PHARMACEUTICAL ABSTRACTS

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ABSTRACTORS

CONTENTS

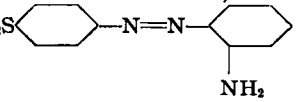
NEW REMEDIES

Synthetics

Analeptin—Preparation and Chemical Composition of Synthetic. Description of the most important synthetic stimulants such as adrenaline, caffeine, camphor, hexeton, Cardiazol, Coramin and also of a new synthetic, "Analeptin" (tetrahydrocaroyliden-2-menthanonamine) is given. Analeptin in doses of 0.01 Gm. exercises a stimulating action on respiration, heart and blood circulation systems. According to the chemical structures, it is composed from some 25 chemical substances, and its first analytical reaction is due to its iso or heterocyclic benzene ring and then secondly through hydration of the same. A ring with a carbonyl group has a weak cardiac action, and a ring with alkyl group has a strong cardiac action.—J. Erdos. *Magyar Gyógyszerésztudomanyi Társaság Értesitöje*, 10 (1934), 407–423; through *Chem. Zentr.*, 106 (1935), 926. (G. B.)

Dyes—Study of Injectable. A study of the dyes, gentian violet and methylene blue was made. The above dyes were free from any poisonous metals such as arsenic, lead and zinc. However, some iron was present which was not objectionable. The above metals may be present due to the method of preparation of the dyes. One per cent solutions of the dyes were injected into the marginal vein of 2.5-Kg. rabbits. Results obtained indicate methylene blue injections may be of value in the treatment of leprosy. The dyes were mixed with solutions of disodium phosphate, sodium acetate, sodium citrate, sodium glycerophosphate, sodium cacodylate and sodium chaulmoograte, and test injections made. A mixture of methylene blue and sodium chaulmoograte appeared to be of interest. This mixture was prepared as follows: a solution containing 10 Gm. of methylene blue, 10 cc. $N/10$ sodium hydroxide and 500-cc. saccharose (94 parts in 1000 cc.) is mixed with a solution containing 250 cc. $N/10$ sodium chaulmoograte, made up to 500 cc. with a solution of saccharose (94 parts in 1000). The resulting mixture will have a p_H of 7.24 and should be injected as rapidly as possible.—J. C. Peirer. *J. pharm. chim.*, 21 (1935), 389. (M. M. Z.)

Esmodil (Bayer, I. G. Farbenindustrie Aktiengesellschaft, Leverkusen) is chemically pure trimethylmethoxypropenylammonium bromide. It is a white, crystalline powder melting at 169° C. and is very soluble in water and in alcohol. It is a specific intestinal-peristaltic and is indicated in intestinal atony and in post-operative urine suppression. The usual dose is the intramuscular or subcutaneous injection of 1 cc. of a 3% isotonic solution.—*Pharm. Ztg.*, 80 (1935), 311. (G. E. C.)

Prontosil (Bayer, I. G. Farbenindustrie Aktiengesellschaft, Leverkusen a. Rhein) is the hydrochloride of 4-sulphonamide-2′,4′-di-amino-azo-benzene: H_2NO_2S  NH_2 $NH_2.HCl$. It is moderately soluble in cold water, alcohol and acetone and melts with decomposition at 247° to 251° C. It is dispensed in tablets containing 0.3 Gm. of prontosil mixed with starch and talc and also in solutions containing 0.05-Gm. prontosil and 0.85-Gm. dextrose per 20 cc. The preparation is recommended for use against septic angina, septic scarlet fever, septic diphtheria, erysipelas, polyarthritis rheumatica and postpartum sepsis. Intravenously, the does is 10 to 20 cc. daily. Orally 1 to 2 tablets are given daily to supplement injection therapy. A 1% to 2% solution is also used for disinfection of the oral cavity.—*Pharm. Ztg.*, 80 (1935), 276. (G. E. C.)

Redoxon (Hoffmann-LaRoche and Co., A. G. Berlin) is synthetic vitamin C. It is marketed in tablet form, each tablet containing 50 mg. of the vitamin.—*Deut. Med. Wochschr.*, 61 (1935), 178. (H. R.)

Specialties

Algolin Tablets (R. E. Müller & Co., Berlin-Pankow) consist of acetylsalicylic acid, lithium carbonate, quinine hydrochloride and phenylquinoline carbonic acid. They are used for neuralgia, migraine, headache, lumbago, rheumatism and grippe. 1 to 2 tablets are to be taken, two to four times a day.—*Pharm. Ztg.*, 80 (1935), 299. (G. E. C.)

Ambinon is an extract prepared from the anterior lobe of the pituitary gland, and contains thyroid-activating and gonad-stimulating hormones, both hormones being standardized by biological tests. Ambinon is indicated in obesity, menstrual disorders, gonad disfunction and

infantilism. The dose recommended is one ampul daily. Ambinon is supplied in powder form in ampuls, with the corresponding number of ampuls of sterile distilled water to be used as solvent. It is issued in boxes containing three ampuls.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 157. (S. W. G.)

Amphopulmon Ampuls (Chem. Fabrik F. L. Kwizda, Korneuburg) is a sterile solution of purified basic quinine, camphor, menthol, in a mixture of ethereal and fatty oils.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Amphyl is a non-corrosive antiseptic which is non-irritant, and non-staining, and has a low toxicity. Its coefficient against *B. typhosus* is 12.4 and against *Staph. aureus* 5.6. It is claimed to be uniform in action against a wide range of pathogenic organisms, and to be efficient in the presence of organic matter. Amphyl has a low surface tension which remains constant for all the recommended dilutions. A slight cloudiness is formed with hard water. A strength of 0.5 to 1% should be used for lotions, douches and gargles, but for sterilization of instruments and rubber gloves a 2% solution is required. The solutions are odorless and do not cause irritation when applied to broken or unbroken skin surfaces. Amphyl is supplied in 4-oz., 16-oz. and 32-oz. bottles, and in 1-gallon tins.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 157. (S. W. G.)

Animal Charcoal Pills. (Dr. Kronik and Ph Mr. Edels, Vienna, 7 dist.) Each contains 0.25-Gm. animal charcoal along with magnesium sulphide; 20 to a package.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Antrypol is the symmetrical ureide of the sodium salt of *m*-aminobenzoyl-*m*-amino-*p*-methyl-benzoyl-1-naphthyl-amino-4:6:8-trisulphate. It is recommended for the treatment of trypanosomiasis, and it is claimed that its use does not cause ocular lesions which are often a sequel to the arsenical treatment. Antrypol is effective alone if given in the early stages of infection by *T. gambiense*, but in infections by *T. Rhodesiense*, and in all cases in which the infection has reached the central nervous system, combined treatment with an arsenical preparation is recommended. Best results are obtained by intravenous injection, one every third day, first injection 1 Gm., second injection 2 Gm. and four injections of 3 Gm. If there is nephritis, smaller doses are suggested, but nothing less than 5 to 10 injections of 1 Gm. each is likely to be of any permanent value. Antrypol is supplied in boxes of 6 tubes containing 1 Gm., 2 Gm. or 3 Gm., and in bottles containing 50 Gm.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 157. (S. W. G.)

Aquilox tonic tablets are composed of a concentrate prepared from the tips of selected seaweeds. It contains in balanced proportions potash, soda, lime, magnesia, iron, chlorine, iodine, sulphur in various forms, phosphates, carbonates, sulphates, nitrogen and carbon compounds. Aquilox is recommended as a general tonic. The tablets are supplied sugar coated, and also talc coated in bottles of three sizes.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 158. (S. W. G.)

Bellergal (Sandoz A. G. Nurnberg) is supplied in the form of coated tablets containing 0.3-mg. ergotamine, 0.1-mg. Bellafolin and 20-mg. phenyl-ethyl barbituric acid.—*Deut. Med. Wochschr.*, 61 (1935), 176. (H. R.)

Bronchovydrin Ointment is composed of papvydrin (papaverine-eumydrine) small quantities of adrenal hormones, hypophysis extract and nitrates in an ointment base with a slightly acid reaction. It is recommended for the treatment of hay fever and other allergic conditions causing nasal catarrh.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 158. (S. W. G.)

Calmosine is the trade name given by Kon. Pharm. Fabrieken Brocades & Stheeman and Pharmacia (Netherlands) to amidopyrine diethylbarbiturate.—*Pharm. Weekblad*, 72 (1935), 867. (E. H. W.)

Calsimil tablets contain in each 10-grain tablet 5 grains of calcium sodium lactate and 500 international units of pure crystalline vitamin D. It is claimed that this preparation presents the calcium in a readily assimilable form and the vitamin D ensures that a large proportion of the calcium absorbed is retained in the reserve depots of the system for future utilization. Calsimil is suggested for the treatment of chilblains, general debility, certain skin affections, pregnancy and other disorders due to calcium deficiency. The dosage is 1 to 6 tablets daily, which can be swallowed or dissolved in the mouth. Calsimil is supplied in bottles of 60 tablets.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 158. (S. W. G.)

Citro-Gold (Pharm. Laboratorium K. Badenberg, Essen-Steele), a preparation of lemon witch-hazel, glycerin and boric acid, is used for coarse and chapped skins.—*Pharm. Zentralh.*, 76 (1935), 180. (E. V. S.)

Crinex is a total extract of ovary, in liquid form for administration by mouth. It is prepared from the ovaries of young animals and is rich in folliculin and contains all the other hormones. It is soluble in water, and does not lose its activity in the presence of acid, alkali or alcohol. It is not attacked by pepsin or trypsin. It is indicated in conditions of partial or total lack of ovarian secretion. Crinex is standardized to contain 30 mouse units per cc. The average dose is 12 to 25 drops per day taken in 2 or 3 doses between meals. Crinex is supplied in bottles containing 240 mouse units (approximately 280 drops).—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 158. (S. W. G.)

Cysteine Hydrochloride, Buffered (E. R. Squibb & Sons, New York, N. Y.). Ampuls containing cysteine hydrochloride with sufficient sodium borate so that when diluted they yield a solution of about p_H 4. It is used as a wet dressing on varicose ulcers, traumatic ulcers, postoperative wounds, suppurated carbuncles, decubital and trophic ulcers and extensively denuded surfaces upon which skin grafting has been unsuccessful. It is contraindicated in cases of malignant ulcerations or those classed as premalignant lesions, and X-ray dermatitis. It is marketed in packages of five 0.5-Gm. ampuls and 5-Gm. ampuls.—*Drug. Circ.*, 79 (May 1935), 29. (T. G. W.)

Darmiol (Homoöpathische Centralapotheke, gegr. 1865 von Prof. Dr. Mauch, Göppingen) is a pure acid-free mineral oil flavored with peppermint. It is useful for intestinal sluggishness and stubborn constipation.—*Pharm. Zentralh.*, 76 (1935), 180. (E. V. S.)

Diffundol-Salbe (Diffundol G. m. b. H., Frankfurt a.M.-Sud.) is a specially prepared soda soap with the addition of ethereal oils, rectified oil of turpentine, sulphur compounds and formaldehyde. It is used for rheumatism, gout, ischias and arthritis deformans.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Diphtheria-Formol-Toxoid SS Dresden (Sächsisches Serumwerk A.-G., Dresden) is an albumin-free serum, the antigen value of which is unaltered by the addition of formaldehyde. It may be used subcutaneously or intramuscularly.—*Pharm. Zentralh.*, 76 (1935), 180. (E. V. S.)

Diphtheria-Toxin-Antitoxin-Gemische neutral T.A. SS Dresden (Sächsisches Serumwerk A.-G., Dresden) is an active neutral immunizing mixture of diphtheria toxin and antitoxin from cattle or horses used for subcutaneous inoculation. Phenol (0.5%) is used as a preservative.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Dolosin (Friedrich-Apotheke, O. Gerlach, Berlin 0 112) preparations are marketed in capsule form as follows: Dolosin A. for headaches (dimethylaminopyrazolone, phenacetin, acetylsalicyclic acid); Dolosin G. for the grippe (phenacetin, dimethylaminopyrazolone, quinine hydrochloride, acetylsalicyclic acid); Dolosin N. for neuralgias (caffeine, phenacetin, dimethylaminopyrazolone, acetylsalicylic acid); Dolosin O. for toothaches (amidopyrine, acetylsalicylic acid, veramon).—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Draconal (Dr. R. E. Muller & Co., Berlin-Pankow) is a sedative tablet containing 0.23 Gm. of diethylbarbituric acid, 0.15 Gm. of bromisovalerianylurea, and 0.12 Gm. of paraacetphenetidin.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Elixir Alycin (Wm. S. Merrell Co., Cincinnati, Ohio), an elixir containing $4^1/_2$ grains of salicylate and 9 grains of alkali in an elixir base. It is used in conditions where salicylates are indicated; colds, tonsilitis, influenza, neuralgic complaints, rheumatism and arthritis. It is supplied in 4- and 16-ounce bottles.—*Drug. Circ.*, 79 (April 1935), 30. (T. G. W.)

Erinol (Pfau-Apotheke, Th. Thurn, Mainz), an inhalant for colds and throat catarrh, is composed of refined camphor, mentho, vanilla oil and purified paraffin oil.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Esmodil (Bayer, I. G. Farbenindustrie A.-G., Leverkusen a. Rh.), an injectable intestinal tonic, is a 1-cc. ampul containing a 3 parts per million aqueous isotonic solution of trimethyl methoxypropenylammonium bromide. It is used in intestinal atony after laparotomy or other difficult operative interferences, in infectious diseases with peritoneal irritation after childbirth or septic abortions.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Eubion is a vitamin A concentrate issued in the form of chocolate tablets. The vitamin A concentrate has an activity of approximately 10,000 Carr-Price units, and each tablet is equivalent in vitamin A to one tablespoonful (14.2 cc.) of best quality cod liver oil, with a suitable amount of vitamin D. It is claimed to be not only of considerable value to growing children, but also a

useful prophylactic against common cold in adults. Eubion does not cause gastric disorder, and can be given where cod liver oil cannot be tolerated. One or two tablets daily is recommended for children. In severe infections in adults, four or five tablets may be given daily. Eubion is issued in tins of 24 tablets.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 159. (S. W. G.)

Eupragin (Chem. Fabrik Aethylia G. m. b. H., Mainz) ampuls contain sodium sulphate (4.8%) and potassium sodium tartrate (1%). It is indicated for muscular rheumatism and lumbago.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Gadoment (E. L. Patch Co., Boston, Mass.). Gadus Ointment (Patch) is a preparation of cod liver oil for the treatment of burns and other skin lesions. It is reported by the manufacturer to contain specially treated cod liver oil 70%, phenol 0.375% in a special wax base. Marketed in tubes, one-pound and five-pound containers. (S. W. G.)

Gastro-Lymphon (Bineuco G. m. b. H., Weisbaden), an intestinal regulator, is composed of Ext. Colombo, gentian, juniper, condurango, curcuma, chamomile, peppermint, potassium bromide, potassium bicarbonate, arsenic and formaldehyde.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Genitone (Wm. S. Merrell Co., Cincinnati, Ohio). The green drugs of *viburnum prunifolium, passiflora incarnata* and *pulsatilla;* together with colorless hydrastis, in an aromatic cordial. Its action is that of a mild sedative, anti-spasmodic and analgesic and it is indicated in the treatment of amenorrhea, dysmenorrhea, menorrhagia and during puberty and the climacteric. It is supplied in pint bottles.—*Drug Circ.*, 79 (May 1935), 28. (T. G. W.)

Glucostrophin (Labopharma Dr. Laboschin G. m. b. H., Berlin) is marketed in two strengths, the weaker containing 20% of glucose and 0.00025 Gm. of strophanthin, while the stronger contains 0.0005 Gm. of strophanthin.—*Pharm. Zentralh.*, 76 (1935), 105. (E. V. S.)

Glutamiron (Calco Chemical Co., Inc., Bound Brook, N. J.). A combination of glutamic acid, ferrous glutamate and ferrous chloride; each tablet containing 75 mg. of available iron. This material must be given under the care of a physician and continued laboratory work is essential to check the results. It is used as a hematinic and gastric stimulant. It is supplied in bottles of 100, 500 and 1000 tablets.—*Drug. Circ.*, 79 (April 1935), 30. (T. G. W.)

Goebin (Heinr. Adolf Goebel, Steinhagen in Westf.), a preparation of diluted spirits, mucilage of acacia and precipitated sulphur, is used for skin eruptions.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Gonococcus Filtrate, Corbus-Ferry (Parke, Davis & Co., Detroit, Mich.) is a standardized bouillon filtrate of the gonococcus, containing the soluble specific extracellular toxin, and designed for intradermal injection. It is claimed to develop specific active immunity against the gonococcus. It is indicated in both acute and chronic cases of gonorrheal infection. It is supplied in packages containing a 2-cc. vial of filtrate and a 2-cc. vial of diluent.—*Drug. Circ.*, 79 (May 1935), 28. (T. G. W.)

Gynergen (Sandoz Chemical Works, Inc.: Distributors: E. Fougera & Co., Inc.). Ergotamine tartrate in the pure and stable form. The ampul solution produces a prolonged tonic uterine contraction and is painless and non-irritant. It is employed in obstetrics and gynecology to prevent or control uterine hemorrhage; in the puerperium to favor involution and prevent puerperal complications; in sympathicotonies such as migraine headache to relieve acute seizures. It is supplied in 0.5-cc. and 1-cc. ampuls; 0.001-Gm. tablets; and 0.1% solution.—*Drug. Circ.*, 79 (April 1935), 31. (T. G. W.)

Halicaps (Norwich Pharmacal Co., Norwich, N. Y.). Each capsule contains not less than 3 minums of halibut liver oil; vitamin tested to contain not less than 55,100 units of vitamin A and 767 units of vitamin D per Gm. Each capsule is the equivalent in vitamin A of at least four teaspoonfuls of standard cod liver oil and contains not less than 9414 units of vitamin A and not less than 131 units of vitamin D. It is indicated in rundown conditions due to a deficiency of vitamin A. It is supplied in boxes of 50 capsules.—*Drug. Circ.*, 79 (April 1935), 31. (T. G. W.)

Halmagon is a combination of the halogen salts of magnesium. It is supplied as tablets for oral administration, as an emulsion for intramuscular injection and as an isotonic solution for rectal injection. Each tablet contains magnesium chloride 0.395 Gm., magnesium bromide 0.0133 Gm., magnesium iodide 0.000067 Gm., magnesium fluoride 0.006 Gm., made up to 0.45 Gm. with excipient. Each ampul of the emulsion contains in 5 cc. approximately 34 grains of halogen salts consisting of chloride 2.137 Gm., bromide 0.58 Gm., iodide 0.00039 Gm., fluoride 0.00028 Gm.

The isotonic solution contains in each 100 cc. approximately 29 grains of the halogen salts. The formula is magnesium chloride 1.82%, bromide 0.04% and fluoride 0.0018% in sterile distilled water. Halmagon preparations are suggested for the correction of general and specific conditions due to a deficient magnesium supply in the diet. They are recommended for the treatment of asthenia, lack of tone, hypothyroidism, hypoadrenia and insomnia. One to three tablets dissolved in cold or tepid water are to be taken without food on arising in the morning. A course extending over 2 months is suggested. Intensive dosage can be given by intramuscular injection of the emulsion. It should be injected deeply, and causes no local irritation. For post-operative cases and patients confined to bed, large doses may be given as halmagon isotonic rectal solution. This is supplied in containers which only need to be attached to a rectal tube. Halmagon tablets are issued in boxes of 4 tubes each containing 15 tablets of 7 grains, sufficient for 4 weeks' administration. The emulsion is issued in boxes of six 5-cc. ampuls. Halmagon isotonic solution is supplied in 100-cc., 250-cc. and 500-cc. containers.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 159. (S. W. G.)

Heibitten (Apotheker Wagner and Goedike, Pharm. Fabrik, Salzwedel) are tablets containing caffeine (0.05 Gm.), phenacetin (0.15 Gm.), amidopyrazolone (0.15 Gm.) and antipyrine (0.15 Gm.). It is used for grippe, headache, migraine and rheumatism.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Hepatrat Ampuls. (Nordmark-Werke, Hamburg.) A liver extract; put up in packages of 3 and 10 ampuls containing 3.30 cc.—*Pharm. Presse*, 40 (1935), 104. (M. F. W. D.)

Hepatrat Liquid, Sweetened (Nordmark-Werke, Hamburg) is a liver extract in combination with a sugar solution; put up in 60-, 100- and 500-cc. containers.—*Pharm. Presse*, 40 (1935), 104. (M. F. W. D.)

Hovaletten, forte (Chemische Fabrik J. Blaes and Co. A.-G., München) is a white tablet exhibiting a sedative and mild hypnotic action similar to Hovaletten Hops and Valerian. The action is intensified due to the addition of 0.01 Gm. of phenylethylbarbituric acid and 0.05 Gm. of phenacetin per tablet.—*Pharm. Zentralh.*, 76 (1935), 105. (E. V. S.)

Hydronal (Bayer, I. G. Farbenindustrie A.-G., Leverkusen a. Rh.), a specially prepared aluminum hydroxide in tablet form, is used as an antacid against hyperacidity, for gastritis, heartburn, gastric ulcers and gastric pains.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Iscapral (Bayer, I. G. Farbenindustrie A.-G., Leverkusen a. Rh.) are tablets containing in each 0.06 Gm. of prominal, 0.5 Gm. of theobromine and 0.075 Gm. of potassium iodide triethanolamine. It is used as a spasmolytic and vasoregulator for heart and vascular pains of angina pectoris, arteriosclerosis, etc.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Jocapral (I. G. Bayer, Elberfeld) is a combination of 0.5-Gm. theobromine, 0.06-Gm. prominal and 0.075-Gm. iodocalciumtriethanolamine in tablet form. It is an antispasmodic and vasoregulator in heart disease and diseases of the blood vessels. It gradually reduces the blood pressure and is therefore employed in angina pectoris, arteriosclerosis, vasoneurosis etc. It is given in doses of $^1/_2$ to 1 tablet three times a day.—*Pharm. Weekblad*, 72 (1935), 568. (E. H. W.)

Katamenol-Dragees (Apogepha, Fabrik chem.-pharm. Praparate Dr. Starke and Max Biering G. m. b. H., Dresden-A 19), a tablet containing thyroid, ovarian substance and theobromine, is used for neurasthenia and disturbances of the menopause.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Larostidin is a 4% sterile isotonic solution of *l*-histidine monohydrochloride. It is suggested as reliable and safe for the treatment of gastric and duodenal ulcers. The treatment consists of a daily injection, either intramuscular or subcutaneous, of one 5-cc. ampul of larostidin for a period of 3 weeks. After 4 to 5 injections, pain disappears, nausea, vomiting and hyperacidity are relieved, and after 10 days a normal diet becomes permissible. It is claimed that 70% to 80% of the cases treated gave good results. Larostidin is supplied in boxes of 6 and 25 ampuls of 5 cc.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 160. (S. W. G.)

Leciminz (C. Gstettner, München) pastilles are composed of refined sugar (97 parts), lecithin (2.5 parts), peppermint oil, spearmint oil, ginger oil, starch and tragacanth. They are used to strengthen the nervous system.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

Ludozan (Schering Corporation, Bloomfield, N. J.) is synthetic aluminum sodium silicate containing about 12% of sodium silicate. The product is also made under the name of "Ludozan with Belladonna" and contains 0.5% extract of belladonna. It is used as an antacid, and in gastric

or duodenal ulceration. It is supplied in cans containing 21 individual prescription envelopes of $^1/_{10}$ of an ounce each.—*Drug. Circ.*, 79 (May 1935), 29. (T. G. W.)

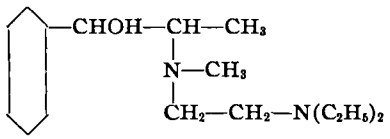
Luemed-Tablets (Dr. R. E. Muller & Co., Berlin-Pankow), an antisyphilitic, are effervescent tablets containing potassium dichromate (0.06 Gm.), potassium nitrate and magnesium superoxide.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Maltine with Spleenmarrow and Iron (Maltine Co., New York, N. Y.). Each fluidounce contains spleenmarrow concentrate, 10 minims; iron and ammonium citrate, 10 grains; copper, trace; maltine (fortified with a cod liver oil concentrate), *q. s.*, containing vitamins A, B, D and G. It is indicated in the treatment of anemia and general debility. It is supplied in 12-ounce bottles.—*Drug. Circ.*, 79 (May 1935), 29. (T. G. W.)

Neiso-Lysate (Eli Lilly & Co., Indianapolis, Ind.) is a solution of gonococcus proteins which have been put into solution by the action of bacteriophage. It is used for the treatment of gonorrheal infections and is supplied in 5-cc. and 20-cc. rubber-stoppered vials.—*Drug. Circ.*, 79 (May 1935), 28. (T. G. W.)

New Remedies. A review of new remedies for 1934 in which the important factors discussed are chemical structure, physiological properties and recent changes in nomenclature. The following are the items reviewed:

Isalon (Wiernik u. Co., Berlin) is 1-phenyl-2-(methyl- [diethyl-aminoethyl]—aminopropane

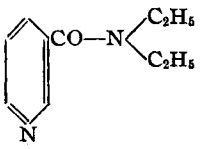


1-ol. It is said to be one-half as toxic as ephedrine and free from side actions.

Dermarodyl (Rosenberg, Freiburgi. Br.) is a depressor drug, supposedly the sulphocyanate derivative of acetyl-trimethylcolamine or a mixture of some sulphocyanate with acetyl choline.

Dyocid (Schumann, Berlin-Neuköln) is a mixture of theobromine calcium salicylate and digitalis leaves, containing also rubidium iodide. It is to be used in cardiac and vascular conditions.

Eurocan (Interpharma G.m.b.H., Prag) is a 25 per cent solution of pyridine-β-carboxylic acid-diethylamide,



recommended for respiratory and circulatory disorders.

Spascut and Astmocut (Dr. Lutze u. Co., Berlin) are ointments of pituitary extract made from a base of wool-fat into which has been incorporated 10 per cent of alcohol.

Emphysemon (Ysatfabrik, Wernigerode) is a protein-free extract of kidney parenchyma, to be given intra-muscularly or subcutaneously in bronchial asthma and emphysema. To it is attributed a specific action on the reticulo-endothelium of the lungs and bronchii.

Petein (Schering-Kahlbaum) is a bacterial vaccine originating from 60 different organisms and used against whooping-cough.

Hellisen (I. G.) is a mixed pollen extract representing 16 common European plants, used for the treatment of hay-fever.

Expectal (Köln-Mülheim) is an expectorant, containing potassium sulphoguaiacolate, extract of thyme and dipropylbarbituric acid codeine.

Larostidin (Hoffman-La Roche) is an isotonic solution of *l*-histidine hydrochloride for intramuscular or subcutaneous injection in the treatment of gastro-intestinal ulcers.

Citro-pepsin (Promonta-Werke, Hamburg) is a combination of pepsin and citric acid in the form of tablets. One tablet converts 10 Gm. of albumin to peptones and albumoses within three hours.

Mucitekt (Nordmark-Werken, Hamburg) is a mixture of mucin, vegetable proteins and protein constituents of the blood, used in the treatment of hyperacidity, heartburn and ulcers.

Enzynorm (Nordmark-Werken, Hamburg) is a biological preparation, stabilized with hydrochloric acid, said to represent the total stomach enzymes.

Enterofagos (Laboratoriums für medizinische Chemie und angewandte Biologie, Berlin-Greenwald) is presumably a mixture of polyvalent bacteriophages. It is intended for use against intestinal infections.

Alloton (J. D. Riedel-de Haën, Berlin) is a combination of volatile oil from garlic with desoxycholic acid, in crystalline form, which is stable in the stomach, but decomposed by the alkaline intestinal juice. It is recommended for the treatment of arterio-sclerosis and as an anthelmintic and intestinal antispetic.

Oxyaskarin (Dr. Brandt u. Co., Halle) is an anthelmintic, the active constituent of which is aluminum santoninate.

Varicocid (Gehe u. Co., Dresden) is an aqueous solution of the sodium salts of certain highly unsaturated fatty acids found in cod liver oil, intended for hypodermic use in the treatment of hemangiomæ and hemorrhoids.

Proviron and Androfort (Schering) are preparations containing the male sex hormone, isolated recently by Butenandt.

Proluton (Schering-Kahlbaum), *Lutren* (I. G.) *and Progestin* (Degewop) are preparations of the corpus luteum hormone.

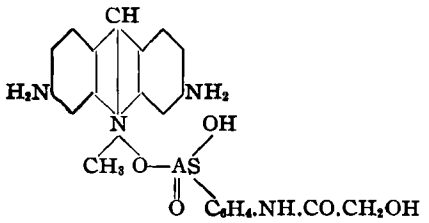
Ulterstonon (Promonta) is a glandular product made from the uterus of mature cattle.

Oestruzyl (Deutsche Gesellschaft für Pharmazie und Kosmetik, Berlin) is a form of combined ovarian and follicular hormones, said to be active when given orally.

Profecundin (A. Richter, Budapest) is a preparation of vitamin E for the prevention of habitual abortion.

Nafisal-Ovula (Zimmer u. Co., Frankfrut a. M.). The ovulæ contain octylhydrocupreicine hydrochloride and are used to combat the ichor of uterine cancer.

Flavadin (Curta, Berlin-Britz) is designated as a mixture of 3,6-diamino-10-methylacridinium-glycolyl-aminophenylarsinic acid,

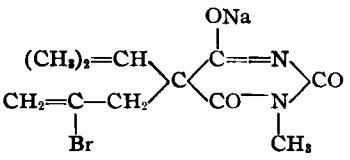


and Trypaflavine. It is used in the treatment of cervical gonorrhea of women.

Sigmagan (Max Queisner, Charlottenburg) is a urological remedy alleged to have the formula $C_{228}H_{227}O_{227}Na_{76}Ag$ with a molecular weight of 8969, corresponding to a silver content of 1.2 per cent. The formula appears to be in error.

Profundol (Promonta) is described as a three-phase hypnotic, employing for the first phase bromdiethylacetylcarbamide-citrate; for the second phase, allyl-sec. butyl-barbituric acid; for the third phase, the same barbiturate mixed with designated fatty acids to inhibit absorption in the stomach.

Eunarcon (J. D. Riedel-de Haën) is a 10 per cent solution of the sodium salt of isopropyl-β-bromo-allyl-N-methyl barbituric acid, having the formula,



In structure, this hypnotic is closely related to Evipan-sodium. It is said to offer a wide margin of therapeutic safety and to induce sleep lasting from twenty-five minutes to two hours.

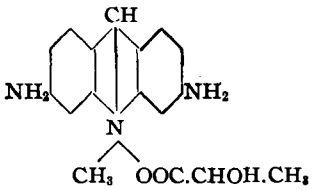
Rectidon (J. D. Riedel-de Haën) is the sodium salt of β-bromo-allyl-sec. amyl barbituric acid, intended for rectal administration as a hypnotic.

Alloform (Curta, Berlin) is a preparation of aluminum containing 45 per cent of water-soluble aluminum oxide. With water it affords a stable colloidal dispersion which may be used in place of aluminum acetate solutions. It is prepared by the action of ethylene oxide on a solution of aluminum chloride.

Katalyn-Silber (Schering-Kahlbaum) is a colloidal form of silver, adsorbed on a ceramic powder, recommended for angina.

Simanit (Verbandstoffindustrie A. G., Berlin) is said to contain silver manganite to which is assigned the formula $Ag_2O.2MnO_2$. It is supposedly unaffected by albumin and hydrogen sulphide and is marketed in the form of solution ointments and bandages.

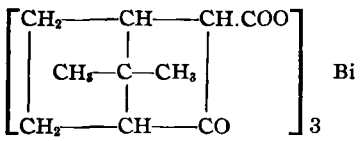
Argoflavin (I. G.) is a complex silver salt of 3,6-diamino-10-methylacridinium lactate, containing 20 per cent of silver. It is usually given intravenously for different forms of septic infection. The argoflavin component has the formula



Dulcargan (Dr. Winzer, Walldorf bein Frankfurt) is silver tetraborate, $Ag_2B_4O_6$, containing 58.1 per cent silver. Being non-irritant, it is recommended for infections of the eye.

Neo-Olesan (I. G.) is a 10 per cent solution in oil of the bismuth salt of dimethyl-endo-methylene-hexahydrobenzoic acid $(C_{10}H_{15}O_2)Bi$. It may be injected without pain in all stages of syphilis.

Lecibis (Dr. R. und Dr. O. Weil, Frankfurt) is the oil-soluble bismuth salt of tricampho-carboxylic acid, stabilized by means of lecithin. Its formula is given as



It is intended for intramuscular administration.

Bismutral (Nordmarkwerke) is described as a bismuth salt, stabilized by means of liver colloids. It is said to be effective as an antiluetic when given orally.

Omnival (Ifah, Hamburg) is a polyvalent vaccine, representing coli, streptococci, staphylococci and gonococci, suitable for intravenous injection against gonorrhea, syphilis etc.

Citrosulf (Nordmarkwerke, Hamburg) is a molecular compound of pyramidon and quininethiosulphate, containing also calcium, phosphorus and pentose nucleotide. It is to be used as an antipyretic.

Saridon (Hoffman-La Roche) is an antipyretic containing phenacetin, allylisopropylurea, sedormid, caffeine and isopropylantipyrene.

Calmuran-Salbe (Dr. Truttwein, Dresden) is a dermatological ointment containing 9 per cent of uranium and 7 per cent of bromine.

Dermazym (J. Blaes and Co., München) is a form of freshly prepared brewer's yeast without added preservative. It combines with water-soluble medicinal agents and may be emulsified with 50 per cent of fats, and with tar or balsam.

Vulnovitan (Gedeon Richter, Budapest) is a solution of vitamin A in sterile paraffin oil or an ointment thereof for application to infected and post-operative wounds or other purulent skin disorders.

Antipiol-Salbe (Laboratorium für medizinische Chemie und angewandte Biologie, Berlin) is a sterile, polyvalent, immunizing bacterial filtrate representing staphylococci, streptococci and pyocyaneous.

Aldifen (Biochemischen Laboratoriums, Locarno) is dinitrophenol in the form of dragees.

Pernaemyl and Pernaemyl-forte (Degewop) are protein-free liver extracts intended for parenteral injection.

Cabion (Merck), Cantantabletten (I. G.), and Redoxontabletten (Hoffmann-La Roche) are tablets of ascorbic acid (vitamin C).

Chromoson (Curta, Berlin) is a solution of methylene blue-glucose, to be given intravenously in doses of 10 to 20 cc. in cases of carbon monoxide and cyanide poisoning.—C. A. ROJAHN, *Arch. Pharm.*, 273 (1935), 177. (L. L. M.)

Noctusan (Homoöpathische Centralapotheke gegr. von Prof. Dr. Mauch, Göppingen) is prepared from tinctures and homeopathic dilutions of oats, passiflora, chamomile coffee, pulsatilla, nux vomica, ignatia and cypripedium. It is used as a soporific and nerve anodyne.—*Pharm. Zentralh.*, 76 (1935), 215. (E. V. S.)

Octinum-Suppositories (Fa. Knoll A. G., Ludwigshafen) contains in each 0.25 Gm. *Octinum oleinicum*, and cocoa butter; put up in packages of 5.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Pankresaletten (Dr. Richard Weiss, Berlin) contain the hormone found in the pancreas with the carbonic acid salt of dekamethylenediguanidine. The carbonic acid salt is soluble with difficulty in the gastric juice but is easily soluble in the intestinal fluid. This condition prevents digestive disturbances. Pankresaletten serve in the oral treatment of diabetes.—*Pharm. Weekblad*, 72 (1935), 568. (E. H. W.)

Paradies-Salbe (Hof-Apotheke, Baumer & Lang, Erlangen) is an ointment containing menthol, methyl salicylate, salicylic acid, chloroform, arnica, *Rhus toxicodendron*, belladonna and hyoscyamus. It is used for muscular and articular aches, gout and rheumatism.—*Pharm. Zentralh.*, 76 (1935), 216. (E. V. S.)

Paverysatum-Bürger (J. Bürger, Wernigerode) is prepared from *Fruct. Papaveris immaturi;* sold in 15-cc. vials.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Pentnucleotide (formerly known as nucleotide K. 96) is a solution of the sodium salts of pentose nucleotides prepared for intramuscular use. It is apparently a stable material, but should be stored away from light at room temperature. The preparation should not be used if it shows a precipitate or turbidity. It is recommended for treatment of agranulocytic angina, infections with leucopenia, benzol poisoning and infectious conditions such as pneumonia which are rendered more grave by a complicating leucopenia. The dose is one vial (10 cc.) injected intramuscularly twice a day until the white blood cell count has been normal for at least 3 days. In desperate cases 20 cc. may be injected twice daily for 4 days. If reactions occur, it may be administered in divided doses intramuscularly, the site being previously anesthetized with novocaine and adrenaline.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 160. (S. W. G.)

Peroxaan (Naarden Chemical Factory) is a 10% (by volume) solution of hydrogen peroxide appearing on the market under this name in bottles of 55 cc. capacity.—*Pharm. Weekblad*, 72 (1935), 568. (E. H. W.)

Phenochan Salve ("Pharma" G. m. b. H., Aussig) contains 10% glycerinate phenylcinchonic, phenyl salicylate, menthol, etc.; packaged in tins and tubes containing 30 Gm.—*Pharm. Presse*, 40 (1935), 104. (M. F. W. D.)

Proliferol (Ulmer Pharmacal Co., Minneapolis, Minn.). A solution of tannic acid, thymol and benzyl alcohol in an alcoholic distillate produced from a combination of tinctures of organic drugs. It stimulates the development of fibrous tissue cells and is used in the injection treatment of hernia. It is supplied in 60-cc. rubber-capped vials.—*Drug. Circ.*, 79 (April 1935), 30. (T. G. W.)

Proplasmin-Hautsalbe (Chem.-pharm. Institut Schuren, Berlin-Friedenau) contains in an easily absorbable ointment base, precipitated sulphur, camphor, bismuth subnitrate, zinc oxide, lanolin, glycerin, liquid paraffin.—*Pharm. Zentralh.*, 76 (1935), 216. (E. V. S.)

Psorimed (Chem. Fabrik Dr. Aug. Wolff, Bielefeld), an amber-colored liniment, contains in a fat-free mixture, coal-tar, elementary sulphur, salicylic acid and dioxyanthranol. It occurs in two strengths, and is used for scaly skin eruptions.—*Pharm. Zentralh.*, 76 (1935), 106. (E. V. S.)

Pyrethrum Ointment (Upshur Smith Co., Minneapolis, Minn.) is prepared from *Pyrethrum (chrysanthemum) cinerariæfolium* or other species and an absorbent fatty base. One hundred Gm. of ointment contains 0.75% pyrethrins. Its use in scabies has proved to be as effective as sulphur, without causing irritation or dermatitis. It is supplied in amber jars containing 100 Gm.—*Drug. Circ.*, 79 (May 1935), 28. (T. G. W.)

Resyl (Ciba Company, Inc., New York, N. Y.). A glycero-guaiacol preparation in syrupy form containing 0.08 Gm. of guaiacol per dram. It is used as a non-irritating expectorant and antiseptic, in cases of laryngitis, bronchitis and other pulmonary affections. It is supplied in 4-oz. bottles.—*Drug. Circ.*, 79 (April 1935), 30. (T. G. W.)

Rogerma (Laboratories du Rogerma, M. Mahieu, Lens.) is an antiseptic liquid for wound treatment containing 20 Gm. of sodium tetraborate, 4 Gm. of dioxybenzol, 20 Gm. of boric acid, 1 Gm. of salicylic acid, 0.1 Gm. para-isopropenylmetacresol, 0.33 Gm. *Erythroxylon Coca* and 5 Gm. of plant extractive.—*Pharm. Weekblad*, 72 (1935), 568. (E. H. W.)

Sagradol contains mineral oil and cascara sagrada in the form of a fine emulsion. It also contains aromatics, but no sugar, alcohol, narcotics or phenolphthalein. Sagradol is offered as a regulative tonic laxative, suitable for the treatment of chronic constipation and associated disorders. For adults the dose is a dessertspoonful twice to four times daily; the dose for children is smaller according to age. Sagradol is supplied in bottles of 7 and 15 fluidounces.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 160. (S. W. G.)

Sedozym (Chem. Fabrik J. Blaes and Co. A.-G., München) is a dried granular yeast preparation containing 50% of bromides as the sodium and potassium salts. It is used as a sedative.—*Pharm. Zentralh.*, 76 (1935), 106. (E. V. S.)

Sodium Formaldehyde Sulphoxylate (Winthrop Chemical Co., Inc., New York, N. Y.). A powerful reducing agent and is indicated in the treatment of mercurial poisoning. It is supplied in boxes of two 10-Gm. ampuls.—*Drug. Circ.*, 79 (May 1935), 28. (T. G. W.)

Specialties—Newly Registered. There are listed 85 pharmaceutical specialties registered in the months of March and April 1935, giving the manufacturer and agent, forms in which they are sold and a brief statement of their composition.—*Pharm. Presse*, 40 (1935), 175. (M. F. W. D.)

Staphylococcus Toxoid. Immunization with staphylococcus toxoid has been used recently as a combined method of prophylaxis against, and treatment of, chronic infections. Two preparations are issued: staphylococcus toxoid A—for active immunization ($^1/_{10}$ dilution) and staphylococcus B—for active immunization (undiluted toxoid), each in 1-cc. containers.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 160. (S. W. G.)

Stomachysatum-Bürger (J. Bürger, Wernigerode) is a preparation made from *Artemisia absynthii, Achillea millefol., Guaphal. aren., Rheum palmat.;* sold in 15-cc. vials.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Syncor-Suppositories (Fa. Syngala, G. m. b. H., Vienna, 16th dist.) contain Syncor fluid (equivalent to 0.10 Gm. digitalis leaves) and cocoa butter; put up in packages of 5 and 10.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Theobromine-Calcium Calcium Salicylate Pills. (Dr. Kronik and Ph Mr. Edels, Vienna, 7th dist.) Each contains 0.50 Gm. theobromine-calcium calcium salicylate; 10 to a package.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Tussedat Drops are prepared in two strengths. The simple cough-drops contain extract of *Castanea vesca*, drosera, primula and thyme, benzoic acid, bromides and ephedrine (0.35%). The stronger form contains the same ingredients except that the ephedrine is substituted by 0.8% ethylmorphine. The indications are all cough-causing afflictions of the respiratory organs and the dose is 25 drops 3 or 4 times a day in water.—*Pharm. Ztg.*, 80 (1935), 381. (G. E. C.)

Typhoral, Lilly (Eli Lilly & Co., Indianapolis, Ind.). Each puvule contains 10 billion heat-killed typhoid bacilli, triturated with a matrix of starch. It is used as an oral immunization against typhoid fever. Three pulvules constitute a complete immunization; a pulvule containing $1^1/_2$ gr. of ox bile is given with the first dose. The time for the appearance of antibodies is 4 to 6 weeks after the completion of the course. The treatment should be repeated in the spring of each year. It is supplied in a single immunization package containing 3 red pulvules and 1 green pulvule (ox-bile) and in boxes of 10 immunization packages.—*Drug. Circ.*, 79 (April 1935), 31. (T. G. W.)

Uroselectan-B-Ampuls (Schering-Kahlbaum A. G., Berlin) contain 1.75 Gm. of the disodium salt of *N*-methyldiiodochelidan acid in 5 cc.; one 5-cc. ampul to the package.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Vaginal Catarrh Powder-Twega (Twega, G. m. b. H., Vienna, 3rd dist.) contains boric acid, zinc sulphate, lycopodium and pyoktanin; put up in packages of 10 Gm.—*Pharm. Presse*, 40 (1935), 105. (M. F. W. D.)

Vionase tablets contain in each, dried yeast 2.5 grains, exsiccated ferrous sulphate, 2.73 grains, manganese hypophosphite, 0.03 grains, copper sulphate 0.03 grains, with excipient. It is indicated for the treatment of anemia, neurasthenia, debility, in pregnancy and lactation and as an adjuvant to liver therapy. The dose is one tablet three times a day. Vionase tablets are supplied in bottles of 30, 100 and 500.—*Quart. J. Pharm. Pharmacol.*, 8 (1935), 160. (S. W. G.)

Vitamin Capsules, "Maltine" (The Maltine Co., New York, N. Y.) are capsules containing halibut liver oil standardized with other fish liver oil, with added natural vitamin D and dicalcium phosphate. The latter is an efficient reinforcement of halibut liver oil. Each capsule contains not less than 9414 vitamin A units—942 vitamin D units and is equivalent in vitamin A and D content to not less than three teaspoonfuls of cod liver oil. Each capsule contains 2 grains of dicalcium phosphate. It is indicated in dietary deficiency, particularly as regards vitamins A and D and calcium and phosphorus. It is supplied in boxes of 30, four-minum capsules.—*Drug. Circ.*, 79 (April 1935), 31. (T. G. W.)

Weiche Wiener Eisenpillen (Hof-Apotheke Baumer & Lang, Erlangen) are pills containing a reduced iron activated with organic copper. It is used for anemias.—*Pharm. Zentralh.*, 76 (1935), 181. (E. V. S.)

BACTERIOLOGY

Antimeningococcal Serum—A Method for Titrating the Protective Action of. Mice were infected by the use of a 6% mucin suspension buffered at p_H 7.4. Cultures grown on 10% rabbit's blood pneumococcus agar for 14 to 18 hours were made up to a standard of 2 billions per cc. Dilutions with mucin were injected intraperitoneally into suitable strains. For test of antibodies, a dilution of the serum was injected 30 minutes previously. Tests on unselected mice are not satisfactory.—GEOFFREY RAKE. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1175. (A. E. M.)

Antistreptococcal Serum. The evidence obtained in puerperal fever causes suggests that such administration may sometimes have an unfavorable effect upon puerperal infections by hemolytic streptococci; and this impression is to some extent supported by the evidence of animal experiments. Although sera have been produced which would protect animals against infection by streptococci of artificially enhanced virulence, there is no satisfactory evidence that a serum has ever been produced which would afford more than very slight protection against hemolytic streptococci freshly isolated from acute human infections. Similarly there is no evidence that any antistreptococcal serum has ever exerted a curative effect in animals infected by such hemolytic streptococci freshly isolated from human infections. Until our knowledge of immunization against the hemolytic streptococci has progressed further it would seem desirable to discontinue the use of antistreptococcal sera in the treatment of puerperal fever and "surgical sepsis."—L. COLEBROOK. *Lancet*, 228 (1935), 1085. (W. H. H.)

Antityphoid Sera—Virulence Tests for Typhoid Bacilli and Antibody Relationships in. Intracerebral injection of mice with typhoid bacilli combined with intraperitoneal injection of antisera is suggested for measuring the protective value of sera against typhoid bacilli and also for testing the relative virulence of typhoid bacilli strains.—J. NORTON and J. DINGLE. *Am. J. Pub. Health*, 25 (1935), 609. (A. H. B.)

Bacteria in Water Samples—Effect of Temperature of Storage on. The number of viable organisms present in water after storage for 48 hours at 0–7° changes only slightly. The ability to ferment lactose is not inhibited at low temperatures.—FRED W. TANNER and DORIS L. SCHNEIDER. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 960. (A. E. M.)

Bacteriophage—Nature of Formalin Inactivation of. A staphylococcus bacteriophage was inactivated by 0.018% of formaldehyde. Diluting with 20–100 parts of water releases the bacteriophage again at a p_H of 6 to 6.6 and 37°. The reactivation is completed only after 10 to 15 days.—E. W. SCHULTZ and L. P. GEBHARDT. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1111. (A. E. M.)

Brilliant Green Value of, as a Local Antiseptic. Even in dilutions of 1–200,000, brilliant green inhibits the growth of *Streptococcus virdans* and pneumococci. A 1% solution is used on the external skin and a 0.5% solution on the mucous membranes and for infants.—J. K. NARAT. *Zentralbl. Chir.* (1934), 49; through *Deut. Med. Wochschr.*, 61 (1935), 72. (H. R.)

Brucelliasis—Studies of Correlated Human and Bovine. Investigation indicates that the ingestion of raw milk obtained from cows infected with contagious abortion and showing positive tests for agglutinins to *Br. abortus* in their blood is responsible for the development of similar agglutinins in the blood of some consumers. The disease manifestations are comparatively mild.—R. STONE and EMIL BOGEN. *Am. J. Pub. Health*, 25 (1935), 580. (A. H. B.)

C. Diphtheriæ—Isolation of Virulent and Highly Toxigenic Strain of. A virulent strain was recently isolated by the authors which is highly toxigenic, even in semi-synthetic medium, and which was comparable in all respects to Park-Williams No. 8 strain.—GEORGE F. LEONARD and AUGUST HOLM. *Am. J. Pharm.*, 107 (1935), 174. (R. F. F.)

Calcium Chloride Solutions—Effect of Sterilization on. Solutions were prepared using calcium chloride crystals of reagent purity and calcium chloride B.P. which only just complied with the Pharmacopœia "limit of free alkali" test. The results indicate that both Tyndallization and heating in an autoclave are suitable methods of sterilizing calcium chloride solutions, but the calcium chloride used must be of a high degree of purity to avoid the formation of deposits of calcium carbonate and other impurities such as compounds of iron and aluminum which may be present in calcium chloride meeting the specifications of the Brit. Phar.—C. E. COULTHARD and G. F. HALL. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 96–97. (S. W. G.)

Cinchona Alkaloids—Pneumococcidal Value of. III. Apocupreines (Apoquinine). The authors, on demethylation of quinine, have obtained two products (possibly geometric isomers) which they have named α- and β-apocupreines. Their dihydrochlorides are said to possess fairly high pneumococcicidal power *in vitro*, very low toxicity toward mice when compared with quinine, optochine or ethylapoquinine, and have a protective power similar to optochine and ethylapoquinine. The method of preparation and physical constants are given.—C. L. BUTLER and LEONARD H. CRETCHER. *J. Am. Chem. Soc.*, 57 (1935), 1083. (E. B. S.)

Diphtheria. Use of Intradermal Injections of Toxin-Toxoid Mixtures. Toxin-Toxoid mixture seems to give promise of being a usable Schick test preparation and consists of mixtures containing diphtheria toxin diluted to Shick strength in a diluent containing purified toxoid in various concentrations studied.—W. E. BUNNEY. *Am. J. Pub. Health*, 25 (1935), 623. (A. H. B.)

Diphtheria Toxin—Inactivation of, in vivo and in vitro by Crystalline Vitamin C (Ascorbic Acid). Vitamin C inactivates diphtheria toxin and helps to protect guinea pigs against the fatal outcome of diphtheria intoxication. Animals injected with vitamin C are temporarily rendered negative to small doses of the toxin.—CLAUS W. JUNGBLUT and RAYMUND L. ZWEMER. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1229. (A. E. M.)

Germicidal Substances. IV. Hexylresorcinol. Comparison of Resistance of Bacteria and Embryonic Tissue. The highest dilution inhibiting tissue growth of phenol is 1–840, of hexylresorcinol 1–21,000. The dilutions for inhibition of *Staphylococcus aureus* are 1–65 and 1–7000, respectively. This gives for resorcinol the very favorable toxicity index 3.—A. J. SALLE and A. S. LAZARUS. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1119. (A. E. M.)

Germicidal Substances. III. Mercurochrome. Comparison of the Resistance of Bacteria and Embryonic Tissue to. The highest dilution preventing tissue growth was found for phenol 1–840, for mercurochrome 1–10,500. The dilutions for inhibition of bacteria growth were 1–65 and 1–40. This gives a toxicity index of 12.9 for phenol and 262 for mercurochrome. Conclusion: mercurochrome rates low with reference to toxicity and germicidal power.—A. J. SALLE and A. S. LAZARUS. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1057. (A. E. M.)

Hemolytic Streptococci in Erysipelas. From 52 erysipelas cases sixteen strains of hemolytic streptococci of the beta type were isolated. The results are indicative of a low protective value of erysipelas serum as it is now being prepared. Anti-scarlatinal heterogeneous serum gave greater protection than our erysipelas antiserum against the post-scarlet erysipelas strain E 111 and the strain E 109, a primary erysipelas strain.—S. SPICER, M. F. GONSHOREK and E. L. SPICER. *J. Immunol.*, 28 (1935), 410. (A. H. B.)

Injection of Bismuth B.P.—Note on the Sterilization of. The author finds that injection of

bismuth can be sterilized by the autoclave process without previous sterilization of the various components of the preparation. Tyndallization is not as reliable.—C. E. COULTHARD. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 98–99. (S. W. G.)

Insecticides and Fungicides. The menace to public health of spray residues of lead, arsenic, fluorine and other inorganic materials on fruits and vegetables demands that insecticides of the future be organic materials, which are more toxic to insects and less toxic to mammals than are inorganic materials. Such insecticides will be extracted from plants or synthesized from compounds derived from natural gas, petroleum, shale oil, coal or plant products. These synthetic compounds need not be so complex in structure as nicotine, rotenone and the pyrethrins, for many easily made products of relatively simple constitution possess high insecticidal value. Pharmacological testing of new products must accompany their insectidal testing in order that the use of those poisonous to man and domestic animals may be avoided. The field for research is immense and largely untouched.—R. C. ROARK. *Ind. Eng. Chem.*, 27 (1935), 530. (E. G. V.)

Measles Serum—Use of Convalescent, to Control Measles in Preparatory School. In threatened outbreaks of measles convalescent measles serum in 10-cc. doses with a passive immunity of from 2–5 weeks is considered a satisfactory prophylaxis.—J. GALLAGHER. *Am. J. Pub. Health*, 25 (1935), 595. (A. H. B.)

Meningococcus Cultures—Viability and Virulence of Frozen and Dried. Frozen and dried strains of meningococci retain their viability for many months. Virulence is preserved for at least 6 weeks.—GEOFFREY RAKE. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 975. (A. E. M.)

Mercurials—Some Organic. The authors have studied the bacteriostatic action of 21 organic mercurials in which the mercury is linked to carbon. They found the mercury derivatives of more complex structure to be less effective than the mercury derivatives of hydrocarbons and phenols. The four most effective in order of decreasing activity were: *o*-hydroxyphenylmercuric chloride, phenylmercuric nitrate, phenylmercuric acetate and phenylmercuric lactate. *Staph. aureus* was used. The methods of preparation of mercurials are given or referred to.—MERRILL C. HART and HANS P. ANDERSON. *J. Am. Chem. Soc.*, 57 (1935), 1059. (E. B. S.)

Poliomyelitis—Convalescent Serum in. The pathogenesis of poliomyelitis, as a disease transmitted by nerve fibres, and entirely neurotropic, suggests the ineffectiveness of serum therapy because the antibody can never reach the virus in the central nervous system; therefore, the likelihood of success with a serum is slight.—M. BRODIE. *J. Immunol.*, 28 (1935), 360. (A. H. B.)

Preservatives—Notes on Some New, used in Pharmacy. The author had occasion to try the methyl and propyl esters of parahydroxy benzoic acid as preservatives for a solution of tartaric acid and an infusion of Calumba. The author concluded that a 1% W/V solution of tartaric acid in water may be preserved by the addition of 0.05% methylparahydroxybenzoate; or 0.01% of propylparahydroxybenzoate. The Fresh Infusion of Calumba is preserved for four days by 0.15% methylparahydroxybenzoate, the propyl ester having practically no preservative effect. The addition of 10% v/v of alcohol (90%) efficiently preserved Fresh Infusion of Calumba.—E. E. NYE. *Australasian J. Pharm.*, 16 (1935), 183. (T. G. W.)

Prontosil—Bactericidal Value of. Prontosil displayed streptococcicidal action in infected mice when given subcutaneously or perorally in concentrations up to 4%. As a rule 0.02–0.1 of the tolerated dose sufficed to cure the infection while in some cases 0.002–0.01 of the tolerated dose prolonged life. A good effect was also observed in chronic streptococcal infections in rabbits with swelling of the joints. While not as regular and sure in its effect on staphylococci as on streptococci, this dye was capable of curing rabbits with staphylococcal infections when given intravenously, subcutaneously and orally every day. There was no effect on pneumococcal or other bacterial infections. The non-toxicity of the drug was indicated by the fact that, perorally, mice tolerated at least 500 mg. per Kg. without any symptoms, rabbits at least 500 mg. per Kg. and cats at least 200 mg. per Kg. Subcutaneously, mice tolerated 1–2 cc. of 0.25% solution or 1–2 cc. of a 4% suspension of the dye per 20 Gm. Rabbits could be given at least 10 cc. of a 0.25% solution intravenously or subcutaneously daily for at least 14 days without any deleterious changes in the blood or urine. The dye is excreted in the urine which is colored red or reddish yellow about ½ hour after peroral administration.—GERHARD DOMAGK. *Deut. Med. Wochschr.*, 61 (1935), 250–253. (H. R.)

Psittacosis—Recent Studies on. The intraperitoneal injection of mice with the suspected

material constitutes the best and safest procedure to demonstrate the presence of the virus. Material from 6 human cases showed that the lungs invariably contained the infective agent in such concentrations that the mice succumbed in from 6 to 8 days with typical lesions. The majority of psittacosis infections have occurred in people of middle age. The lower susceptibility of children is well known. California will restrict the sale and distribution to lots of parrakeets which have been sampled and tested in the laboratory.—K. F. MEYER, B. EDDIE and I. M. STEVENS. *Am. J. Pub. Health*, 25 (1935), 571. (A. H. B.)

Psittacosis Virus—Growth and Development of, in Tissue Cultures. In these experiments the virus was obtained from 1930 infected parrots, and the virulence maintained by passage through mice. Tissue cultures in mice spleens and tissues from chicken embryos were used successfully; and also a fluid medium containing two parts of chicken plasma, three parts of chicken embryo extract and the fluid expressed from the broken clot diluted with an equal amount of saline solution. Stained by Giemsa's stain, the virus colonies were photographed and seen to undergo five cyclogenic phases: (1) The unidentifiable, (2) Homogeneous plaques, (3) Phase of large forms, (4) Phase of intermediate forms, (5) Phase of elementary bodies. This development phase cycle of varients starts in eight-hour cultures and ends at forty-eight hours of growth. Occasionally motile colonies of the virus have been observed. The virus infects both epithelial cells and fibroblasts.—J. O. W. BLAND and R. G. CANTI. *J. Path. Bact.* (Brit.), 40 (1935), 231. (A. H. B.)

Staphylococcus Toxins and Antitoxins. By hemolytic titrations and intracutaneous testing it was determined that certain strains of staphylococcus produce two toxins for which there are corresponding antibodies, namely, Alpha Beta antitoxins demonstrable in immunized horse serum.—A. T. GLENNY and MURIEL F. STEVENS. *J. Path. Bact.* (Brit.), 40 (1935), 201. (A. H. B.)

Sterilization by Dry Heat at 150° C. with Special Reference to Oils. The work reported confirms the bactericidal efficiency of the Brit. Phar. process for dry heat sterilization. The necessity of taking the temperature of oils by immersion of the thermometer in oil is stressed. The heating caused loss of color in the oils, but no significant deterioration was noted.—C. E. COULTHARD. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 90–93. (S. W. G.)

Sterilization of Oils—Note on. Results of experiments are noted. The following conclusions have been stated: 1. Even grossly contaminated oils are sterilized by heating at 150° C. for one hour, it is probable that heating at 140° C. for one hour, under reasonable clean conditions of working in a pharmacy, would ensure sterility. 2. The prescribed method of Tyndallization may fail to sterilize contaminated oils.—R. A. O'BRIEN and H. J. PARISH. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 94–95. (S. W. G.)

Vitamin C and Diphtheria Toxin. Vitamin C increased the resistance of guinea pigs to injections of diphtheria toxin. Mixtures of vitamin C and toxin kept in contact for one hour showed decreased toxicity. Such injections do not cause immunization.—CHARLES K. GREENWALD and E. HARDE. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1157. (A. E. M.)

BOTANY

Camphor—Maximum Yield of, Obtained from Laurus Camphora. Autumn is the most favorable season to collect leaves of *Laurus Camphora*, because they contain at this time, the most camphor.—A. ONISCHTRCHENKO and A. CHOMENKO. *Sowjet-Pharmaz. Russ.: Sawjetskaja Pharmacija*, 5 Nr. 6 (1934), 39–42, *Abchas. Zonale station Wilar*, through *Chem. Zentr.*, 106 (1935), 923. (G. B.)

Eucalyptus—Physiological Forms of, as Determined by the Chemical Composition of Essential Oils and Their Influence on Botanical Nomenclature. The occurrence of physiological forms in the Eucalypts is of considerable economic importance. *Eucalyptus dives*, the broad-leaf peppermint, contains from 40% to 50% piperitone. In some cases, the piperitone content fell far below this value, some yielding only 8% and 10% of the ketone. An observation was made of two trees growing together, indistinguishable by a botanist, but each containing a different essential oil. A peppermint odor, typical of *Eucalyptus dives*, was yielded by one, while in the other, an odor of cineol and terpineol was detected. It was therefore apparent that several varieties or forms of *Eucalyptus dives* existed, distinguishable only by chemical means. About the same time, a similar case was noticed with *Cinnamomum camphora*. The same behavior was noticed with

Eucalyptus radiata and *Eucalyptus micrantha*. It is evident that the discovery of these physiological forms is going to bring about a revolutionary change in the botanical nomenclature of the Eucalypts. Over 400 species have been recorded, and in view of the physiological forms which have already been observed, the question arises whether the actual number of species is likely to exceed 100.—A. R. PENFOLD. *Australasian J. Pharm.*, 16 (1935), 168. (T. G. W.)

Nicotiana Rustica—Harvesting Time for. The highest nicotine content (up to 4.93%) was found in overripe *Nicotiana rustica*, in spite of the infection frequently observed with this kind of tobacco on ripening.—S. KAMSKII. *Tabachnaya Prom.* (1934), 26; through *Chem. Abstr.*, 29 (1935), 3109.

Plants—The Growth-Promoting and Growth-Arresting Action of Pigments on. Certain pigments exercise a great influence on the vegetative growth of plants. Given pigments, especially if fluorescent, may either retard or promote growth, depending upon the concentrations at which they are applied. The cause of this phenomenon is related to the photodynamic action of the pigment, and is independent of the soil salts.—J. SELLEI. *Arch. Pharm.*, 273 (1935), 285. (L. L. M.)

Polypodiaceæ of Pharmaceutical Interest—Anatomical Investigation of the Leaves of. The following are the drugs considered: *Aspidium filix mas* (L) Sw., *A. lobatum* Sw. or *A. acule atum* Döll, *A. spinulosum* subspec. *dilitatum* Lam., *Athyrium filix femina* Roth., *Scolopendrium* Sm., *Blechnum spicant* With., *Polypodium vulgare* L., *Pteridium aquilinum* Kuhn., *Asplenium ruta muraria* L., *Asplenium trichomanes* L. *Asplenium ceterach* L., and *Adianthum capillis veneris* L. Photographs and illustrations, together with a key for differentiating the species are given.—E. BRAUN. *Arch. Pharm.*, 273 (1935), 201. (L. L. M.)

CHEMISTRY

GENERAL AND PHYSICAL

Acacia Solutions—Physicochemical Studies on. III. Osmotic Pressures of Solutions of Arabic Acid and Sodium Arabate. A method is outlined by which accurate osmotic pressure concentration relationships may be obtained for systems containing a colloid as the non-diffusible component. In the case of solutions containing arabic acid and sodium arabate, the equilibrium distribution of water and diffusible ions across the membrane was found independent of the size of pore and of the material of the membrane. The calculated osmotic pressure was consistently greater than the observed equilibrium pressure, the difference bearing a definite relationship to certain other variables in the system.—D. R. BRIGGS. *J. Phys. Chem.*, 38 (1935), 1145, through *Squibb Abstract Bull.*, 8 (1935), A-494.

Atomic Weights—Committee on—Fifth Report of, of the International Union of Chemistry. The report covers the period September 30, 1933, to September 30, 1934. Reports on the following atomic weight determinations are given: carbon, nitrogen, sodium, calcium krypton, columbium, molybdenum iodine, cesium, tantalum, lead, radium protactinium and the rare earths. The only change made in the table of atomic weights was columbium (miobium) from 93.3 to 92.91.—G. P. BAXTER, O. HONIGSCHMID, P. LE BEAU and R. J. MEYER. *J. Am. Chem. Soc.*, 57 (1935), 787. (E. B. S.)

Denatured Salts—Contribution to the Knowledge and Determination of. Denaturants of salts (rock, foundry or sea) allowable by law are mineral oil, iron oxide, powdered soap, sodium sulphate, sodium carbonate, uranin, crystal ponceau R_6, gut or rennet brine, alum and petroleum. The choice of the denaturant is dependent upon the purpose of the salt, such as sodium carbonate for bath salts, sodium sulphate for saponification salts, and alum or petroleum for tanning of hides. Typical formulæ for the various types of denatured salts are given. The detection and determination of the denaturants are carried out according to the usual analytical methods.—JOHANNES PRESCHER. *Pharm. Zentralh.*, 76 (1935), 157. (E. V. S.)

INORGANIC

Hydrogen Peroxide. Hydrogen peroxide was discovered by Thenard in 1818. Many attempts to combine oxygen and hydrogen directly to form hydrogen peroxide have been made, using catalysts such as high pressure, electrical methods, ultraviolet light, etc., but none have given results which are of value commercially. A recent development was the use of sodium

peroxide, from sodium made by the electrolysis of common salt, and decomposed by hydrofluoric acid. The persulphuric acid process was the first successful commercial process. The potassium persulphate process consists of electrolyzing an acid solution of ammonium sulphate until it contains from 10 to 15 grains of active oxygen per liter. It is then mixed with potassium bisulphate, and potassium persulphate crystallizes out. This is mixed with a solution of sulphuric acid and heated by steam in a still. Hydrogen peroxide and water distil, condensing as 100 volume peroxide. The ammonium persulphate process is the most recent. An acid solution of ammonium sulphate is electrolyzed, with the formation of ammonium persulphate, which when distilled reacts as: $(NH_4)_2S_2O_8 + H_2SO_4 + 2H_2O = (NH_4)_2SO_4 + 2H_2SO_4 + H_2O_2$. A small addition of phosphoric acid is made to assure the greatest stability.—E. I. ROSENBLUM. *Australasian J. Pharm.*, 16 (1935), 35. (T. G. W.)

Selenium—Distribution of, in Nature. The author has analyzed a large variety of geological materials for their selenium content and points out the economic importance of the distribution of selenium in nature, particularly in the fields of biology and agriculture. In spite of the fact that this is a rather rare element, its occurrence in amounts as small as 1 to 10 parts per million may constitute a great danger to agriculture as a toxic substance to plants and animals. Selenium is definitely poisonous and the gravity of this menace to mankind cannot be minimized.—LESTER W. STROCK. *Am. J. Pharm.*, 107 (1935), 144. (R. R. F.)

Kaolin—Pharmaceutical. The standards prescribed for kaolin are critically reviewed. Results of tests are given. Paragraph four in the monograph on Kaolin in the Belg. Phar. should be changed as follows: Mix intimately 3 Gm. of kaolin with 30 Gm. of water and 1 Gm. of hydrochloric acid. Shake the mixture frequently, and, after 2 minutes, filter. The filtrate should not be altered by hydrogen sulphide nor colored blue immediately on addition of potassium ferrocyanide. Alkalinize with ammonia water and filter; the filtrate should not form a precipitate with ammonium oxalate or with sodium phosphate. Treat 1 Gm. of kaolin with a mixture of 5 cc. diluted hydrochloric acid and 5 cc. of water, shake and filter. Five cc. of the filtrate, evaporated and dried, should give only 4 mg. of residue.—MAURICE TRAMASURE. *J. pharm. Belg.*, 17 (1935), 225–228. (S. W. G.)

ORGANIC

Alkaloids

Alkaloids—Synthesis of New Medicinal. Most benzoyl and *p*-aminobenzoyl esters of alcohol bases act as local anesthetics and some basic ethers and amides have the same property, a molecular weight of about 250 appearing to give the optimum action. The tropic and mandelic esters of amino-alcohols exert a mydriatic and antispasmodic action; in some the mydriatic action and in others the intestinal action predominates. Methylcarbamic esters of basic phenols exert a myotic and intestinal stimulating action. Aminoalkoxy-quinoline and -acrine derivatives in which the amino group carries a basic side-chain exert a toxic action on the malaria parasite. Derivatives of isoquinoline with alkoxy groups and heavy substituents have an antispasmodic effect. In many cases it is possible to deduce through which nerves, organs or tissues the action takes place and thence that the solubility relationships of the compound must result in its having an affinity for certain parts of the body. The evidence shows that papaverine acts directly on smooth muscles whereas atropine produces its effects through the parasympathetic nervous system. Usually it is not possible to explain why an alkaloid exerts a particular action rather than any other. Pharmacology and medical chemistry have produced many useful drugs if they have not succeeded in explaining their action.—J. A. AESCHLIMANN. *J. Soc. Chem. Ind.*, 54 (1935), 135T. (E. G. V.)

Cereus Coryne—Alkaloids of. The cactus, *Cereus coryne*, abundant in Cordoba (Argentine), was extracted with 96% warm alcohol acidified with acetic acid. The extract was concentrated *in vacuo*, diluted with water and again concentrated to remove the alcohol. Resins precipitated in aqueous solution. Intravenous injection of the purified extract, into chloralosed dogs, immediately increased the amplitude of respiration, and produced an initial decrease in pressure followed by an increase. Section of the vagus suppressed the initial hypotension. The hypertensive activity of this 1% alkaloid extract was similar to 0.8% nicotine or 1.25% candicine iodide solution. In toads, a subcutaneous injection of 0.5 cc. of the cactus extract produced marked secretion by the cutaneous glands, muscular incoördination, paralysis and cessation of respiration

in 6 minutes. From the chemical and pharmacological behavior of the extract, the active principle was believed to be a dihydroxyphenyltrimethyl-ammonium derivative. This base was synthesized and found to have a similar action.—L. RETI, R. I. ARNOLT and F. P. LUDUENA. *Compt. rend. soc. biol.*, 118 (1935), 591; through *Squibb Abstract Bull.*, 8 (1935), A-499.

Curare. Several species of *Strychnos* were tested for curare content: only *S. toxifera* contained significant amount of curarine (0.2%). Chemical examination of tubocurare yielded crystalline tubocurarine, dextrorotatory and with the empirical formula $C_{19}H_{22}O_3NCl$; an allied substance *d*-bebeerine which is less potent was also obtained. If the formula for tubocurarine is doubled, a product is suggested isomeric with bebeerine methochloride.—H. KING. *Nature*, 135 (1935), 469; through *Chem. Abstracts*, 29 (1935), 3464.

Ephedrine—Sources of. During the year investigations of a number of important indigenous drugs were completed. A powerful sympathomimetic alkaloid resembling ephedrine in action was discovered in *Moringa pterygosperma*, a plant commonly grown in the sub-Himalayan tracts in northern India. A readily available source of ephedrine has also been found in another plant, *Sida cardifolia*, which not only grows wild but is cultivated in many parts of India. The finding of ephedrine in these plants is significant and opens up the possibility of another source of ephedrine.—J. TROP. *Med. Hyg.*, 38 (1935), 17, No. 5; through *Squibb Abstract Bull.*, 8 (1935), A-462.

Ergometrine. A brief review of the work of Moir and Dudley, and of Karasch and coworkers on new ergot alkaloids.—K. O. MOELLER. *Dansk Tids. Farm.*, 9 (1935), 121.

(C. S. L.)

Ergot Alkaloids. Ergot alkaloids may be obtained in a pure form by shaking ergot alkaloids with an aqueous solution of caustic alkali acidified with lactic acid and then with an organic solvent. The two layers are separated and the alkaloids recovered from the organic solvent by evaporation and crystallization. The product may be further purified by recrystallization.—FIRMA E. MERCK (Willi Küssner). Ger. Pat., 606,778, Dec. 11, 1934 (Cl. 12p. 11.01).

(S. W. G.)

Ergotocin. Active Principle of Ergot Responsible for the Oral Effectiveness of Some Ergot Preparations on Human Uteri. (A communication.) The authors claim to have isolated a pure crystalline principle from ergot. A yield of 0.3 mg. is roughly equal to 3–4 Gm. of the crude defatted ergot. It is uniformly effective in oral doses of 0.3 mg. and intravenous doses of 0.1 mg. Its action is instantaneous and its effect lasts for three to four hours. It possesses low toxicity. Chemically it is a base melting with decomposition at 155° C. It forms well-defined salts and is not precipitated by Meyers' reagent in dilutions greater than 1 part in 7500. The method and analysis are not given.—M. S. KHARASCH and R. R. LEGAULT. *J. Am. Chem. Soc.*, 57 (1935), 956.

(E. B. S.)

Ipecac Root—Localization of the Alkaloids in. Some textbooks state that the alkaloids are localized just outside the cambium ring in ipecac root, which may be demonstrated by the use of picric acid or potassium dichromate. The author, however, has applied a new method and finds the alkaloids to be localized in the cortical cells near the cork. The cross sections are placed in a 10% solution of potassium ferrocyanide for several minutes, the alkaloids being precipitated by this reagent. The excess is then washed out and the ferrocyanide combined with the alkaloids made visible by treatment with ferric chloride. The alkaloidal cells become an intensive greenish blue. The reaction is sharp and the cells stand out in contrast to the other cells in the tissue. If the section is not too thin and is subsequently cleared with chloral hydrate a beautiful reaction results, always showing the alkaloids to be localized peripherally. This microchemical result was checked by removing consecutive layers from the root with a file, dialyzing the resultant powders in dilute hydrochloric acid and testing the dialyzed solutions with such alkaloidal reagents as iodine-potassium iodide, potassium mercuric iodide, potassium cadmium iodide, potassium bismuth iodide, picric acid and potassium dichromate. The author suggests that the precipitates obtained by treating sections with picric acid and potassium dichromate which were found by previous workers to occur just outside the cambium ring were due to albumin. This albumin does not combine with the ferrocyanide.—M. WAGENAAR. *Pharm. Weekblad*, 72 (1935), 513.

(E. H. W.)

P'an-shia—Chemical Composition of. The Chinese drug p'an-shia (*Pinellia tuberfera* Ten. or *P. ternata* Breit) has an anesthetic action and gives an ether extract having alkaloidal reactions.

—TEN-HAN TANG and TSEI-YING TSENG. *Natl. Shangtung Univ. Chem. Lab. Repts.*, 3 (1934), 63; through *Chem. Abstr.*, 29 (1935), 3115.

Phenyl Procaine—Local Anesthetics. Report is made of a study of the phenyl derivatives of procaine and its analogues. Because of the comparatively greater activity and lesser toxicity of *o*-phenyl phenol over phenol it was thought that substitution of a phenyl group on the benzene nucleus of procaine would yield a product of greater potency and less toxicity. The synthesis used was the preparation of 2-carboxy 5-amino diphenyl and subsequent reaction of the sodium salt with β-diethylamino ethyl chloride. Phenyl-procaine is an active anesthetic but it precipitates upon the addition of buffers and in corneal and intradermal tests it caused irritation. Analogues of phenyl-procaine were synthesized for the purpose of determining effect of increasing the size of the dialkyl-amino alkyl group (III); ascertaining the effect of alkylating the amino group (IV); investigating the effect of halogenation (V); observing effect of elimination of amino group (VI). The hydrochlorides of IV and VI are too acid for testing and III and V were too inactive to warrant further investigation. A compound (VII) was found to be rather inactive and the amino group was shifted from the 5- to the 4'-position and an aqueous solution of the hydrochloride of this substance (VIII) was also inactive. Biological tests indicated that phenyl-procaine is more active than cocaine hydrochloride and novocaine. Tabulation of comparative tests on guinea pigs shows this. It was also more active on the rabbits cornea but slightly irritating. The most active of the compounds is the hydrochloride of β-diethylamino ethyl 2-phenyl 4-amino benzoate.—W. BRAKER and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 24 (1935), 358. (Z. M. C.)

Strychnine Benzoates—Solubility of Some. The solubilities in water at 20°, 30°, 40°, 50°, 60°, 75° and 95° have been determined for the following strychnine salts: benzoate, *o*-, *m*- and *p*-chloro-, -bromo-, -iodo-, -nitro-, -hydroxy-, -methyl- and -aminobenzoates; 3,5- and 2,4-dinitrobenzoates; 2,4,6-trinitrobenzoate; and 5-iodo-, 3,5-dinitro- and diiodosalicylates. A table lists the results.—CHARLES POE, JOHN F. SUCHY and GEORGE L. BAKER. *J. Phys. Chem.*, 39 (1935), 239; through *Squibb Abstract Bull.*, 8 (1935), A-557.

Valerian Alkaloids. Presence of α-Pyrryl Methyl Ketone in Stabilized Official Valerian. α-Pyrryl methyl ketone is reported for the first time to be present in plants, having been found to constitute an active principle of valerian. Experiments were performed on industrial residues obtained from fresh rhizomes and roots of valerian stabilized by alcohol. The filtrate obtained after the distillation of the alcohol was washed with ether and the resulting acid residue neutralized by a 25% aqueous solution of sodium carbonate. The uncombined material was extracted with ether, the ether evaporated off and the crude semi-liquid mass left saponified with 10% alcoholic potassium hydroxide. The solution obtained was concentrated, taken up with water and extracted with ether. The above ketone was isolated from this extract by distillation, the distillate going over between 60° and 125° under 0.75 mm. pressure, being rectified to a slightly yellow-colored liquid, $b_{0.65}$ 68–73°, which crystallized after standing for 13 hours on ice. Fractional crystallization from boiling petroleum ether yielded white, silky needles, m. 90°, soluble in water and the usual organic solvents.—E. CIONGA. *Compt. rend. soc. biol.*, 200 (1935), 780; through *Squibb Abstract Bull.*, 8 (1935), A-482.

Veratrine Alkaloids. Parts I and II. Veratridine (I) isolated from commercial veratrine by the formation of the nitrate salt, and purified by reprecipitation as the nitrate and precipitation as the sulphate, softened, when heated, over the range 160–180° and had $[\alpha]_D^{22}$ +8.0° (4% solution in 96% alcohol). After drying at 110° in a high vacuum, I lost its adsorbed water and in addition decomposed slightly, giving off water. I was obtained in a 21% yield. Cevadine, m. p. 199–201°, was obtained from the filtrate after precipitation of I as the nitrate. Alkaline hydrolysis of I yielded slightly less than the theoretical amount of cevine (II) and the mother liquor yielded veratric acid, m. p. 179°. Dehydrogenation of II with selenium gave cevanthridine (III), m. p. 208° in a yield of 100 mg. from 5 Gm. of II. The hydrochloride of III melted at 245° and the picrate decomposed at 230–240°. The methiodide melted at 254–256° with decomposition. At higher temperature the yield of III is diminished and a crystalline hydrocarbon isolated.—B. K. BLOUNT. *J. Chem. Soc.* (Feb. 1935), 122; through *Squibb Abstract Bull.*, 8 (1935), A-559.

Wei-ling-sein—Studies on. The Chinese drug wei-ling-sein, identified as *Clematis angustifolia* Jacq., functions as an anesthetic and contains an unidentified alkaloid.—TENG-HAN JANG and EU-HSIANG CHAO. *Natl. Shangtung Univ. Chem. Lab. Repts.*, 3 (1934), 19; through *Chem. Abstr.*, 29 (1935), 3115.

Essential Oils and Related Products

Achillea Millefolium Linnè —Volatile Oil of. Although L. F. Bley has been given credit for first producing this volatile oil in 1828, it now appears that one or several prior workers undoubtedly obtained this volatile oil more than a century before the publication of Bley's work. Work carried on by the author indicates that the optical rotation value given by Haensel (*Berichte*, 4 (1901), 25) is in error. The true value, as well as figures for specific gravity and refractive index are given.—R. L. McMURRAY. *Am. J. Pharm.*, 107 (1935), 33. (R. R. F.)

Artemisia Rigida (Nutt.) Gray—Oils of. The authors found that the blooming tops of this plant yielded 0.56% of a volatile oil, of which 27.92% were stereoptene and 72.08% were oleoptene at 15° C. The oleoptene was amber to yellowish in color, becoming deeper colored with age; odor pungent and somewhat camphoraceous; taste warm, persistent and aromatic; feel turpentine-like. It was acid to litmus paper. It was miscible with absolute alcohol, 95% alcohol, acetone, glacial acetic acid, chloroform, ether and petroleum ether; immiscible with carbon disulphide. The following constants were obtained on the oleoptene: Specific Gravity, 25°/25° C., 0.9367; Optical Rotation, 100-mm. tube, 25° C., −15.68°; Specific Rotation, 25° C., −16.75°; Refractive Index, 25° C., 1.4674; Acid Value, 3.63; Ester Value, 19.46; Saponification Value, 23.09. After the removal of the volatile oil by steam distillation, the material was further treated and a fatty oil amounting to 1.88% was obtained. The fatty oil was viscid and very dark green in color. The following constants were determined for this fatty oil of *Artemisia Rigida* (Nutt.) Gray: Specific Gravity 40°/40° C., 0.9945; Refractive Index 40° C., 1.4968; Acid Value, 36.68; Ester Value, 91.64; Saponification Value, 128.32; Iodine Value, 58.71.—G. NORRIN and R. L. McMURRAY. *Am. J. Pharm.*, 107 (1935), 177. (R. R. F.)

Camphor—Production of, from Ocimum Canum. The Japanese *Cinnamomum camphora* from Formosa and the German synthetic camphor have been the only sources of supply of camphor for Russia. *Ocimum canum* was first successfully cultivated by the French under the direction of E. Scharabots in 1930. *O. canum* exists in two forms which cannot be differentiated morphologically, but which yield two differently constituted oils. One variety contains methyl-cinnamyl ether ($C_{10}H_{10}O_2$) while the other contains camphor ($C_{10}H_{16}O$). Yields of from 35 to 50% of camphor have been obtained from the camphor-containing oil of *O. canum*. In Krasnodar, Russia, *O. canum* can be cultivated as an annual plant. This Krasnodar variety contains on an average 2.48% of ethereal oil from which 44.34% of camphor can be obtained by freezing. The plant requires no particular care under cultivation and yields camphor the very first year. A detailed macro- and microscopic description of the plant is given. The technique of planting and cultivation is described minutely. The procedure for the extraction of the camphor is as follows: The plant is distilled with water in a still having a wide but short head. The distillate is shaken with 5% of its volume of benzin to dissolve out the camphor. The camphor is extracted from the benzin with alcohol. Since the ethereal oil solidifies very easily and stops the condenser, the distillation can be carried out without the use of a condenser. The alcoholic solution is imbedded in ice and the camphor which congeals is separated from the liquid portion by compression. The pressed material is redissolved in alcohol, filtered and the solution concentrated at 80° to 100° C. At 100° C. camphor is fluid and is poured into forms from which is obtained on cooling a transparent mass. The physical properties of camphor obtained by this process are listed.—A. ROTERMEL. *Pharm. Ztg.*, 80 (1935), 337. (G. E. C.)

Citronella Oil—Java. A graph is given which presents a clear picture of the particularly unsatisfactory situation which the oil has developed, especially in the last two years. In 1933 the export expanded by about 53.5% as compared with the preceding year; while in 1934 the increase as compared with 1932 amounted to about 79.5%. The larger production results from the increased acreage under sereh-grass. In this connection three tables are included which give a survey of the last five years. Other graphs and tables are given which show the countries of destinations of the shipments in the last five years.—A. F. HACCOU. *Perf. and Ess. Oil Rec.*, 26 (1935), 165. (A. C. DeD.)

Eucalyptus Oils—Development of Our Knowledge Concerning. Eucalyptus oil was one of the first products exported from Australia in 1788. Joseph Bosisto, a Victorian pharmacist, played an important part in the establishment of the eucalyptus oil industry in 1852. Eucalyptus trees are mostly Australian, although some species are found in New Guinea, Timor and the Philippine Islands. Essential oils from Eucalyptus are useful commercial products and are ex-

ported from Australia to the extent of 100,000 gallons a year. There are over 350 species of this genus but less than 20 yield an oil of commercial value. The first investigation of Eucalyptus oils was made by M. Cloez in 1870 upon the oil of *Eucalyptus globulus*. This oil, known as cineol, distills at 175° C. Several other constituents, such as acetic and formic acids, butyric and isovaleric aldehydes were isolated by M. R. Voiry in 1888. R. T. Baker and H. G. Smith later showed an obtuse "feather" venation was indicative of a low yield of oil, with purine as the principal constituent; a lateral venation with a marginal vein represented a slightly higher oil yield with cineol and pinene as constituents, while "butterfly wing" venation gave a high yield of oil with a composition of phellandrene and piperitone.—A. R. PENFOLD. *Australasian J. Pharm.*, 16 (1935), 29. (T. G. W.)

Hyptis Mutabilis—Volatile Oil of. Material for this investigation was collected in Florida and was of two types, green-stemmed and red-stemmed. These were studied separately. The yield of volatile oil from the above-ground portion of the plant was from 0.012% to 0.02% and seemed to be identical in the two varieties. The oil has a high hydrocarbon content and the presence of sabinene and caryophyllene is indicated.—HAROLD W. WERNER. *J. Am. Pharm. Assoc.*, 24 (1935), 289. (Z. M. C.)

Patchouli Oil of the Seychelles. A discussion of patchouli oil including the propagation of the plant, the harvesting, the preparation of leaves prior to distillation, the distillation and the controlling ordinances.—W. H. HOLDSWORTH-HAINES. *Perf. and Ess. Oil Rec.*, 26 (1935), 171. (A. C. DeD.)

Peppermint Oil—from Black Mint Cultivated in Southern Sweden. *Mentha piperita* var. *officinalis forma rubicens*, Camus plants grown under favorable conditions in southern Sweden yielded peppermint oil of satisfactory quality.—R. FORNET. *Seifensieder-Ztg.*, 62 (1935), 223; through *Chem. Abstracts*, 29 (1935), 3465.

Violet Odor—Natural. A review of the more recent research concerning violet oil, orris oil, violet-leaf oil and violet-root oil is discussed.—F. K. DONOVAN. *Perf. and Ess. Oil Rec.*, 26 (1935), 98. (A. C. DeD.)

Fixed Oils, Fats and Waxes

Piqui-A Fats—Component Glycerides of. The yield of fats from the whole fruits of the piqui-A (*Caryocar villosum*) is about 6 to 7% mesocarp and less than 1% kernel fat. The component glycerides (weight percentages) of the original fat are given as follows (leaving out of account the very small amounts of myristic, stearic and linoleic glycerides present; or, rather, grouping the 1.8% of myristic with palmitic acid, and the similar amounts of stearic and linoleic acids with oleic acid): tripalmitin 2%; dipalmitooleins, 42%; palmitodiol ens, 56%. Both α- and β-palmitodioleins and α- and β-oleodipalmitins are probably present in quantity.—T. P. HALDITCH and J. G. RIGG. *J. Soc. Chem. Ind.*, 54 (1935), 109T. (E. G. V.)

Glycosides, Ferments and Carbohydrates

Glycyrrhizin. The dilute alkali extracts of liquorice is treated with a magnesium or calcium salt until there is no further precipitation. Glycyrrhizin separates from the filtrate upon the addition of acid.—KANEGAHUCHI BOSEKI K. K. (Toyo Ito). Japan. Pat., 109,401 (Jan. 29, 1935). (S. W. G.)

Strophanthin of Strophanthus Emini. E-strophanthin was obtained from the crushed seeds of S. Emini by extraction with 90% alcohol at room temperature after previous defatting with light petroleum. The percolate was concentrated and treated with a slight excess of basic lead acetate, then filtered and the filtrate was freed from lead with hydrogen sulphide. The solution was saturated with ammonium sulphate and the sticky precipitate was extracted with alcohol. The alcoholic solution was either neutralized with sodium hydroxide and precipitated with ether or precipitated without neutralization. The product was dried at 100° C. *in vacuo*. The yield was 5–7% of the fat-free seeds and was similar to that obtained from *S. kombé*. E-strophanthin is a yellowish white powder consisting of vitreous particles, and it is readily soluble in water and in 90% alcohol or dehydrated alcohol. It is almost insoluble in ether, chloroform, benzene or light petroleum. E-strophanthin may be differentiated from k-strophanthin by the color reactions given by Smelt (*Quart. J. Pharm. Pharmacol.*, 6 (1935), 467). E-strophanthin contains "water of hydration" in addition to "hygroscopic moisture" determinations giving 5.9, 3.5% of "water of

hydration" and 1.9, 1.0% of "hygroscopic moisture." A 2% aqueous solution had a p_H 4.2, but was neutral on dilution to 0.1%. It complies with the U. S. Phar. test for reducing sugars in strophanthin, and was found to have a specific rotation $[\alpha]_D$ = about +10° (c in dehydrated alcohol = 2). E-strophanthin was examined chemically by Jacobs and Bigelow (*J. Biol. Chem.*, 99 (1933), 521; 101 (1933), 697) and was found to be similar in type to that of the official k-strophanthin, but the two are not identical. E-strophanthin has a cardiotonic activity equal to that of the British Standard Strophanthin.—I. D. LAMB and S. SMITH. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 71–74. (S. W. G.)

Other Plant Principles

Cimicifuga Racemosa—Constituents of the Rhizome of. From the rhizome were isolated a very soluble acid saponin, a glucoside-tannin containing a phlobaphene, another water-soluble glucoside and a glucoside insoluble in water but soluble in alcohol. Only the last-named has a cardiotoxic action in dogs. The lethal dose is 20–30 mg./Kg. when given intravenously.—F. MERCIER and J. BALANSAND. *Compt. rend. soc. biol.*, 118 (1935), 79; through *Chem. Abstr.*, 29 (1935), 3111.

Digger Pine (Pinus Sabinana)—Non-Heptane Constituents of. The chief constituent of Jeffrey Pine oil, heptane, has been studied previously. Investigation of non-heptane constituents revealed *n*-octylic, *n*-nonylic and *n*-decylic aldehydes. In the present study, that portion of the oil of digger pine which boils above 110° was studied. Aldehydes were removed by shaking with a 30% solution of sodium acid sulphite. The solid addition product was separated, washed, the aldehydes regenerated with sodium carbonate and separated by steam distillation. Ten fractions were obtained but melting points of derivatives were inconsistent so individual fractions were refractionated. Constants were determined and these are tabulated with those of previous workers. *n*-Octylic, *n*-nonylic, *n*-decylic and *n*-myristic aldehydes were identified. *n*-Lauric aldehyde is indicated and there are indications of the presence of other aldehydes, but it was not possible to obtain derivatives pure enough to characterize the compounds.—ARTHUR H. UHL. *J. Am. Pharm. Assoc.*, 24 (1935), 380. (Z. M. C.)

I-mao-tsao—Composition of Purple-Flowered. A complete examination of i-mao-tsao (*Leonurus sibiricus* L.) is given, but no positive evidence of alkaloids is found.—TENG-HAN TANG and CHI-WO HSÜ. *Natl. Shangtung Univ. Chem. Lab. Repts.*, 3 (1934), 93; through *Chem. Abstr.*, 29 (1935), 3115.

Picrotoxin—Preparation of. One kilogram of ground fish berries, *Anamirta cocculus* (L.) Wight and Arn., is heated to boiling for 45 minutes with 2 liters of 95% ethanol, filtered and the residue washed three times with 750-cc. portions of hot alcohol. The combined extract and washings are concentrated to 1 liter. Two volumes of water at 75° are added with stirring to the hot concentrate, after which ice is added to make a volume of 5 liters. When the ice is melted, the liquid is separated from insoluble fatty material by filtration through folded filter paper. The residue is washed with a liter of water and the combined filtrates are passed through a thin layer of norit in a small Büchner funnel. The filtrate is concentrated under reduced pressure to 600 cc. Crystals of picrotoxin are removed from the flasks from time to time. After standing over night, the crystals are removed from the mother liquor, washed with a little cold water, and dried. A second crop of crystals is obtained upon further concentration. The yield is about 1.4% of the drug, and is quite pure except for a little coloring matter. The analytically and optically pure product is obtained as follows: 10 Gm. of picrotoxin in 30 cc. of hot acetone is filtered through a thin layer of norit upon a small Hirsch funnel, and the adhering substance is washed from the apparatus with 15 cc. of hot acetone. The combined filtrate and washings are heated to boiling and three volumes of hot water are added. Upon cooling, well-formed crystals having a melting point of 203–204° separate.—E. P. CLARK. *J. Am. Chem. Soc.*, 57 (1935), 1111. (E. B. S.)

Unclassified

Alkoxy-Cumarins—Relation between Odor and Constitution in the Case of. Fifteen coumarin derivatives are discussed including the new compound 4-methyl-umbelliferon-ethyl ether which has a celery-like odor and taste and appears to have some application as a seasoning agent.—A. ST. PFAU. *Rieckstoff-Ind.*, 10 (1935), 57–58. (H. M. B.)

Arsphenamine. Aminohydroxybenzene-arsonic acid is electrolytically reduced in a

sulphuric acid medium, using lead electrodes with an iodide present as a catalyst.—G. A. KIRKHGOF and O. I. KORZINA. Russ. Pat., 34,538 (Feb. 28, 1934). (S. W. G.)

Mercury Compounds—Study of Germicidal and Antiseptic Activity of Some. The three compounds studied were 3,3′-dibrom-4,4′-dihydroxy 5-5′-diacetoxymercuri diphenyl dimethyl methane (I); 3,3-dinitro-4-4′-dihydroxy-5-5′-diacetoxy-mercuri-diphenyl-dimethyl-methane (II); and a mono-acetoxy-mercuri-derivative of 5′,5″-dibromo-resorcinol diphenein (III). A fourth product obtained from the last-named compound in which the position of the mercury was not determined was studied also. Compounds I, II, IV showed useful germicidal activity. Compounds I and IV were tested on tissues; I was non-irritating to shaved abraded skin, showed slight swelling in subcutaneous tissue on repeated injection, autopsy showed no degenerative change. Compound IV was slightly irritating to shaved abraded skin and caused slight swelling on subcutaneous injection and a scab at site of intradermal injection. Details of experimental procedure are given. Preparation of the compounds was along familiar lines, mercuration of suitable intermediates being effected in boiling alcohol solution.—E. MONESS, S. E. HARRIS and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 24 (1935), 386. (Z. M. C.)

Ortho-Aminophenol—Acyl Derivatives of. When diacyl derivatives of *o*-aminophenol were prepared by the usual methods, it was found that the order of introduction of the two different acyl groups gave identical rather than isomeric products, indicating that a rearrangement must have occurred in one case. Positions of the acyl groups were determined by removing the group attached to the oxygen by saponification and determining from physical constants of the monoacylated product the group attached to the nitrogen. Formation of isomeric diacyls and production of the same saponification products indicates rearrangement occurred during saponification. Experimental evidence indicates that certain acyl groups have more influence than others. The present investigation was a further study of the factors of rearrangement. The acylating agent was *o*-*n*-heptanoyl chloride, this group being heavy and less acidic than any group against which it was introduced. This group was introduced against the *n*-butyryl, *n*-valeryl, *n*-caproyl, phenylacetyl and hydrocinnamyl groups. The authors reached the following conclusion: "Apparently relative weight and acidity are not the controlling factors in this type of rearrangement. When complete rearrangement did occur, the nitrogen atom was shown after saponification to be attached to the heavier and less acidic group in three cases and to the lighter and less acidic group in one case. One case showed only partial rearrangement. In this case, saponification products showed part of the nitrogen to be attached to the heavier and more acid group while the remainder of the nitrogen was attached to the lighter and less acidic group." Experimental details are reported. Properties of the two monoacyls prepared are given. The ten diacyl derivatives prepared are named, formulas given, analyses given. Saponification products are also given. Some of the compounds are being studied for antiseptic and physiological effects and the results of this study will be published later.—C. B. POLLARD and W. T. FORSEE, JR. *J. Am. Pharm. Assoc.*, 24 (1935), 363. (Z. M. C.)

BIOCHEMISTRY

Chemistry—Some Recent Contributions of, to Medicine. Among the contributions discussed are vitamins, hormones, choline and related compounds, and anesthetics.—R. T. MAJOR. *J. Soc. Chem. Ind.*, 54 (1935), 447. (E. G. V.)

2-4 Dinitrophenol—Effect of Repeated Washing on Stimulation of Yeast Respiration by. Washing has no influence. It is concluded that dinitrophenol acts directly on systems within the cell and that extracellular catalysts are not essential for such action.—J. FIELD, 2ND and A. W. MARTIN. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1285. (A. E. M.)

Estrin—Extraction of, from Female Urine after Acidification with Various Acids. Urine acidified with tartaric acid produced the greatest yield of estrin.—W. KENNETH CUYLER. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1352. (A. E. M.)

Food Chemistry—Twenty-Five Years of. A review covering fundamental advances made in the study of the ingredients of foods.—L. H. LAMPITT. *J. Soc. Chem. Ind.*, 54 (1935), 426. (E. G. V.)

Gonad-Stimulating Product. Blood is taken from pregnant mares which are between the 37th and 130th day of gestation, and the serum is obtained from the blood.—H. H. COLE and G. H. HART. U. S. Pat., 1, 994,853 (Mar. 19, 1935). (S. W. G.)

Insulin—New Method for Precipitation of. Insulin is removed quantitatively from aqueous solutions as a bluish precipitate by the addition of 0.2% potassium ferrocyanide solution. For very pure insulin about 0.1 mg. potassium ferrocyanide is required to precipitate 100 units; commercial products require 0.6–2.0 mg. since other substances present are also precipitated. The filtrate in all cases contains inactive protein derivatives which precipitate with picric acid. Good commercial insulins containing 20–22 units per mg. dry substance yield a dried ferrocyanide precipitate, weighing 4–6 mg. per 100 units. Less refined products yield precipitates weighing 7–10 mg. per 100 units, and hence the quality can be judged by the weight of the precipitate. The insulin ferrocyanide precipitate (Ferrinsulin) can be dissolved in 2% sodium acid phosphate solution and injected. In rabbits its action is less marked but more prolonged than that of ordinary insulin.—I. I. NITZESCU and S. SECAREANU. *Bull. soc. chim. biol.*, 17 (1935), 118; through *Chem. Abstracts*, 29 (1935), 3463.

Phenol—Partition of, between Olive Oil and Serum in Ascitic Fluid. Quantitative determinations are reported of the content of phenol in serum or ascitic fluid after reaching equilibrium of partition with phenol solutions in olive oil. The phenol is determined by Wilkie's iodine method (*J. Soc. Chem. Ind.*, 30 (1911), 398.). The partition coefficient of phenol between the olive oil and the serum or ascitic fluid is found to be of the same order as the partition of phenol between olive oil and water. Hence it is concluded that the proteins of the serum do not bind significant amount of phenol. The relationship is shown in a graph.—A. HEEDE and S. STENSIG. *Dansk Tids. Farm.*, 9 (1935), 86. (C. S. L.)

Pregnancy Diagnosis. A review of the different methods is given. The procedure of Jöel and Andreani-Constantin using male guinea pigs of one month of age was investigated. The injection of 2 cc. of urine was made into the heart and the hypertrophy of the sexual organs was observed after 48 hours. The results were reliable.—LUIS S. GISMONDI and BENIGNO S. ACEVEDO. *Semana méd.* (Buenos Aires), 42 (1935), 1194. (A. E. M.)

Vitamin Synthesis—A comprehensive review of the properties leading to, and the methods of synthesis of the vitamins. The syntheses of vitamins A, B_2 and C are described in detail with the aid of structural formulæ. A graphic formula of ergosterin is given.—OSKAR BAUER. *Pharm. Zentralh.*, 76 (1935), 129. (E. V. S.)

Vitamin B_1—Studies of Crystalline. VIII. Sulphite Cleavage. II. Chemistry of the Acidic Product. The chemistry of the acidic product, $C_6H_9N_3SO_3$ (I), obtained by the sulphite cleavage of vitamin B_1 is given. It has the properties of a sulphonic acid. Heating with moist sodium hydroxide at 185° eliminated the sulphur as alkali sulphite, and water at 200° yielded sulphuric acid. Refluxing with strong hydrochloric acid removed 1 mole of ammonia yielding $C_6H_8N_2SO_4$ (II). Further study showed a similarity between (I) and 6-aminopyrimidine, and between (II) and 6-oxypyrimidine.—ROBERT R. WILLIAMS, EDWIN R. BUCHMAN and A. E. RUEHLE. *J. Am. Chem. Soc.*, 57 (1935), 1093. (E. B. S.)

Vitamins. A review of the progress made in the isolation, synthesis and determination of the constitution of these bodies.—P. KARRER. *Pharm. Monatsh.*, 16 (1935), 48–50. (H. M. B.)

Vitamins—History of the Discovery of. A brief historical review of the discovery and the physiological and therapeutic actions of the known vitamins.—G. ROLAND. *J. pharm. Belg.*, 17 (1935), 111–115. (S. W. G.)

Urine—Simple Method for Determination of Glucose in. The author describes the determination of glucose in urine with the aid of a trade preparation, "Glucocord" whose precise composition is not given but which consists of a pulverized alkali hydroxide mixed with a reducible metal compound and a physical activator. The unfiltered urine is dropped onto a small quantity of the powder placed on a white glass or porcelain plate, and if sugar is present the powder blackens to a degree dependent on the sugar content.—E. KARLING. *Farm. Revy*, 34 (1935), 249. (C. S. L.)

ANALYTICAL

Ammonium Molybdate—Use of, as a Microchemical Reagent. The author suggests ammonium molybdate as a microchemical reagent for the detection of the salts of various metals. Crystalline ammonium molybdate is added to the drop in which the metallic salt is dissolved. *Aluminum.*—While the reagent is not specific for aluminum it has several advantages over the two customary microchemical reactions. The crystals are square or rectangular. *Manganese.*—Reactions with the sulphate and chloride were investigated. The reaction proceeds slowly. Upon

evaporation orange-brown prismatic plates are formed near the edge of the drop, ending in a pyramid (vertical angle 104°) or obliquely (angle 54°). The reaction gives good results even in the presence of aluminum and zinc. *Zinc, Nickel, Cobalt, Iron, Copper* and *Mercury* give similar forms to those obtained with Aluminum. *Zinc.*—Reaction not sensitive; in the presence of manganese negative. *Nickel.*—An amorphous precipitate slowly becoming crystalline. *Cobalt.*—Crystallizes slowly after evaporating and moistening with water. *Copper.*—Squares with rounded corners. *Mercury.*—Many square plates and right-angled prisms. The reaction is very sensitive. *Thallium.*—Long needles; reaction sensitive. *Silver Nitrate.*—Diamond and octahedral shapes. *Uranyl, Lead, Cadmium* and *Bismuth* salts gave no useful reactions. *Ferrous Sulphate.*—Wine-red coloration but no precipitate or crystals. *Lithium, Magnesium* and *Calcium* salts (except in large concentration) give no reaction. *Strontium* and *Barium* acetate show little tendency to form crystals. *Cerium Nitrate.*—Droplets which upon scratching give orange parallelograms, diamond shapes and long needles. The author concludes that next to its use in demonstrating phosphoric acid, ammonium molybdate is a useful reagent in identifying aluminum, manganese and cerium salts.—C. VAN ZIJP. *Pharm. Weekblad*, 72 (1935), 414. (E. H. W.)

Arsenobenzene Derivatives—Assay of Several. Twenty-four preparations of arsenobenzene derivatives were tested for toxicity and therapeutic value. A preparation was non-toxic if a dilute solution did not exceed 40% mortality in mice and a stronger solution did not exceed 50% morality in mice and 40% mortality in rats. Mice infected with trypanosomes were used to test therapeutic value. A standard was used and the preparation had to be as active as the standard. None of the preparations compared favorably with the standard requirements, all being either deficient in therapeutic value or too toxic. Tables of results are given.—M. ROTHERMUNDT. *Deut. Med. Wochschr.*, 61 (1935), 92–95. (H. R.)

Caffeine—Micro-Determination of, by Colorimetry. The modified Weidel method (*Bull. soc. pharm. Bordeaux*, 72 (1934), 345) is used to obtain an alcoholic solution of the caffeine. The sample should contain 0.1–2.0 mg. of the ureide. Evaporate the alcoholic solution to dryness, by gentle heating, in a porcelain dish, with a handle, about 5 cm. in diameter. Add 6 drops of saturated bromine water and 9 drops of *N* hydrochloric acid. Mix, then evaporate to dryness by moving the container around below the top of a Bunsen flame, then continue heating in the same manner until the entire surface of the residue becomes orange red without traces of yellow and without evident calcination. Add 1 drop of 5% mercuric acetate in water acidified with 2% acetic acid, mix with a glass rod to dissolve the residue and introduce the colored liquid into a tube with a diameter of 12–15 mm. Compare the color with a series of standards prepared as above containing from 0.1 to 1.2 mg. of caffeine. Two drops of a 5% solution of zinc acetate plus 1 drop of glacial acetic acid may be substituted for the mercuric acetate. The orange-red residue obtained as above may be dissolved in water to give a rose-colored liquid which may be compared colorimetrically, but this is not as good as the other procedures.—GEORGES DENIGES. *Bull. soc. pharm. Bordeaux*, 73 (1935), 5–7. (S. W. G.)

Cantharidin—New Microchemical Reaction of. The following procedure is given: Place several particles of the sample on a slide and cover with a drop of concentrated ammonia water. Heat over a small alcohol lamp flame to evaporate the ammonia water, removing the flame while a small moist surface remains to be evaporated by the heat retained by the slide. Examine the dried product under a magnification of 400–500 x. This product may be sublimed with gentle heat, collecting the sublimate on a superimposed slide, and after moistening with a droplet of C_6H_6 and evaporation of the solvent microscopic crystals of cantharidin are formed.—GEORGES DENIGES. *Bull. soc. pharm. Bordeaux*, 73 (1935), 7–9. (S. W. G.)

Cholesterol—Fixed Color Standard for, Determination of. A fixed color standard for use with Schoenheimer's and Sperry's micro-method for serum cholesterol is described. The use of a mixture of acetic anhydride and sulphuric acid is suggested.—ARTHUR SHAPIRO, HENRY LERNER and EDNA POSEN. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 1300. (A. E. M.)

Cinchona—Identification of Preparations of, by the Erythroquinine and Thalleoquinine Reactions. The drug or preparation is extracted several times with chloroform and acidulated water and finally with chloroform. To 2 cc. of the chloroform extract add 3 cc. of acetic acid (1%) and note the appearance of a blue fluorescence. Then add bromine water (1:10) drop by drop until a persistent yellow color is obtained, add a 1:10 solution of potassium ferrocyanide using 1 drop of the solution for every 5 drops of bromine water added, then make alkaline with

ammonia (1:10). A rose to red color is obtained depending on the amount of quinine present. The thalleoquinine reaction, a modification of the above erythroquinine reaction, is not as specific nor as sensitive.—M. R. MONNET. *J. pharm. chim.*, 21 (1935), 450. (M. M. Z.)

Citral—Reaction for the Identification and Determination of. Alcoholic solutions of methylene blue react with sodium hydroxide to change from blue to rose and this reaction is hastened by citral in addition to other substances. Five cc. of a mixture containing 1 drop of a 1% solution of methylene blue in methyl alcohol and 20 cc. of $N/10$ sodium hydroxide is mixed with 1 cc. of a dilute solution of citral in methyl alcohol. When mixed at 15°, an immediate change from blue to red is apparent if 1 mg. of citral is present. If a smaller amount of citral is present the color change occurs slowly. The reaction may be used quantitatively by comparing the color developed with standards. Many other substances give similar reactions, but a longer time is required if 1 mg. or less is present.—J. BOUGAULT and E. CATTELAIN. *J. pharm. chim.*, 21 (1935), 437. (M. M. Z.)

Colloidal Silver—Determination of, in Organic Medicinals. Application to Ointments. The different methods used for the destruction of organic compounds containing silver are discussed, and the determination of silver is criticized. The use of nitroperchloric acid or nitrosulphoperchloric acid is recommended for decomposing silver organic compounds. This can be carried out as follows, especially in the case of ointments: A weighed sample of about 0.1 Gm. to 0.3 Gm. is introduced into a 100-cc. Erlenmeyer flask, followed by 3 cc. of sulphuric acid ($d = 1.84$) and 5 cc. nitric acid ($d = 1.38$). The mixture is warmed until brown fumes are no longer apparent, and a mixture of 3 parts of perchloric acid ($d = 1.61$) and 1 part of nitric acid ($d = 1.38$) is then added drop by drop until the liquid is decolorized. The mixture is then boiled for 1 or 2 minutes to expel the excess hydrochloric acid generated. It is then cooled, 20 cc. of distilled water and 2 cc. saturated iron alum solution are added and the silver determined by titration with 0.1N potassium sulphocyanate. This method gives maximum accuracy in minimum time, according to the author.—GEORGES ANTOINE. *J. pharm. chim.*, 21 (1935), 457. (M. M. Z.)

Copper—Quantitative Microdetermination of. A comparative study was made of three methods of evaluation: (*a*) precipitation by means of 5,7-dibrom-8-oxyquinoline ("5,7-dibromoxine") according to R. Berg and H. Küstenmacher, (*b*) precipitation as copper benzoin oxime, according to F. Feigl and to R. Strebinger, (*c*) precipitation as copper salicyl aldoxime, according to F. Ephraim and to W. Reif. Suitable techniques were devised in all three cases for the microdetermination of copper. Of the three methods, (*a*) was found to be the most precise, since the conversion factor is lowest in this instance.—F. HECHT and R. REISSNER. *Mikrochem.*, 17 (1935), 127. (L. L. M.)

Copper—Determination of Small Quantities of. The following method was proposed. A dithizone (diphenylthiocarbazone) solution (0.1 Gm. in 50 cc. of carbon tetrachloride) is shaken with two 50-cc. portions of dilute ammonium hydroxide (1 + 99). The combined ammoniacal extracts are slightly acidified with hydrochloric acid, the precipitated dithiazone filtered off, washed with water and dried. A 100-cc. portion of a 0.01% solution of the dithizone in carbon tetrachloride is shaken with an equal volume of water containing 0.5 cc. of ammonium hydroxide. The carbon tetrachloride layer is discarded. This is repeated until only a trace of pink color is seen in the carbon tetrachloride layer. The dithizone is precipitated with hydrochloric acid and extracted with carbon tetrachloride, and the solution is made up to the desired strength. Two hundred cc. of a solution containing 12 Gm. of sodium pyrophosphate and 0.5 Gm. of sodium carbonate is shaken with 50 cc. of a 0.01% solution of dithizone in carbon tetrachloride. The carbon tetrachloride layer is discarded. This is repeated until only a trace of pink color remains. The dithizone remaining is extracted from the solution with amyl alcohol, the amyl alcohol removed with carbon tetrachloride. The solution should be re-tested before using. The sample is ashed in a silica dish at about 500° C. The ash is dissolved in water and made up to volume. A 10-cc. portion of the solution containing not over 0.005 mg. of copper is made neutral to methyl orange with ammonium hydroxide, acidified with a 2-cc. excess of concentrated nitric acid and extracted with 3 cc. of 0.003% dithizone in carbon tetrachloride. The carbon tetrachloride extract is washed with water, acidified with a few drops of hydrochloric acid. The washed carbon tetrachloride solution is then shaken with a solution containing 5 cc. of water and 5 cc. of the pyrophosphate-carbonate solution and the resulting solution compared in a Nessler tube with standards

containing 0.0005 and 0.001–0.005 mg. of copper in increments of 0.001 mg. A blank is also used. —R. M. MEHURIN. *J. Assoc. Official Agr. Chem.*, 18 (1935), 192. (G. S. W.)

Digitalis—Baljet Color Reaction of Compounds of. The Baljet colorimetric method for the determination of glucosides is also suitable for the determination of genins. It consists in treating the compound with sodium picrate and comparing the color maximum developed with a standard solution of potassium dichromate. Determinations were compared for digitoxin, digitoxigenin, gitoxin, gitoxigenin, g- and k-strophanthin, strophanthidin and digilanid A. The reaction was more intense for the aglucones, genins, than for the glucosides and more intense for the lower molecular weight compounds. The development of the color seems to be associated with the unsaturated hydroxylactone group. Scillaren A did not give the Baljet reaction nor other reactions characteristic for the unsaturated lactone group of the glucoside. The test is not specific for the unsaturated lactone group of the glucoside. The test is not specific for the genins since dextrose also gives the color reaction; however, comparison of the sensitivity and the time required for the development of the color indicates that small amounts of dextrose will not interfere with the determination of the glucosides.—L. LENDLE and WO. SCHMELZER. *Arch. exptl. Path. Pharmakol.*, 177 (1935), 622; through *Squibb Abstr. Bull.*, 8 (1935), A-694.

Drinking Waters—Determination of Lead in. Methods sufficiently accurate to determine 0.0001–0.0300 mg. of lead per liter are necessary. Water that has been freshly drawn from the tap should be used since it has been found that lead in colloidal forms as lead hydroxide, basic carbonate and hydrocarbonate are present, and these after a time become attached to the walls of the vessel and cannot be removed by shaking, thereby giving low results. The sample should be treated as follows: "Transfer all of the sample to a flask, retaining about 10 cc. to which add dilute acetic acid (5 cc. per liter), shake vigorously to dissolve the lead on the walls of the vessel. Return the portion of the sample that was removed, allow to stand until the bubbles of carbon dioxide have subsided." Turbid waters or those in which iron has separated should not be filtered since such suspensions retain the lead to such an extent that all of it may be removed and these should be treated as under "Turbid Waters." Methods are given for clear and colorless waters, turbid and slightly colored waters, and strongly colored (humous) waters. Special treatments to eliminate errors due to the presence of copper, nitrite, iron and aluminum are given.—K. HÖLL. *Apoth. Ztg.*, 50 (1935), 126–128. (H. M. B.)

Fluorine—Determination of, in Foods. In the use of lime as a fixative for fluorine during ashing of samples it was found necessary to employ a large excess of the lime. For determination of very small amounts of fluorine, the lime must be treated to remove fluorine present as an impurity. Suggested methods for purification are: distillation with perchloric acid followed by recovery of the calcium as the carbonate, or precipitation of calcium as the oxalate. In either case the precipitates are converted to the oxides by incineration.—D. DAHLE. *J. Assoc. Official Agr. Chem.*, 18 (1935), 194. (G. S. W.)

Iodine Number—Rapid Method for the Determination of. The method of B. M. Margosches was adapted to a micro-technique. One cc. of solvent, 2 cc. of $N/5$ alcoholic iodine solution and 20 cc. of water were used in the micro-method. The iodine was titrated with $N/20$ sodium thiosulphate.—W. RUZICKA. *Mikrochem.*, 17 (1935), 215. (L. L. M.)

Iron—Determination of Metallic, in Presence of Iron Oxides. Reduced Iron. The copper sulphate method for the determination of metallic iron in reduced iron has been shown to yield inaccurate and variable results. The following modification of the Wilner-Merck process is recommended: To about 0.5 Gm. of sample, accurately weighed, in a clean, dry 100-cc. graduated flask add 2.5 Gm. of mercuric chloride (sulphide free) and about 50 cc. of recently boiled and cooled distilled water. Boil gently for 20 minutes (avoiding excessive frothing) with frequent shaking, make the volume up to 100 cc. with recently boiled and cooled distilled water, stopper the flask and cool. When cold, adjust the volume to 100 cc., shake well, allow the precipitate to settle, filter rapidly into a clean, dry conical flask, pipette 50 cc. of the filtrate into 100 cc. of dilute sulphuric acid in which 2 Gm. of manganese sulphate has been dissolved and titrate with $0.1N$ potassium permanganate solution. The experimental work reported is tabulated.—F. HARTLEY, W. H. LINNELL, F. E. READ and H. G. ROLFE. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 100–112.

(S. W. G.)

Lime and Bleaching Powder—Presence of Manganese in Commercial. All the samples of commercial lime and bleaching powder examined showed the presence of small amounts of manganese. The manganese was determined colorimetrically by an application of the periodate method as follows: In the case of samples of bleaching powder, quantities of 1 Gm. were treated with 7 cc. of water and 30 cc. of concentrated nitric acid, evaporated to small bulk, treated with a further 7 cc. of nitric acid, and again partially evaporated. The hot solution, which was now free from chloride, was treated with 5 cc. of nitric acid and 0.4 Gm. of potassium periodate, boiled for one minute, kept hot for 10 minutes, cooled, diluted to 100 cc. and compared colorimetrically with standards prepared from varying quantities of manganese sulphate by oxidation with periodate. In the case of samples of lime, the double evaporation with nitric acid is unnecessary. Seventy-seven to 137 parts of manganese per million were found. The authors prove that the pink coloration of preparations from bleaching powder, especially those containing sodium bicarbonate, is due to the presence of manganese and not iron as has been claimed.—JOHN E. DRIVER and HUBERT A. TURNER. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 113–115. (S. W. G.)

Luminescence Analysis—Advances in. Progress in the use of ultraviolet light in qualitative and quantitative analysis is reviewed and a new portable analytical lamp is described.—A. KARSTIN. *Pharm. Monatsh.*, 16 (1935), 45–47. (H. M. B.)

Magnesium and Aluminum—Microchemical Detection of, with Alkannin and Naphtazarin. *A. Detection of Magnesium with Alkannin and Naphtazarin in Sodium Hydroxide Solution.*—Add to 5 cc. of the test solution 5 drops of a 0.05% alcoholic solution of alkannin or a 0.03% solution of naphtazarin, and then dropwise a slight excess of 2.5*N* sodium hydroxide. Depending upon the magnesium content, a blue precipitate appears at once or upon warming. *B. Detection of Magnesium with Naphtazarin in Ethylenediamine Solution.*—In a micro test-tube add several drops each of the solution to be tested and of the reagent. The latter consists of a mixture of 5 cc. of 0.03% naphtazarin solution and 1 cc. of 10% ethylenediamine solution. In the presence of magnesium a blue coloration is formed. The limit of sensitivity is 0.35γ magnesium, corresponding to a concentration of 1:66,000. *C. Detection of Aluminum with Alkannin and Naphtazarin.*—Add to the test solution 2 cc. of alkannin or naphtazarin reagent, then with constant agitation enough ammonia water to change the dark red color to blue, and finally an additional 3 cc. of ammonia water. A dark violet precipitate results. With alkannin, 0.1 mg. of aluminum is detected in the cold, 0.05 mg. upon warming; with naphtazarin, 0.05 mg. of aluminum in the cold in 15 minutes. In the presence of a five-fold quantity of zinc, there may be detected only 0.5 mg. of aluminum in the cold, 0.1 mg. by heating with alkannin and 0.5 mg. in the cold with naphtazarin.—J. V. DUBSKÝ and E. WAGNER. *Mikrochem.*, 17 (1935), 186. (L. L. M.)

Mardulcan—Determination of Iron in. The iron is present as colloidal ferric hydroxide mixed with sugar and alkali. The preparation is required to contain 0.21% iron but no assay is prescribed. The following assay is proposed: 20 Gm. of Mardulcan is warmed with 10 Gm. of diluted sulphuric acid in an Erlenmeyer flask until the red-brown color is changed to a bright yellow. Traces of ferrous sulphate which may be present are converted into ferric sulphate by treatment with a few drops of 0.5% potassium permanganate solution. After cooling, the solution is mixed with 2 Gm. of potassium iodide and allowed to stand for one hour. The liberated iodine is titrated with *N*/10 sodium thiosulphate. If 0.21% iron is present 20 Gm. of Mardulcan will require 7.53 cc. of *N*/10 sodium thiosulphate.—G. MEYER. *Pharm. Ztg.*, 80 (1935), 324. (G. E. C.)

Medicinal Products—Study of the Alteration of, by p_H Determinations. A p_H study was made of the following: distilled water, emetine hydrochloride solution (0.1%), morphine hydrochloride solution (2%), pilocarpine hydrochloride solution (0.1%), strychnine sulphate solution (0.1%), stovaine hydrochloride solution (5%), novocaine hydrochloride solution (2%), citrate of magnesia, Fowler's solution, sodium bicarbonate solution (1%), infusions and decoctions, syrups, sodium phosphate solutions, silver nitrate solutions and aspirin, thiocol, neosalvarsan and phenol solutions. The preparations were allowed to stand for 1 year and p_H determinations were made from time to time. The changes noted are tabulated. The authors suggest that a p_H determination should be a part of every assay of preparations.—A. IONESCU-MATIU and M. SANDOVICI. *J. pharm. chim.*, 21 (1935), 337. (M. M. Z.)

Morphine—Colorimetric Microdeterminations of, in Opium and Its Preparations. Tincture of Laudanum and Syrup of Morphine Hydrochloride. The author gives the official method

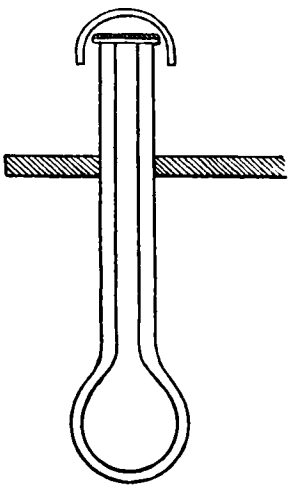
for isolating morphine from its preparations by use of slaked lime, dilute hydrochloric acid and ammonia. The microdetermination suggested follows: Into 10 colorimetric tubes are introduced, respectively, from 1 to 10 cc. of morphine hydrochloride solution (1:10,000) and 1 cc. of Wavelet's reagent (140 Gm. sodium carbonate and 20 Gm. disodium phosphate dissolved in 500 cc. distilled water plus 70 Gm. of recently dried molybdic acid and 200 Gm. of tartaric acid, and the mixture diluted to 1 liter). To each tube is then added 1 drop of nitric acid. This is permitted to stand for 10 minutes, agitated and diluted to an even level in each tube. Finally 20 drops of ammonia water are added to each tube and mixed, when a blue color is obtained, the intensity of the color being proportional to the amount of alkaloid present. This is used as a standard, and 6 tubes are used for the sample in the same manner. The method cannot be used if adrenaline is present, as it gives an identical color.—JUAN A. SANCHEZ. *J. pharm. chim.*, 21 (1935), 366. (M. M. Z.)

Morphine—Estimation of, in Opium. The author describes a method for the determination of morphine in opium and opium preparations in which the alkaloid is shaken out. The material is prepared with sodium hydroxide and a solution of sodium plumbate added. After filtering, the excess lead is precipitated from an aliquot portion with sulphuric acid and again filtered. The sulphuric acid in the filtrate is neutralized, a definite acidity then being obtained by the addition of a small quantity of hydrochloric acid. The solution is then concentrated, made alkaline with sodium hydroxide and the other associated alkaloids shaken out with chloroform. The chloroform solutions are freed of any morphine with dilute sodium hydroxide. After combining the sodium hydroxide solutions they are made weakly acid by the addition of hydrochloric acid; chloroform-isopropyl alcohol is added and the hydrochloric acid is neutralized with a quantity of sodium bicarbonate sufficient to cause the free alkaloid to go over into the chloroform mixture. After evaporation of the solvent the alkaloid is titrated.—F. SZEGHÖ. *Ber. Ungar. Ph. Ges.* (1935), 316; through *Pharm. Weekblad*, 72 (1935), 517. (E. H. W.)

Morphine—Reaction for, in Papaverine Hydrochloride. The iodine liberated from iodic acid in testing for morphine in papaverine hydrochloride cannot be shaken out with chloroform. This is due to the fact that papaverine hydrochloride is easily soluble in chloroform. It is, however, only slightly soluble in carbon tetrachloride and carbon disulphide. A small quantity of iodine was dissolved in chloroform, carbon tetrachloride and carbon disulphide and 50 mg. of papaverine hydrochloride added to each. The chloroform solution became lighter and finally changed to yellow or reddish yellow while no change occurred in the other solutions. Fifty mg. of papaverine hydrochloride were added to three test-tubes containing a water solution of iodine (+ potassium iodide) (+ a few drops of dilute sulphuric acid). The brownish red cloudy precipitate due to the iodine-papaverine compound resulted. The aqueous solutions were then shaken out, one with chloroform, one with carbon tetrachloride and one with carbon disulphide. The precipitate dissolved in the chloroform imparting a yellowish color. The carbon tetrachloride and the carbon disulphide became reddish violet. Subsequent addition of potassium iodate to each tube resulted in no change in the chloroform and a deep violet in the carbon tetrachloride and the carbon disulphide. The author suggests that carbon tetrachloride or better carbon disulphide be substituted for chloroform in this test.—J. ROZEBOOM. *Pharm. Weekblad*, 72 (1935), 498. (E. H. W.)

Ointment of Mercuric Nitrate, Strong—Assay of. The authors tried the procedures suggested by other workers and found that none of them gave results higher than those obtained by the method of the Brit. Phar., 1932. They recommend the following modification of the official process, using a volumetric determination of the mercury instead of the gravimetric determination as the sulphide: Take about 5 Gm., accurately weighed, in a long-necked flask of about 250 cc. capacity. Add 35 cc. of sulphuric acid, and heat cautiously until the mixture darkens. Add gradually 5 cc. of fuming nitric acid, rotating the flask to assist the escape of evolved gases. Heat, and maintain just below the boiling point. Repeat several times the addition of fuming nitric acid and the heating, until an almost colorless solution remains. Cool, add a slight excess of solution of potassium permanganate and heat to boiling. Add sufficient solution of hydrogen peroxide to make the solution colorless, cool and dilute to 250 cc. Titrate 100 cc. with 0.1*N* ammonium thiocyanate, using solution of ferric ammonium sulphate as indicator. The treatment with permanganate is carried out to remove the color from the solution and to thus aid in obtaining a sharp end-point in the titration.—C. H. HAMPSHIRE and G. R. PAGE. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 75–80. (S. W. G.)

Organic Compounds—Detection of, by Means of Spot Reactions. IX. (1) Detection of Acetic Acid by Formation of Indigo. (2) Detection of Methyl Ketones by Conversion to Indigo Dyes. The method for the detection of acetic acid is as follows: A drop of the test solution is evaporated to dryness with calcium carbonate and the dried residue is transferred to the small fusion tube illustrated in the diagram. The conversion of the acid to calcium acetate may be effected also by direct evaporation in this tube under reduced pressure. In the former case, the solid samples to be tested may be placed directly in the tube with a quantity of calcium oxide and calcium carbonate. The open end of the tube is covered with a small filter disk moistened with a freshly prepared solution of *o*-nitrobenzaldehyde (saturated solution in 2*N* sodium hydroxide). The tube is supported in an asbestos plate as shown and gradually heated. According to the quantity of acetone formed, the filter paper, after an intermediate browning, becomes colored blue or blue-green. With small quantities of acetate, it is advisable to moisten the filter disk after distillation with a drop of diluted hydrochloric acid to remove the yellow color of the indicator and thus permit the blue color to come into prominence. The method is applicable to the detection of the acetyl residue in organic compounds. The limit of sensitivity is 60γ acetic acid. *Test for Methyl Ketones.*—A drop of the test solution, as nearly alcohol-free as possible, is warmed gently in a micro-eprouvette on a water-bath with a drop of alkaline *o*-nitrobenzaldehyde solution (saturated solution in 2*N* sodium hydroxide) and, after cooling, is shaken with chloroform. Methyl ketones are indicated by a bluing of the chloroform layer. With alcoholic solutions, a red instead of blue coloration is sometimes observed. The reaction detects 100γ acetone, 150γ methyl ethyl ketone, 150γ methyl heptenone, 50γ acetophenone, 200γ acetylacetone, 40γ diacetyl, 300γ acetoacetic ester, 100γ acetaldehyde. —F. FEIGL, R. ZAPPERT and S. VASQUEZ. *Mikrochem.*, 17 (1935), 165. (L. L. M.)



Pepsin—Assay Processes and Stability of Commercial. The samples of commercial pepsins examined were found to conform with their stated values. The Brit. Phar., U. S. Phar., D. A. B. and edistin methods of assay are compared. Suggested improvements in the Brit. Phar. process are: (1) Substitution of a wire sieve for the hair sieve. (2) Allow only 15 minutes for dissolving the pepsin. (3) Digest for 3 hours instead of 6 hours, using a larger quantity of pepsin and shaking every 10 minutes. (4) The tolerated amount of albumen remaining undigested should be accurately described. (5) Digest at 50–52° C. (6) Define the hydrochloric acid in terms of normality. The author suggests the adoption of the U. S. Phar. procedure with the following modifications: (1) To disintegrate the albumen, "Rub 10 Gm. of the prepared egg-white gently in a small glass mortar with 10 cc. of the diluted hydrochloric acid and, when thoroughly distributed, transfer to the digestion bottle with a glass rod, wash the pestle and mortar and the glass rod with further quantities of 10, 5, 5, 5 cc. of diluted hydrochloric acid, in this way transferring every particle of albumen to the digestion bottle." (2) 0.2 Gm. of the pepsin to be weighed out and made up to 300 cc. with acid to form the test solution. The value of carrying out at least 6 tests with each sample or using a standard pepsin is stressed.—KENNETH BULLOCK. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 13–30. (S. W. G.)

Pharmacopœial Tests—Notes on Some. II. Chiniofon, Codeine, Simple Solution of Iodine, Sodium Phosphate. *Assay of Chiniofon.*—The following procedure was adopted for the determination of iodine: Mix about 0.2 Gm., accurately weighed, with about 1 Gm. of anhydrous sodium carbonate in a nickel crucible 20 mm. in diameter, moisten with water, and dry at 100°. Fill the crucible completely with anhydrous sodium carbonate well pressed down; invert the crucible and contents in a nickel crucible, 25 mm. in diameter, containing a layer of anhydrous sodium carbonate, and add more anhydrous sodium carbonate to seal the junction of the two crucibles. Heat for 15 minutes over a Bunsen flame in such a manner that the outer crucible is a uniform dull red; allow to cool, and dissolve the residue in 100 cc. of hot water; filter, and wash the filter with water until the washings are neutral to litmus. Allow the solution to cool and add sufficient

water to produce about 500 cc. Neutralize the solution with a mixture of equal volumes of sulphuric acid and water using methyl orange as indicator. Add 1 cc. of sulphuric acid (1:1), 0.2 cc. of bromine and about 0.05 Gm. of marble and boil briskly for 10 minutes. Allow to cool, add 0.2 cc. of a 25% w/v solution of phenol in glacial acetic acid and allow to stand for at least 2 minutes. Add 2 Gm. of potassium iodide and titrate with $N/10$ sodium thiosulphate, using mucilage of starch as indicator. Each cc. of $N/10$ sodium thiosulphate = 0.002115 Gm. of iodine. *Determination of Sodium Bicarbonate.*—Place about 0.5 Gm., accurately weighed, in a dry test-tube 150 mm. in length and 20 mm. in diameter and insert a loose plug of glass wool about half way down the tube. Place the test-tube in a 750-cc. filtering flask containing 50 cc. of $N/10$ barium hydroxide. Close the neck of the flask with a stopper, through which passes the tube of a 50-cc. separating funnel, in such a manner that the tube of the separator enters the test-tube. Exhaust the flask rapidly until a pressure of 20 mm. of mercury is obtained, and close the exit tube. From the separating funnel add gradually 10 cc. of freshly boiled and cooled water, and, when effervescence has ceased, about 1 cc. of dilute hydrochloric acid. Allow to stand for at least 12 hours, and titrate the excess of $N/10$ barium hydroxide with $N/10$ oxalic acid, using phenolphthalein as indicator. Each cc. of $N/10$ barium hydroxide = 0.0042 Gm. of sodium bicarbonate. Results of analyses of commercial samples are tabulated. *Solubility of Codeine in Ether.*—The solubility of codeine monohydrate in ether as stated in the literature is noted. The official alkaloid, containing one molecule of water of crystallization, was found to dissolve 1 Gm. in approximately 75 Gm. of ether. The saturated solution had a specific gravity of 0.728. *Changes in Simple Solution of Iodine on Storage.*—The following conclusions are stated: When simple solution of iodine is stored the content of free iodine becomes constant in 8 months. The acidity of the solution still increases slightly after the free iodine content has become constant. The rate of chemical change and the composition of the final equilibrium mixture are not appreciably affected by light. The results are tabulated. *Detection of Traces of Sodium Fluoride in Sodium Phosphate.*—The following procedure was adopted: Dissolve 2 Gm. of the sodium phosphate in 20 cc. of water, add 5 cc. of acetic acid and 3 cc. of solution of calcium chloride and set aside for 1 hour; no turbidity is produced. The test will detect 0.2% of sodium fluoride in sodium phosphate. Other tests were tried, but none were more sensitive.—G. R. PAGE. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 81–89. (S. W. G.)

Potassium Ferrocyanide—Toxicologic Study of, as a Clarifier for White Wines. Toxicologic procedures were applied to the detection of cyanide derivatives in wines that had been clarified by means of potassium ferrocyanide. The results obtained indicate that the question is open to further investigation.—CHELLE, DUBAQUIÉ and TURBET. *Bull. soc. pharm. Bordeaux*, 73 (1935), 9–42. (S. W. G.)

Purine Preparations—Cobalt Nitrate as a Reagent for Pharmaceutical. A 3% alkaline solution of cobalt nitrate is recommended as a reagent for identifying theobromine, theophylline, caffeine and such combinations as diuretin and caffeine tartrate. Directions are given for performing the test.—R. KLIMEK. *Wiadomosci Farm.*, 61 (1934), 619; through *Chem. Abstr.*, 29 (1935), 3115.

Pyramidon—Coloring of, by Certain Oxidants. Pyramidon is very sensitive toward the influence of oxidizing agents, often resulting in highly colored compounds. The urine of persons who have taken pyramidon is frequently colored red or light purple due to the oxidation of the pyramidon. The obtaining of beautifully colored oxidation products is largely dependent upon the type of oxidizing agent present. Many gums give a light purple color due to the oxidases they contain. Blood gives a similar reaction. Ferric chloride reacts quantitatively. Silver nitrate gives a purple reaction accompanied by the reduction of the silver nitrate to metallic silver. Nitrites in sulphuric acid also give a color reaction. In many cases, however, if the oxidation is allowed to continue the colorless dioxypyramidon results. An extraordinarily beautiful color is obtained when potassium persulphate is employed as the oxidizing agent. The reaction takes place in the cold and only after a long time does the color change to red and finally disappear. By means of this reaction small quantities of pyramidon may be detected in antipyrine. The reaction works well on a slide. A small quantity of the material is suspended in a drop of water and a few small crystals of potassium persulphate added. In the presence of pyramidon the crystals quickly surround themselves with a zone of purple. 0.5% of pyramidon may thus be detected in antipyrine.—M. WAGENAAR. *Pharm. Weekblad*, 72 (1935), 564. (E. H. W.)

Rauch-Schnee are small, white, odorless and tasteless tablets used for practical jokes. A tablet inserted in a cigarette or cigar produces by the glowing flame snow-like flakes in the air. Chemical investigations reveal it to be identical with a substance commercially known as metaldehyde, a polymer of acetaldehyde. Physiologically, it is stronger than paraldehyde in action.—H. SOMMER. *Pharm. Zentralh.*, 76 (1935), 150. (E. V. S.)

Sugars—Chemical Methods for Reducing. Comparison of. Values for copper-dextrose equivalents as determined by titration of the copper with thiosulphate and by titration with dichromate using ortho-phenanthroline as a colorimetric indicator (a modification of the Jackson-Matthews electrometric method), respectively, when compared with the Munson and Walker table values, showed good agreement except at higher concentrations of dextrose.—R. F. JACKSON and EMMA J. MCDONALD. *J. Assoc. Official Agr. Chem.*, 18 (1935), 172. (G. S. W.)

Thallium—The Detection of. Alkaloidal Reagents. VII. Being monovalent and trivalent, thallium forms two series of compounds. In general the thallic compounds are unstable. Commercial thallium compounds used for cosmetics, medicinal and rodenticidal purposes are almost entirely thallous. In the flame, compounds dissociate, liberating thallium which gives a characteristic green color and spectrum and if the flame strikes a cold surface a brown mirror is formed. In the Marsh apparatus the stain is similar to that produced by arsenic but it gives a yellow color with iodine and is insoluble in ammonium sulphide. Spectroscopic studies show characteristic lines. A detailed search of the literature has been made and the more promising reactions have been studied. Detailed results are arranged in two tables, one for thallous and one for thallic. These tables show reagent, color of solution, color of precipitate, precipitation threshold mg.Tl/cc. and literature references. Ninety reagents were tried. An extensive list of references is appended.—JAMES C. MUNCH and JUSTUS C. WARD. *J. Am. Pharm. Assoc.*, 24 (1935), 351. (Z. M. C.)

TOXICOLOGICAL CHEMISTRY

Arsenic—Triple Poisoning by. A detailed description and discussion of 3 cases. In the first, the subject survived administration of repeated doses extending from Dec. 26, 1929, to Feb. 1, 1930; it led to suspicions being aroused in previous deaths, and examination in Feb. 1930 of two corpses buried in 1922 and 1929, respectively, clearly revealed the presence of arsenic in quantities sufficient, when taken in connection with the known clinical history of the cases, to furnish proof of death by arsenic poisoning.—FONZES-DIACON, GRYNFELTT, RIMBAUD and CAVALIÉ. *Ann. Méd. Légale Criminol. Police Sci.*, 15 (1935), 28–52. (A. P.-C.)

Thallium—Two Cases of Murder by. Two cases are described in which death of a 48-year old woman and a 40-year old man, respectively, was produced by 1 to 3 tubes of Zeliopasta (a rat poison) containing 0.909 to 2.728 Gm. of thallium sulphate. Autopsy revealed in both cases the presence of thallium, estimated at 1.6215 Gm. of the sulphate in the body of the woman and 1.332 Gm. in the body of the man. It is concluded that gastrointestinal with polyneuritic symptoms, and trophic disturbances of the hair, should lead to a suspicion of thallium poisoning, and that it would appear as if the medicament preserved the body.—H. KRSEK. *Cas. Lék. Cesk.*, 14 (1934), 40; through *Medico-Legal Criminol. Rev.*, 2 (1934), 372. (A. P.-C.)

PHARMACOGNOSY

VEGETABLE DRUGS

Drugs—Brazilian, in World Commerce. The author discusses drugs derived from the Brazillian flora. Many hundreds are used domestically but only a few are exported. Among the latter the most important are: *Anda-Assu* (*Euphorbiaceæ*) yielding an oil similar to castor oil, having laxative properties. *Araroba* (*Papilionaceæ*) in the form of Goa powder and used principally for the production of chrysarobin. *Canella:* Several Brazilian trees are called by this name, the exported bark, however, being that of *Nectandra amara*. *Copaiba Balsam:* This is yielded by several trees, the exported product often being a mixture derived from several sources. Mixing is usually done in the city of Obidos. *Elemi:* Several resins are known by this name, among them the true elemi (*Bursera leptophloeos*), hard elemi (*Protium sp.*) and bastard elemi, a yellow elemi coming from the *Guttiferæ*. *Guarana* is prepared from the seeds of *Paullinia sorbilis*. About 1200 to 1500 Kg. are used for domestic pharmaceutical purposes and about 15,000 go into the manu-

facture of refreshing drinks. *Ipecac:* Both the true root (*Uragoga Ipecacuanha*) and that of *Richardsonia braziliensis* are gathered. These are closely related plants. *Jaborandi* is yielded by *J. jaborandy, J. pinnatifolius* and *J. spicatus*. *Kopal:* Most of the Brazilian kopal is exported to North America. *Koto:* The name signifies anti-diarrhœa which fact probably accounts for the appearance of several barks on the market. The true bark comes from *Ocotea argyrophylla, Nectandra elæophora* and *Bracteanthus glycycarpus*. *Marapuama* the source of which are members of the Genus *Ptychopetalum* (*Oleaceæ*). The extract of the root and stem bark has recently been shown to be beneficial in hookworm treatment. Most of it is exported to Argentina and Japan. *Sandal Oil:* This is not an official oil but considerable quantities are produced, some 12,000 Kg. being used in the perfume industry. *Tayuyí*, under which name are known several roots of plants belonging to the Genus *Trianosperma* (*Cucurbitaceæ.*) used as antisyphilitics. The fatty oil of these plants is a laxative. *Tonka Beans:* Five varieties are known but only two, *Dipterix odorata* and *D. polyphylla* are used for the production of coumarin, the others being used for fixed oil.—FRED W. FREISE. *Der Tropenpflanzer* (1934), 469; through *Pharm. Weekblad*, 72 (1935), 470. (E. H. W.)

Ergot—Russian. All published information about Russian ergot has been about commercial supplies which are usually in a "damp and moldy condition." In the fall of 1934, a number of specimens, cured as our Pharmacopœia specifies were received directly from Russia. Differences observed among the samples were of minor importance. The important question of differences relates to the color of the fractured surface. That of Spanish ergot is white. Food and drug officials have discontinued admission of damaged ergot with pink fracture. How Russian ergot of commerce came to be changed can only be conjectured. In the author's opinion, somewhere from producer to importer it has been moistened to increase its weight. Aside from fracture color and odor, official ergot shows little difference from that of Spain and Portugal. Externally it is not quite so dark. In general the grains are a little smaller and more slender. A table shows the sizes. A striking difference shows in the powders, the Russian powder being blackish, the Spanish light brown. The following conclusions seem clearly established: "1. The normal fracture color of all ergot is white. 2. The purple fracture color that has been commonly seen in Russian ergot is the result of decomposition caused by exposure to dampness and resulting putridity. 3. The specification by the U. S. P. Revision Committee of pink color in the fracture of ergot is the result of the former prevalence in our drug market of such decomposed ergot. 4. At the present time, the Russian ergot in the American market is in general of sound quality and exhibits a white fracture color. 5. All reference to pink fracture should be eliminated from the U. S. P. description of ergot. 6. Whatever method of bio-assay may be adopted should be based on tests made with ergot of white fracture. Tests that have been made with the deteriorated ergot of pink fracture should be scrapped." All the specimens have been preserved and may be seen at the New York College of Pharmacy and also a sample of that now on the market in New York.—H. H. RUSBY. *J. Am. Pharm. Assoc.*, 24 (1935), 382. (Z. M. C.)

Plantago—Botanical Sources of Drugs Derived from the Genus. The literature dealing with the Plantago species is briefly reviewed and anatomical differences are illustrated. All commercial samples of Ispaghula were found to consist entirely of *P. ovata* Forsk, no seeds of *P. amplexicaulis* being found. Commercial samples of "Psyllium" may consist of *P. arenaaia* or *P. lanceolata* in addition to *P. psyllium*. No *P. Cynops* seeds were found in the "Psyllium" examined. "Bartung" or "Barhand" consists of seeds of *P. major* and is widely used in the East.—E. W. SKYRME. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 1–12. (S. W. G.)

Strophanthus Emini—Seeds of. The seeds of *S. emini* are apparently similar in their pharmacological action to those of *S. kombé*, and the tincture and mixture of glycosidal principles obtained from them also appear to be similar pharmacologically and chemically. The inclusion of *S. emini* in the Brit. Phar. is recommended. Reports of chemical, pharmacological and clinical tests are given.—BRITISH PHARMACOPŒIA COMMISSION. *Quart. J. Pharm. Pharmacol.*, 8 (1935), 61–70. (S. W. G.)

Tree Barks—Hygroscopicity of. With regard to the sorption of moisture, the air-dry barks of *Cinchona succiruba*, toon (*Cedrela toona*), jaman (*Eugenia, jambolana*) and mango (*Mangifera indica*), are similar to wood. The maximum sorption at saturation humidity was 22–28%. The results were not affected appreciably either by presoaking the bark or by drying it to constant weight at 100°. The moisture content of barks should be determined before they are used in the

preparation of extracts and tinctures.—S. N. KAPUR and D. NARAYANAMURTI. *Indian Forester*, 60 (1934), 702; through *Chem. Abstracts*, 29 (1935), 3463.

PHARMACY

GALENICAL

Distilled Water, Sterile—Preparation of, in a Vacuum. If a water which is in itself nearly germ free, is distilled in a sterilized apparatus under reduced pressure and at only 48°, the distillate will be sterile. If, however, a contaminated water is used, some organisms will be found in the distillate. The construction of the apparatus has some bearing upon the sterility of the distillate under reduced pressure. The arrangement must be such as to prevent drops of contaminated water from being carried over mechanically. The "Sikotopf" apparatus either with or without vacuum produces a distilled water meeting the chemical tests of the Swiss Phar. V, but one which cannot be relied upon to be sterile if reduced pressure is used. The apparatus described by Vuillemin will produce a chemically pure and at the same time sterile water at ordinary temperature at a very low cost.—J. THOMANN and A. KÄLIN. *Pharm. Acta Helv.*, 10, (1935), 96.

(M. F. W. D.)

Fluidextract of Thyme and Its Preparations. Studies were made in which 1 Kg. of drug was moistened with 50 Gm. glycerin, 75 Gm. alcohol and 150 Gm. water and then percolated, and the p_H, dry weight (according to Peyer) and thymol content were determined. The following extracts were prepared: (1) with 70% alcohol—bright brown, clear, transparent, remained clear on standing, p_H 5.18, dry weight 1.49, thymol 0.0524%, slight turbidity with 5 parts of water. The syrup with 5% extract is clear, weakly opalescent, bright brown, has a distinct thymol taste, p_H 5.20; with 10% extract it is more strongly opalescent; no sediment after long standing. (1*a*) An extract prepared according to the D. A. B. VI by the addition of ammonia water and after filtering was dark brown, not transparent, deposit formed after 3 days, p_H 8.86, dry weight 10.12, clear with 5 parts of water, thymol content 0.0475%; 10% syrup was clear, p_H 5.8, thyme taste weaker than (1). (1*b*) An extract prepared by adding 20 Gm. to the moistening liquid was green-brown, turbid, deposited greatly, p_H 8.5, dry weight 10.1%, turbid with 5 parts of water, green flakes separating, thymol content 0.0503. The 10% syrup was green and turbid, separated into 2 layers (a clear brown layer and an upper green turbid one), p_H 8.01. (3) An extract prepared by moistening the drug with ammonia water and then percolating with a mixture of 340 Gm. of alcohol and 660 Gm. of water had a dark brown color and was clear. After standing it formed a slight sediment, p_H 5.5–6.71, dry weight 14.1, thymol content 0.0321%, clear with 5 parts of water and yielded a 10% syrup with p_H 5.71. (4) An extract prepared by moistening the drug with a menstruum omitting the ammonia water and then percolating was clear with a red-brown color, p_H and had 5.21, dry weight 14.1%, thymol 0.0330%, clear with 5 parts of water; the 10% syrup was clear and had p_H 5.20. The syrups from (3) and (4) were much darker than those from (1) and (1*a*) but did not have the characteristic taste of thyme drugs. (4*a*) Extract (4) was treated with ammonia according to the D. A. B., filtered and the filtrate had a dry weight of 12.2% and a thymol content of 0.0302%. The residue on the filter was dried, partially dissolved in cold water, yielding a slightly turbid solution with boiling water and gave a test for thymol indicating that not only coloring matter but also active constituents were precipitated. (5) The preparation made according to the Swiss Phar. yielded a fluidextract which was at first turbid and then settled, p_H 5.2; after neutralization 5.7; dry residue before filtering 16.11%; after filtration 14.8%; thymol content before filtration 0.032% and after filtration 0.031%; clear with 5 parts of water; the 10% syrup had a p_H 5.41.—W. BRANDRUP. *Apoth. Ztg.*, 50 (1935), 293–294.

(H. M. B.)

Hydrogen Peroxide—Stabilization of, Especially by Acetanilid. Höll finds that 3.1% hydrogen peroxide solution stabilized with 0.1% acetanilid was almost unchanged (3.05%) after $^1/_2$ year, 2.9% after 1 year. A 15.15% solution after 4 months contained 14.3% hydrogen peroxide and after 6 months 13.8%; without preservative it contained after 6 months 6.3%. However, acetanilid is decomposed in a short time by water giving nitrobenzene which is recognized by its odor and by the usual tests. The change occurs in the 3% solution in 1–2 months and in the stronger solution in a few weeks. Since the nitrobenzene is a poison, acetanilid should not be used. Phenacetin is not decomposed at ordinary temperature even after many months by concen-

trated hydrogen peroxide solutions and a 15.2% solution treated with 0.05% phenacetin contained 14.5% hydrogen peroxide after 4 months. The stabilizing action of luminal, veronal, salicylic acid and sodium hypophosphite is much less. Experiments show that Nipagin M (0.1%) is the best of all stabilizers since 3% solutions showed no change after 4 months and 15.2% solution decreased to 14.8%.—*Apoth. Ztg.*, 50 (1935), 252. (H. M. B.)

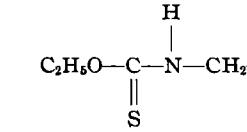
Lugol's Solution. The following formula is suggested as a uniform standard: Potassium iodide 2 Gm., iodine 1 Gm. and water 20 cc.—E. BOLTANSKI. *Presse med.*, 43 (1935), 292; through *Chem. Abstracts*, 29 (1935), 3464.

Ointments—Structure of. Ointments can be classified as fatty waterless (I), fatty aqueous (II) and those containing no greasy substances (III). I form complicated multiphase systems when mixed with solid drugs. Pharmacologically they are protective salves, being impermeable to water and having a cumulative but slow action. II act much more strongly than I and may consist of an emulsion of oil in water or of water in oil or a mixture of an ointment and an emulsion. Pharmacologically they exert a cooling action, as do also "quasi-emulsions" obtained by addition of water to a solidifying fat. III are composed of swollen lyophilic colloids containing various drugs in a dispersed state.—M. GATTY-KOSTYAL and B. KAMIENSKI. *Wiadomosci Farm.*, 61 (1934), 711; through *Chem. Abstr.*, 29 (1935), 3115.

p_H—Pharmaceutical Study of. The paper first considers formulation of p_H, showing how equilibrium exists, the small extent to which water dissociates, that pure water or a neutral aqueous solution is a 1/10,000,000 normal solution of both H-ions and OH-ions. Formulation of buffer capacity is not discussed except to explain the unit adopted by VanSlyke which is the differential ratio $\frac{dB}{d(p_H)}$ and which is used in adjusting pharmaceutical preparations to specified p_H values. The formulation of electrode potentials is discussed and the fundamental equation for converting electrode potentials to hydrogen-ion concentrations given. The history of methods is traced with references to a number of men and the contributions they have made. Most drugs can be put into two groups: those having maximum stability at p_H 7 and those having maximum stability very near p_H 5. Stability in absence of acidity or alkalinity is easily understood but stability at p_H 5 must be explained on the basis of hydrogen-ion catalysis. This the author does. Bronsted has developed a mathematical conception of hydrogen-ion concentration and a new definition of acids and bases. Though electrolytes exert considerable influence upon both the p_H and the stability of solutions, the fundamental effect is not understood. Electrolytes that increase acidity of acid solutions are named. Sulphates decrease it. The action of univalent or bivalent cations is mentioned. Under the heading, "physiological p_H," the reaction of distilled water is discussed, the difficulty attached to getting it and keeping it near p_H 7 even when stored in Jena ampuls. Fleisch's method for preparing a stable nutritive solution of physiological p_H is given. A number of other solutions are discussed. Sterilization of cocaine hydrochloride increases acidity but if buffered to a weakly acid reaction by Na_2CO_3 and NaH_2PO_4 or NaH_2PO_4 and Na_2HPO_4 the p_H will remain stable during sterilization. Solutions of procaine hydrochloride can be stabilized in a similar manner. Morphine hydrochloride, novocaine, stovaine and atropine sulphate, benzyl alcohol, strophanthin, all call for special treatment. Previous workers have reported the change in p_H by sterilization of the following pharmaceutical products: dextrose, glycerophosphate compound, magnesium sulphate, physiological salt solution, procaine, procaine and epinephrine, all more acid; iron cacodylate less acid; mercurochrome, sodium salicylate, more alkaline; no change in sodium cacodylate, sodium iodide and salicylates with colchicine. A general method suggested by Robertson and others, for maintaining stable p_H during sterilization and which will remain stable for 2–3 weeks is given in detail. In ophthalmic therapy the adjustment of p_H is of considerable importance. The results of an investigation by Gifford and Denton are summarized. Since lacrimal secretions are about p_H 8, an acid buffer solution is prepared from boric acid and potassium chloride, so as to have a p_H of 5.5. An alkaline buffer solution which is less irritating and more suitable for atropine homatropine, physostigmine and pilocarpine is prepared by adding 0.20*M* solution of sodium carbonate to the acid buffer solution. How to handle phenacine, atropine, homatropine, physostigmine, pilocarpine, zinc sulphate, sodium fluorescein, metaphen and butyn is reported. A table of p_H values for ophthalmic preparations, determined by Gifford and Denton is given. The relation of p_H and toxicity is discussed with reference to alkaloids. Crane's statement that the toxicity of alkaloidal salts is dependent

upon the degree of hydrolysis is explained. Hydrolysis curves are shown and a table comparing p_H and percentage of hydrolysis. Mayeda used cinchona alkaloids to verify his mathematical results and concluded that "the biological action of cinchona alkaloids is dependent entirely upon the amount of alkaloidal base freed by hydrolytic dissociation which in turn is a function of the p_H and only the free quinine base is the bearer of biological action." In general, experimental work with alkaloidal salts used as local anesthetics indicated increased biological activity when a greater amount of alkaloidal base is freed by dissociation. Considerable work has been done on the effect of p_H on the germicidal action of soaps. Preservative action of acids and bases is largely a function of hydrogen- and hydroxyl-ion activity. It has been concluded that undissociated weak acids rather than the ions are the preservative agents and this agrees with the statement that undissociated molecules penetrate into protoplasm more readily than ions do. Preservatives in pharmaceutical preparations have been studied by a number of people and reports made for lactic acid, sugar, salt. Insulin itself has a toxic effect. Attention is directed to the reports about the influence of p_H upon mercuric chloride solutions, upon the antiseptic actions of phenyl substituted acids from benzoic to ϵ-phenyl caproic, upon potassium iodide and sodium iodide solutions. Tscherch and Fluck investigated the instability caused by acacia. They found that it could be rendered inactive. Work by Krantz and associates is also reported. The stability of gelatin emulsions according to Friedman and Evans is dependent upon the p_H. Enz and Jordan investigating emulsification of alkaloid-containing preparations found that the statement that "emulsions are less apt to form in strongly acid or alkaline solutions than those which are neutral" is true only in specific instances. Numerous pharmaceutical colloids represent the two practical classes. Bogue showed that physical properties of colloids were a minimum at a p_H corresponding to the isoelectric point. Tyndall and Kraemer carried this study further. Considering p_H and stability of complex products of biological origin the author discusses proteins, most of which do not require stabilization but general principles concerning their decomposition can be applied to the problem of stabilizing toxins, antitoxins and insulin. Reference is made to Northrop's work on gelatin, Svedberg's and associates on proteins in general, egg albumen, hemocyanin, other workers on the hydrolysis of casein in acid solution, the stability of toxins and lysins, tetanolysin, cithins and cholesterins. Studies on hormones are cited. Experimental work on the stability of vitamins is shown by a table giving temperatures, time in hours, p_H and percentage of decomposition. The relation of activity of enzymes and p_H are not considered except to give a number of references. Each enzyme has an optimum p_H and changes in activity with changes in p_H are related to the state of ionization of the substrate and the enzyme. Pepsin and trypsin are briefly considered.—FREDERICK F. JOHNSON. *J. Am. Pharm. Assoc.*, 24 (1935), 397. (Z. M. C.)

Spiritus Sinapis Swiss Phar. V—Stability of. Allylisothiocyanate, the active ingredient of *Spiritus Sinapis*, reacts slowly on standing with ethyl alcohol to form allyloxythiourethane



$C_2H_5O—C(=S)—N(H)—CH_2—CH_2=CH_2$. Two spirits were prepared: one with natural oil of mustard and one with synthetic oil. Samples of each were stored at a temperature of 17° to 19° in daylight and in the dark. The allylisothiocyanate was determined on the day of preparation by the iodometric method of the Swiss Phar. V. However, this method determined not only allylisothiocyanate but also allyloxythiourethane. To obviate this difficulty, advantage was taken of the fact that the latter compound adds iodine directly in acid solution while the former requires an ammoniacal medium. By subtracting the number of cc. of 0.1*N* iodine used by the allyloxythiourethane from the total number used in the determination of the allylisothiocyanate plus allyloxythiourethane, the amount of unaltered allylisothiocyanate was determined. The four preparations were all assayed on the same days. The results were tabulated for a period of 247 days, and they showed that *Spiritus Sinapsis* must be freshly prepared as the pharmacopœia requires. Allyloxythiourethane, as a rubefacient, is valueless as a comparison of the therapeutic activity of a fresh and an old spirit showed. The stability is little affected whether natural or synthetic oil is used or whether the spirit is stored in the light or dark. The monograph of the Swiss Phar. should contain a qualitative test for the presence of allyloxythiourethane.—J. BUCHI. *Pharm. Acta Helv.*, 10 (1935), 90. (M. F. W. D.)