Chim. Romania*, 16 (1934), 61, 75; through *J. Soc. Chem. Ind.*, 54 (1935), B., 745. (E. G. V.)

Aldehydes in Wine—Determination of, with the Pulfrich Photometer and with the Photoelectric Colorimeter. The colorimetric determination should be made 15–25 minutes after the addition of Schiff's reagent (2 cc.) to 10 cc. of the wine distillate, which should contain exactly 50% alcohol. Both methods give concordant results, with an accuracy of 0.2–0.3 mg. of aldehyde per liter.—C. TARANTOLA. *Ann. chim. applicati*, 24 (1934), 615; through *J. Soc. Chem. Ind.*, 54 (1935), B., 330. (E. G. V.)

Andrines—Chemistry of, Review of. Andrines are defined as those substances which promote the appearance in castrated organisms of the secondary, "accidental" sexual characteristics. The work of Butenandt, Ruzicka and others upon the structure of sterones such as androsterone, œstrin, testosterone, is reviewed. Twenty-five literature references are cited.—J. T. CHRISTENSEN. *Dansk Tids. Farm.*, 10 (1936), 113. (C. S. L.)

Antianemia Material from Liver. Fresh liver is autolyzed in a solution such as one containing hydrochloric acid and chloroform at about body temperature and having a p_H (suitably about 2.0 to 7.5) favorable for active autolysis, for such a time (which may be about 10 to 14 days) that the increase in the amino-acid content of the solution reaches a substantially constant level.—WILLIAM S. MCELLROY and WILLIAM F. HERRON. U. S. pat. 2,032,544, March 3, 1936. (A. P.-C.)

Antimony—Determination of, in Urine. Add silver nitrate solution (50%) to precipitate most of the chlorides present and then filter. Evaporate the filtrate and destroy the organic matter with nitric and sulfuric acids. Neutralize the resulting solution with sodium hydroxide solution, make slightly acid with hydrochloric acid, then neutralize with a cold saturated solution of borax. Add 2, 3 or 4 drops of $N/100$ hydrochloric acid, respectively, for 1–4, 5–9 or 10 cc. of the solution taken; add a drop of tartaric acid solution (10%) for each cc. of solution taken and slowly pass a stream of hydrogen sulfide through the solution for 10 minutes. Depending upon whether 1–4, 5–9 or 10 cc. of the original solution is used, 1, 2 or 3 drops of barium chloride solution (1%) is added, the solution is well stirred and the precipitate of barium sulfate and antimony sulfide is allowed to separate. The reaction should be carried out in a glass tube of about 18-mm. diameter and having a flat base. Remove the supernatant liquid by means of absorbent paper or by heating on a hot plate. Examine the precipitate from below and compare the tint with that of standards prepared under similar conditions. The reaction is sensitive to the determination of 0.01 mg. of antimony.—J. COUILLAUD. *Bull. soc. pharm. Bordeaux*, 73 (1935), 248. (S. W. G.)

Apple Juices, Concentrates and Syrups—Production of. I. The production of frozen, pasteurized, filtered and carbonated juices, and also concentrates and syrups of high solid content which do not gel or require sterilization, is summarized. Analyses of apple juice are included.—H. D. POORE. *Fruit Products J.*, 14 (1935), 170; through *J. Soc. Chem. Ind.*, 54 (1935), B., 476. (E. G. V.)

Ascorbic Acid—Action of, on the Viscosity of Gelatin Solutions. Tests carried out with the Scarpa viscosimeter showed that ascorbic acid produces a decrease in the viscosity of gelatin solutions, which is due chiefly, but not exclusively, to its acid function.—L. POZZI. *Biochim. terp. sper.*, 22 (1935), 356–362; *Chimie & Industrie*, 35 (1936), 894. (A. P.-C.)

Ascorbic Acid—Catalytic Oxidation of. Ascorbic acid, dissolved in tap water or ordinary distilled water, rapidly loses its reducing power toward indophenol (95% loss in 4 hours at 37°). In water repeatedly distilled from glass or quartz the destruction is much slower. Bubbling oxygen through the solutions has no measurable effect on the rate of destruction. The suggestion that oxidation is catalyzed by traces of metals present in the water was confirmed in various ways. The dried or incinerated residue from distilled water accelerated the destruction of ascorbic acid in glass-distilled water; $M/25{,}000$ sodium cyanide inhibited the effect of the metals; traces of iron and copper were found in the distilled water; addition of these metals (0.01 mg. in 40 cc.) accelerated the oxidation of ascorbic acid in quartz-distilled water. Extracts of various tissues (liver, kidney, muscle, spleen, plasma) had the same effect as cyanide in inhibiting the catalytic action of metals. Ringer's solution and sodium chloride had also some protective action. Erythrocytes offered marked protection, but leucocytes had no perceptible effect on the oxidation of ascorbic acid. In these experiments, most of the ascorbic acid was irreversibly oxidized, though usually some was present as dehydroascorbic acid.—A. E. KELLIE and S. S. ZILVA. *Biochem. J.*, 29 (1935), 1028; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 134. (S. W. G.)

Ascorbic Acid—Determination of, in Urine. Ascorbic acid reduces phospho-18-tungstic

acid with production of a blue color which is proportional to the ascorbic acid concentration and suitable for colorimetric measurement. In acid solution none of the other reducing substances in urine, except thiol compounds, interferes. Formaldehyde or mercury salts plus bisulfite prevent this effect with thiol compounds, so that the reaction becomes highly specific for ascorbic acid. One to 5 cc. of urine in a 25-cc. volumetric flask is mixed with 1 cc. of $M/1$ formaldehyde, 6.5 cc. of acetate buffer (p_H 5) and 1 cc. of Folin's uric acid reagent, and made up to 25 cc. After standing 20 minutes at room temperature, the solution is compared in a colorimeter with a standard similarly prepared with ascorbic acid. Ascorbic acid in urine oxidizes rapidly, the rate increasing with p_H, intensity of light and temperature. Reducing power can be preserved by acidifying the urine and saturating with hydrogen sulfide, which is removed by bubbling nitrogen or carbon dioxide through the solution for 30 minutes before testing. Recovery of ascorbic acid alone or mixed with urine was usually 98 to 100%. The colorimeter method agreed with the dichlorophenolindophenol titration method to within ±8%.—G. MEDES. *Biochem. J.*, 29 (1935), 2251; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 138. (S. W. G.)

Barbiturates—Determination of, in the Blood and Urine of Animals Anesthetized with Some Barbituric Acid Derivatives. The disappearance from the blood and the excretion in the urine of ortal sodium and of sodium amytal injected intravenously in anæsthetic doses has been studied in dogs. The method used for the determination consists in the removal of these substances from diluted urine or blood filtrates by activated charcoal and their subsequent release from the latter by means of an organic solvent. The color reaction described by Koppanyi is then employed. Injected at the rate of 100 mg. per kilogram body weight, within a period of seconds after the injection the concentration found in the blood is about half that calculated if it were uniformly distributed throughout the body. The amount in the blood then falls rather slowly and is still present in detectable quantities 24 hours after administration. For several days after the injection there is a substance excreted in the urine giving the color reaction of the barbital compound but not possessing anæsthetic properties when injected intraperitoneally in mice.—JOHN T. BRUNDAGE and CHARLES M. GRUBER. *J. Pharmacol., Proc.*, 57 (1936), 116. (H. B. H.)

Benzoic Acid—Detection of, in Wine. Constituents of wine giving a positive Millon reaction are dissolved with the benzoic acid during ether extraction and must be removed by alkaline potassium permanganate. The presence of 0.4 mg. of benzoic acid in 50 cc. of wine may then be detected by Millon's reagent.—H. OLEJNICEK and F. HANZELKA. *Chem. Obzor*, 10 (1934), 211; through *J. Soc. Chem. Ind.*, 54 (1935), B., 1160. (E. G. V.)

Brandy—Chemical Criteria of. The possibility of using the % of higher alcohols, lauric acid and total esters as criteria for the evaluation of brandy is discussed.—G. BUTTNER. *Z. Unters. Lebensm.*, 69 (1935), 463; through *J. Soc. Chem. Ind.*, 54 (1935), B., 871. (E. G. V.)

Crystal Urea. The material produced in this country is distinguished from imported urea by difference in crystal habit. It is obtained in compact four-sided rhomb-like prisms instead of the usual elongated acicular crystals. Our crystal urea is freer-flowing, shows less tendency to cake, and occupies about 25% less space for a given weight.—J. F. T. BERLINER. *Ind. Eng. Chem.*, 28 (1936), 517. (E. G. V.)

Free Acid—Determination of, in Strongly Colored Alimentary Liquids. Comparative results of titration of wines, coffee essences, etc., by the drop method and with the quinhydrone electrode are given. The results are concordant.—H. THALER and M. DE MINGO. *Z. Unters. Lebensm.*, 69 (1935), 407; through *J. Soc. Chem. Ind.*, 54 (1935), B., 875. (E. G. V.)

Hydroxymethylfurfuraldehyde and Levulosin—Determination of, in Port Wine and Other Sweet Wines. A method for the determination of hydroxymethylfurfuraldehyde (I) in sweet wine by extraction with ether and precipitation as phloroglucide is prescribed. Other aldehydes interfere, and must be removed. Failure to do this renders von Fellenberg's method untrustworthy. Oxidation of (I) with atmospheric oxygen must be avoided. Sweet wines, such as port wine, free from concentrated must or caramel, contain no (I), or only traces, but if concentrated must or caramel has been added, 100–1000 mg. of (I) per liter may be found. Adulteration of port wine with certain other sweet wines may be detected by this means. Levulosin is also present in small quantities in some sweet wines.—C. I. KRUISHEER, N. J. M. VORSTMAN and L. C. E. KNIPHORST. *Z. Unters. Lebensm.*, 69 (1935), 570; through *J. Soc. Chem. Ind.*, 54 (1935), B., 871. (E. G. V.)

Lead Content of Human Tissues and Excreta. An accurate method for the determination of small amounts of lead in tissues and excreta is described. For lead in urine, 500 cc. is evaporated, ignited in a silica dish, 5 cc. of nitric acid is added and the whole again ignited. The ash is dissolved in 100 cc. of water containing 5 cc. of concentrated hydrochloric acid, 100 cc. of a 20% solution of sodium citrate is added, and the mixture is made alkaline to litmus with ammonia (Sp. Gr. 0.88). Ten cc. of a 2% solution of diethyldithiocarbamate is added and the liquid is extracted with 25 cc. of ether, the ether extract is separated, washed twice with 25 cc. of water, and the combined aqueous liquids are again extracted with ether. The combined ethereal extracts are evaporated in a Kjeldahl flask, and heated with 1 cc. of sulfuric acid and 1 cc. of perchloric acid to destroy organic matter, fumes being removed by a water-pump. After digestion, 10 cc. of water, 1 cc. of glacial acetic acid and 5 cc. of ammonia (Sp. Gr. 0.88) are added in this order, and the volume is adjusted to 25 cc. with water. Five to 10 cc. of this solution is transferred to a 50-cc. volumetric flask and 6 drops of a 5% sulfurous acid solution are added for each 5 cc. of solution taken, 5 cc. of a 1% solution of potassium cyanide is then added, followed by 10 cc. of carbon tetrachloride and 0.5 cc. of 0.1% solution of diphenylthiocarbazone, and, after vigorous shaking, the aqueous solution is removed by means of a pipette. The organic liquid is washed four to six times with 10-cc. quantities of a 1% solution of potassium cyanide to remove excess of diphenylthiocarbazone and, after washing with water, the pink organic extract is compared in a colorimeter with standard solutions prepared at the same time in a precisely similar manner using 1 to 2 cc. of a standard lead solution equivalent to 0.01 to 0.02 mg. of lead. The aqueous layer, after extraction with carbon tetrachloride should be colored brown, indicating the presence of excess of reagent. For soft tissues, 100 Gm. of the finely chopped material is mixed with 100 cc. of a 10% solution of sodium phosphate, evaporated, ignited and treated as for urine. For bone or fæces 5 to 10 Gm. is ignited directly. For blood, about 20 cc. is withdrawn from the patient, rapidly pipetted into 100 cc. of 10% solution of sodium phosphate, evaporated to dryness and ashed with 1 cc. of nitric acid. The determination is continued as for urine, using only one-fifth the volume of reagents specified, except that the extraction with ether and carbon tetrachloride is performed with the quantities previously specified. In persons not exposed to lead poisoning, the average amount of lead found in mg. per Kg. was: liver, 1.73; kidney, 1.35; spleen, 1.68; brain, 0.50; rib, 8.55; vertebra, 7.1; total lead in right lung, 0.50. In human fœtuses the average concentration of lead is between one-half and one-third that found in normal adults.—S. L. TOMPSETT and A. B. ANDERSON. *Biochem. J.*, 29 (1935), 1851; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 141. (S. W. G.)

Must—Weight (Density) of, and Alcohol Content. No close relationship exists between the density of must and the percentage of alcohol of the wine made therefrom. Deviations are particularly marked in outstanding good or bad years. Since alcohol content depends mainly on the percentage of sugar in the must, treatment of the latter should be based on a determination of sugar.—E. VOGT. *Z. Unters. Lebensm.*, 68 (1934), 473; through *J. Soc. Chem. Ind.*, 54 (1935), B., 376. (E. G. V.)

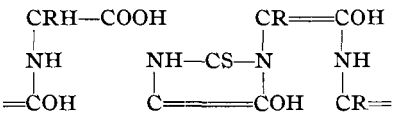
Musts and Wines—Establishment of a Nitrogen Balance in Grape. A procedure is described for the determination of protein-, ammonia-, amino- (after hydrolysis) and humin-nitrogen, and of nitrogen precipitated by phosphotungstic acid, in must and wine. The sum of these fractions agrees to within a few % with the total nitrogen by Kjeldahl's method. Analysis of seven wines and two musts, and of two wines during fermentation, are given.—F. MUTH and L. MALSCH. *Z. Unters. Lebensm.*, 68 (1934), 487; through *J. Soc. Chem. Ind.*, 54 (1935), B., 376. (E. G. V.)

New Zealand Ling Liver Oil—Vitamin A Content of. Seasonal Variations in the Vitamin and General Characteristics of the Oil. Analytical data are recorded. No definite cycle of variation in the vitamin A content of the oil was observed. The oil has a high proportion of unsaponifiable matter and low iodine value. Stearin is deposited from many samples at 20°. At 0° the whole solidifies and no liquid can be separated by centrifuging. The vitamin A content averaged 3,450–7,700 p. p. m.—F. B. SHORLAND. *New Zealand J. Sci. Tech.*, 16 (1935), 313; through *J. Soc. Chem. Ind.*, 54 (1935), B., 683. (E. G. V.)

Port Wine. The method of manufacture of the wine is outlined and literature relating to its composition reviewed. Analysis of numerous samples of basic wines (red and white) of the Douro district shows that the Blarez ratio (**B**) (reducing sugar per liter/rotation) is not greater than 3.4, whilst the glucose/fructose ratio (**R**) is not greater than 0.7, these being the only sugar present. Partly fermented must (**G**) gives similar figures for (**B**) and (**R**) but with

unfermented must (**B**) is greater than 4, and (**R**) may reach 0.9. With genuine Port wines, (**B**) varies from 2 to 3.6, and (**R**) from 0.3 to 0.7, but imitation wines and (**G**) give (**B**) and (**R**) greater than the upper of these limits. Detailed analytical figures are quoted in all cases. The importance of (**B**) in detecting adulteration is emphasized.—J. C. BOTHELO. *Ann. Chim. Analyst.*, 17 (1935), 49; through *J. Soc. Chem. Ind.*, 54 (1935), B., 425. (E. G. V.)

Protein Disulfide—Especially That of Gelatin. *Thiogelatin* is prepared as follows: Treat 100 Gm. of gelatin with 500 cc. of spring water until swollen, dissolve the jelly by warming on the water-bath, add 5.6 Gm. of slaked lime and stir well, boil for 4 hours under a reflux, concentrate to 300 cc., filter carefully from the unused lime. Boil the clear filtrate with 30 cc. carbon disulfide for 1 hour on a water-bath under a reflux condenser, separate and then digest with 15 Gm. hydrous manganese dioxide. After several hours with occasional shaking, filter. Evaporate the thiogelatin solution in thin layers at 40° C. to obtain scales. The compound is said to contain 44.03% C, 5.89% H, 4.73% S and 14.93% N. *Thioglutin* is prepared by treating 100 Gm. of gelatin with distilled water and boiling with carbon disulfide. To change this substance to *thiogelatin* treat 10 Gm. thioglutin jelly with 0.1 Gm. of pancreatin and place for 24 hours in an incubator. After the addition of some drops of 10% ferrous sulfate solution and 5 Gm. of chalk with short boiling a red solution of thiogelatin is obtained. The synthesis of gelatin is discussed. The substance is thought to be converted after oxidation into protein disulfide:



Physiological behavior of thiogelatin is also discussed.—OSKAR HUPPERT. *Pharm. Monatsh.*, 17 (1936), 87–90. (H. M. B.)

Protein-Free Urines Giving a Biuret-Like Reaction. A reaction is described similar to the biuret reaction, given by protein-free urines of many healthy and diseased humans, but not, apparently, by animal urines. This consists in adding freshly passed urine to form a layer on Benedict's qualitative or Fehling's solution—a reddish purple zone being formed at the junction. This reaction is investigated and refined and an attempt is made to isolate the substance responsible. The author concludes that this substance is not a peptone or urobilin, but that it is either a pigment of the urochrome group, or is associated with urochromes. "Urochrome" prepared from fæces, "lactochrome" from milk and "protochrome" from peptone did not give the reaction.—E. G. GODFRIED. *Biochem. J.*, 29 (1935), 1340; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 135. (S. W. G.)

Reducing Sugars and Sucrose—Determination of, in Plant Materials. Details are given for the clarification of extracted plant materials and for determining reducing sugars. The reducing sugars are oxidized with alkaline potassium ferricyanide; the ferrocyanide formed in the reaction is titrated in acid solution with ceric sulfate, which oxidizes the ferrocyanide back to ferricyanide, giving a measure of the reducing sugars present. The indicator used for the titration is *o*-phenanthroline ferrous sulfate. Using five different dry plant materials and squash sap, the results obtained were from about 0 to about 5% higher by this method than by the Munson-Walker method. The method is rapid and convenient, and covers a wide range of the sugar contents encountered in plants.—W. Z. HASSID. *Ind. Eng. Chem., Anal. Ed.*, 8 (1936), 138. (E. G. V.)

Salicaceæ. Contribution to the Biochemical Study of. VIII. Occurrence of the Heterosides in the Salicaceæ. The author states the results of his detailed study of the heterosides of this family in a table grouped according to species and parts of the plant. Salicoside is found in nearly all the species investigated, chiefly in the leaves; the only species devoid of these are *Salix triandra* and *S. arbuscula;* at present this heteroside has not been extracted in plants belonging to other families. Piceoside, discovered in *Picea excelsa* and again in *Amelanchier vulgaris*, also exists in 9 species of Salicaceæ. It is never found in the leaves but only in the root, in the branches, and above all, in the older bark. In many species the author found that salicoside occurred only in the leaves and petioles; the twigs containing much less, while one-year old branches contained a little accompanied by piceoside which existed only in the old bark; it is impossible to give a

physiological interpretation of this phenomenon. Populoside and salireposide are both derivatives of benzoylglucose; the presence of these two similar products in the same family is worthy of note. Salidroside, the heteroside in essence of rose and the bark of *Salix triandra*, has not yet been extracted from that species but it has been found that two other species (*Salix arbuscula* and *S. glauca*) both give a faint odor of rose on grinding the bark. Finally various Salicaceæ contain heterosides derived from flavonol; rutoside, daphneflavonoloside, salinigricoflavonoloside, flavopurposide which differ from the others and are all found in the leaves of various species.—J. RABATÉ. *Bull. soc. chim. biol.*, 17 (1935), 439; through *Schweiz. Apoth-Ztg.*, 74 (1936), 293. (M. F. W. D.)

Salicaceæ—Contribution to the Biochemical Study of. IX. Physiological Study of the Heterosides. The author examines and criticizes the work in vegetable physiology carried out on the glucosides of the Salicaceæ and especially on the heterosides. The determinations carried out by Jowett and Potter are not precise. The technic of Weevers is not sufficiently exact so that the interpretation of these experiments could be verified. Contrary to the statement of Jowett, the glucosides contained in the male and female stalks of *Salix purpurea* are closely related. This study was begun not only because of the defects in the methods chosen by previous workers, but also because it was not clear on what basis they have adopted the composition of glucosides so complex as found in *Salix purpurea*. Rabaté proposes to study the question of the physiological rôle of the heterosides using as examples *Salix nigricans* and *S. cinerea;* he has taken these species because the heterosidal composition is simple and the heterosides are present in sufficient amounts; also, the plants have parts sufficiently large to permit easy collection and are easily cultivated.—J. RABATÉ. *Bull. soc. chim. biol.*, 17 (1935), 442; through *Schweiz. Apoth.-Ztg.*, 74 (1936), 345. (M. F. W. D.)

Salicaceæ—Contribution to the Biochemical Study of. X. Study of the Leaves of Salix purpurea. Various authors think that the fermenting powders prepared from the leaves of various species of Salicaceæ hydrolyze the salicoside without affecting the amygdaloside and the amygdanitrile-glucoside. They conclude the presence of a salicase in these products. It is easily obvious that these powders prepared by various technics carefully described by J. Rabaté, hydrolyze salicoside and the phenolic heterosides very rapidly, and that heterosides having primary or secondary alcohol functions are equally hydrolyzed except that in these cases the speed of hydrolysis is much slower.—J. RABATÉ. *Bull. soc. chim. biol.*, 17 (1935), 561; through *Schweiz. Apoth.-Ztg.*, 74 (1936), 345. (M. F. W. D.)

Starch—Determination of, in Plant Tissues. Starch is extracted from plant tissues either by hot concentrated calcium chloride solution or by cold 21% hydrochloric acid, and is precipitated from the extract by means of iodine at the correct acidity and salt concentration. The iodine precipitate is decomposed with alcoholic alkali, and the starch is isolated as such, dissolved in dilute acetic acid and converted again to the iodine compound under conditions in which it remains in colloidal solution. The light transmission is read in a Pulfrich spectrophotometer and the quantity of starch present is calculated from a calibration curve constructed from observations on pure potato starch. The method has been applied to a number of plant tissues. The results, in general, are lower than those obtained by calculation of the starch from the sugar reduction obtained after hydrolysis, but are believed to be more trustworthy. It has been found that, in many cases, sugar-yielding substances contaminate the isolated starch and give rise to interference. The method is highly specific and gives results duplicable within 3% on quantities of starch between 1 and 3 mg. in the aliquot analyzed and within 10% on quantities as small as 0.1 mg.—G. W. PUCHER and H. B. VICKERY. *Ind. Eng. Chem., Anal. Ed.*, 8 (1936), 92. (E. G. V.)

Urine—Examination of. A review of methods.—BENNO SCHWENKO. *Pharm. Monatsh.*, 17 (1936), 85. (H. M. B.)

Vitamin B_1—Biochemical Lesion in Deficiency of. New methods of biochemical enzyme analysis have been applied by workers in the Department of Biochemistry, Oxford, to the problem of the origin of acute opisthotonus symptoms in pigeons suffering from vitamin B_1 deficiency. There is found to be a defect in the power of oxidizing certain carbohydrate intermediates in the central nervous system (especially in the lower parts of the brain); the most important substances concerned specifically with avitaminosis are lactic and pyruvic acid; of these the "biochemical lesion" is most closely related to the oxidation of pyruvic acid. Addition of minute amounts of crystalline vitamin B_1 *in vitro* to the avitaminous (not normal) brain tissue restores the diminished

tissue respiration. This is not only the first clear instance of the experimental realization of an *in vitro* reaction of a vitamin, but it constitutes a useful method of assaying vitamin B_1. This vitamin is a catalyst used by the tissue at some stage in the combustion of carbohydrate. Defect in this stage within the central nervous system will lead readily to convulsions. The research decides that two prominent theories of the action of vitamin B_1 were both partly true. Both avitaminosis pigeon and rat brain (but not normal) produce pyruvate *in vitro;* the presence of added vitamin B_1 removes this pyruvate. The blood of these animals with vitamin B_1 deficiency has present pyruvic acid in relatively large amount, which disappears upon dosing with vitamin. In China pyruvate has also been detected in the blood of beri-beri patients; so that there is a direct connection between the animal and human conditions. These observations emphasize the importance of biochemical studies in relation to the central nervous system.—R. A. PETERS. *Lancet*, 230 (1936), 1161. (W. H. H.)

Vitamin B_1, Crystalline. Crystalline vitamin B_1 preparations have been prepared by Jansen and Donath, by Van Veen, by Kinnersley, O'Brien and Peters, and by Williams, *et al.*, and slightly different properties have been assigned to them by the different investigators. The problem has now been thoroughly reinvestigated, and it appears that there is no significant difference between recent preparations from the various laboratories. The authors attempted by various means, notably fractional precipitation of phosphotungstate in presence of formalin, to fractionate their preparation, but failed to obtain increased activity. A nitrate, and two sulfates of the base have now been prepared. The analytical data for the salts, and molecular weight determinations by the X-ray method are not completely consistent, but the formula $C_{12}H_{18}O_2N_4S.2HCl$ may be accepted as a working hypothesis. The biological testing, using the pigeon day-dose method, is less reliable for the crystalline vitamin than with cruder preparations, but the best value is 437 (380 to 490) international units per mg. Comparisons by the catatorulin method also reveal no significant differences between the samples.—H. W. KINNERSLEY, J. R. O'BRIEN and R. A. PETERS. *Biochem. J.*, 29 (1935), 701; through *Quart. J. Pharm. Pharmacol.*, 9 (1936), 136. (S. W. G.)

Vitamins and Fatty Substances. The vitamin contents of some oils, fats and foodstuffs are tabulated, and sources, extraction methods and methods of detection and assay are described.—G. DE BELSUNCE. *Bull. Mat. Grasses*, 19 (1935), 100, 141; through *J. Soc. Chem. Ind.*, 54 (1935), B., 732. (E. G. V.)

Vitapric—Vitamin C Content of. This preparation from capsaicin-free Hungarian paprika contains 450 mg. of ascorbic acid per 100 Gm.—J. BECKER. *Mezog. Kutat.*, 7 (1934), 246; through *J. Soc. Chem. Ind.*, 54 (1935), B., 1116. (E. G. V.)

White Wines—Flavin of. The fluorescence of wine is due partly to flavin and partly to lumiflavin. It disappears at p_H 8 and becomes blue at p_H 1. Extraction with trichlorethylene removes lumiflavin, part of which is removed by shaking the solution with 0.1*N* sodium hydroxide.—L. GENEVOIS. *Bull. soc. chim.*, 1 (1934), 1504; through *J. Soc. Chem. Ind.*, 54 (1935), B., 203. (E. G. V.)

Wine—Residual Sugar of. The fermentable residual sugar consists of fructose, and not invert sugar. For the determination of small quantities of fructose in wine van-Creveld's method is recommended. For the determination of arabinose, furfuraldehyde is best precipitated as the 2,4-dinitrophenylhydrazone.—J. BURKARD. *Z. Unters. Lebensm.*, 69 (1935), 68; through *J. Soc. Chem. Ind.*, 54 (1935), B., 425. (E. G. V.)

Wines—Suggested Scoring System for. W. V. CRUESS. *Fruit Products J.*, 14 (1935), 269; through *J. Soc. Chem. Ind.*, 54 (1935), B., 695. (E. G. V.)