PHARMACEUTICAL ABSTRACTS

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THERAPEUTICS

Acetylbetamethylcholine Chloride—Use of, in Treatment of Neurogenic Bladder and Allied Conditions. Preliminary favorable results of acetylbetamethylcholine chloride in a series of patients with neuropathic disturbances of the bladder indicate that this drug may be a valuable addition to the management of these conditions which have been proved very resistant to previous methods of treatment.—J. T. GERNOW, E. E. EWERT and R. D. HERROLD. *Med. Rec.*, 141 (Feb. 1935), 141. (B. S. R.)

Adrenal Cortex Hormone—Effect of, on Hypertension and on Cardiovascular System. In cases of hypertension, some complicated by cardiac arrhythmias, the administration of adrenal cortex hormone resulted in an abrupt drop in blood pressure and in a clearing up of the arrhythmias.—E. M. JOSEPHSON. *Med. Rec.*, 141 (Mar. 1935), 250. (B. S. R.)

Benzylephedrine—Use of, as Analgesic in Chaulmoogra Injections. A mixture containing 80-cc. chaulmoogra oil, 20-cc. olive oil and 0.1-Gm. benzylephedrine base is used for intramuscular injection. It is painless and has a tolerance 2–3 times that of ordinary chaulmoogra preparations.—C. T. FANG. *Chinese Med. J.*, 48 (1934), 563; cf. *C. A.*, 24 (1930), 4855; through *Chem. Abstracts*, 29 (1935), 289.

Bismuth Violet—Use of, in Malaria and for Chancroids. Approximately 4000 intravenous injections of bismuth violet were given in about 400 cases including all forms of malaria during the past four years. Disappearance of the parasites was prompt and complete, with few recurrences. A case is reported in which the local application of 0.4 per cent bismuth violet in 10 per cent glycerin-aqueous solution and 1 per cent bismuth violet ointment, to chancroids over the external genitalia and anus, was followed by prompt relief of pain, arrest of the infection and healing of the lesions. On the thirteenth day all ulcers were healed, the inflammation and discomfort were gone and there was practically no scarring.—C. E. WATSON. *South. Med. Surg.*, 97 (1935), 18. (S. W. G.)

Burns. The Dr. E. C. Davidson treatment of burns with compresses of 5% tannic acid is discussed. Burns are classified as (1) 1st and 2nd degree involving only the epidermis, (2) 3rd degree penetrating only to the upper layer of the corium, (3) 4th degree involving the subcutaneous tissues and (4) 5th and 6th degrees penetrating to the muscle and bone. First degree burns such as a mild sunburn usually involve the upper layer of the epidermis in which the scales fall off in a short time; 2nd degree burns are generally characterized by the formation of blisters; 3rd degree burns are the most painful since they leave the nerve filaments bare and exposed. Local treatment provides (1) relief by exclusion of air and the use of a local anesthetic and (2) prevention of infection in which tannic and picric acids are of great help. Minor burns are treated by ointments, salves and oils because of their occlusive nature; for more severe burns liquids and powders are used. Other medicaments are olive and cod liver oils, vaseline, lead carbonate, boric acid, sulphonated bitumen, bismuth subnitrate and subgallate, thymol iodide, iodoform, sodium bicarbonate, resorcinol, zinc oxide, acetanilid, paraffin, potassium permanganate, ferric chloride, aluminum subacetate, lead subacetate, alum and calamine.—ANON. *Drug and Cosmetic Ind.*, 36 (1935), 271–272, 276, 284. (H. M. B.)

Cevitamic Acid (Ascorbic Acid)—Use of, in the Treatment of Infantile Scurvy. Three cases of infantile scurvy were treated with cevitamic acid. One patient, receiving one 10-mg. tablet orally three times daily, was cured and discharged from the hospital one month from the beginning of treatment. The other two patients were given 20 mg. of cevitamic acid orally each day for 4 days, then 40 mg. daily for 10 days. Disappearance of the typical scorbutic symptoms was prompt in all cases. In the latter two cases, the cevitamic acid content of the blood serum before and after treatment was determined. Before treatment, the serum contained 0.97 mg. and 1.02 mg. per 100 cc., in the two cases. In the one case, after 6 days of treatment, the serum cevitamic acid increased to 2.01 mg., and after 14 days it was found to be 1.97 mg. The serum content in the second case increased from 1.02 mg. up to 2.08 mg. per 100 cc. after 6 days' treatment, the value being 2.06 mg. on the 14th day.—A. F. ABT and I. M. EPSTEIN. *J. Am. Med. Assoc.*, 104 (1935), 634. (M. R. T.)

Colds—Prescriptions for. The author describes the "common cold," giving reasons for infection by the disease and suggestions for methods of protection and treatment. Seven prescriptions are given, which according to the author, are beneficial in the treatment of colds.—J. W. PECK. *Chem. and Drugg.*, 122 (1935), 44. (T. G. W.)

Dextrose—Therapeutic Use of. Dextrose is readily utilized by all body cells. It can be administered orally, rectally and by injection in large quantities without harm. In child therapy it is used in 5 to 10% solution. For rectal alimentation a 15% solution is used and by this avenue 200 to 300 Gm. of dextrose can be supplied in twenty-four hours. For a single enema, 250 to 350 Gm. of an isotonic, 6% solution can be given. Dextrose is used in the treatment of diseases of the liver, being given simultaneously with insulin. It is also being employed parenterally in place of sodium chloride after operations. For this purpose a 6% solution of dextrose is used. In certain edemas, especially those of cerebral pressure, apoplexy and the like, the intravenous infusion of 50 to 100 cc. of a 50% solution frequently brings about decided improvement. Intravenous injections of dextrose are used successfully in the treatment of acute nephritis, pulmonary edema, myocarditis, varicose veins and muscle rheumatism. Dextropur is recommended for use in place of ordinary dextrose because of its cheapness and purity. Since these dextrose solutions must be sterile, it is recommended that dextropur be dissolved in a 0.08% aqueous solution of Nipagin-Nipasol consisting of 65 parts of Nipagin and 65 parts of Nipasol. Nipagin-Nipasol has antiseptic but not germicidal action. Although investigations carried out by the author show that only harmless organisms are present in solutions prepared as recommended, in order to conform to the pharmacopœial requirement, these solutions must be absolutely sterile. Heating in an autoclave at 120° C. would insure absolute sterility, but this degree of heat would decompose many chemicals; therefore, bacterial filtration is recommended as a procedure for obtaining absolutely bacteria-free solutions.—H. ESCHENBRENNER. *Pharm. Ztg.*, 80 (1935), 70. (G. E. C.)

Dioxyanthranol 1, 8, a Substitute for Chrysarobin. Dioxyanthranol 1, 8 differs in its structural formula from chrysarobin by the lack of the methyl group. With physical and chemical properties similar to chrysarobin, it can replace the latter in practically all pharmaceutical combinations. Concentrations employed range from 0.1 to 5 per cent, but the safe effective range is stated to be between 0.1 to 1.5 per cent. Concentrations above 2 per cent produce a dermatitis. In addition to a review of the literature, the results of the use of dioxyanthranol in the treatment of over 100 cases of dermatoses, notably psoriasis, are presented. Because of the favorable results obtained, both as to effectiveness and freedom from undesirable reactions, the authors conclude that dioxyanthranol 1, 8 is an effective drug and a desirable substitute for chrysarobin in conditions in which chrysarobin has heretofore held the field.—H. BEERMAN, *et al. J. Am. Med. Assoc.*, 104 (1935), 26. (M. R. T.)

Estrogenic Preparations—Relief of Menopause Symptoms by. A general discussion of effectiveness, dosage, duration of treatment, the relative values of various products, contraindications, etc., as regards available preparations containing one or more of the hormones elaborated by the ovary and the anterior lobe of the pituitary, in relation to their use in the treatment of menopausal symptoms.—E. L. SERVINGHAUS. *J. Am. Med. Assoc.*, 104 (1935), 624. (M. R. T.)

Ferric Chloride—Use of, in Poison Oak Dermatitis. Tincture of ferric chloride or a solution of 5 per cent ferric chloride in dilute alcohol is stated to be a specific in the prevention and treatment of poisoning from poison oak. For prevention, apply to the exposed parts of the body. For treatment, apply as early as possible. Reference is also made to a treatment by means of a solution of hyposulphite of soda.—*Calif. and Western Med.*, 42 (1935), 39. (B. S. R.)

Fever Sores—Remedies for. Fever, or cold sores, are discussed and the following recipes offered: *Colorless Lipstick Types.*—(1) White beeswax 31%, cocoa butter 19%, lanolin 5%, menthol, 0.5%, thymol 0.1%, camphor 3%, petrolatum, soft, white, short fibre 41.4%. (2) White beeswax 30%, paraffin 2%, petrolatum, soft white 49.8%, cocoa butter 8%, benzocaine 1%, lanolin 5%, camphor 2%, phenol 0.2%, chloroform 2%. Dissolve the benzocaine in the chloroform, melt the other ingredients and add the chloroformic solution. *Ointments.*—(1) Tr. benzoin 20%, balsam Peru 10%, cold cream 70%. Heat the cream and stir in the other ingredients until smooth and uniform. (2) Benzocaine 3%, Co. tr. benzoin 20%, balsam Peru 10%, cold cream 61%, chloroform 6%. Dissolve the benzocaine in the chloroform; heat the cream and mix in the other ingredients adding the benzocaine soln. last.—ANON. *Drug and Cosmetic Ind.*, 36 (1935), 285, 287. (H. M. B.)

Gonorrhea in Children—Recent Progress in the Treatment of. Theelin, intramuscularly

is suggested for the treatment of gonorrhea in children. Subsequent changes (hypertrophy) of the vaginal mucosa renders the mucosa unfit as a habitat for the Neisserian organism. No failures by this method have thus far been reported.—W. A. N. DORLAND. *Clin. Med. Surg.*, 42 (1935), 23. (B. S. R.)

Hydrochloric Acid—Use of, in Tonsilitis. In acute tonsilitis, intravenous injections of hydrochloric acid act like a specific. Two injections on two succeeding days (no more) of 10 cc. of a 1:1500 or 1:1000 solution of the acid are given. Sometimes one injection is enough.—W. J. HOWELL. *Med. World*, Jan. 1935; through *Clin. Med. Surg.*, 42 (1935), 146. (B. S. R.)

Methylene Blue—Intravenous Use of, in the Treatment of Cyanide and Carbon Monoxide Poisoning. A new procedure for the treatment of cyanide and carbon monoxide poisoning with methylene blue is given.—J. C. GEIGER and J. P. GRAY. *Clin. Med. Surg.*, 42 (1935), 96. (B. S. R.)

Nirvanol—Treatment of Chorea with. A review of the reported evidence of the value of nirvanol in the peroral treatment of chorea.—L. E. BENDER and G. E. PRATT. *Med. Rec.*, 141 (Mar. 1935), 300. (B. S. R.)

Paraldehyde—Advantages of, as Basic Amnesic Agent in Obstetrics. In 100 consecutive cases, paraldehyde was used as the basic amnesic agent in synergistic combination with sodium amytal, nitrous oxide and ether being depended upon for analgesia and anesthesia during the latter part of labor and at delivery. Six to 8 drachms of paraldehyde, mixed with an equal volume of olive oil, was administered by rectal tube one-half to one hour after the amytal had been given. Because a satisfactory analgesia and amnesia was obtained which apparently did not interfere with physiological labor, it was concluded that paraldehyde as a basic amnesic agent in combination with sodium amytal or pentobarbital approaches the ideal in satisfying the fundamental requirements pertaining to labor. The authors state further that there are no contraindications to its use in home confinements.—E. D. COLVIN and R. A. BARTHOLOMEW. *J. Am. Med. Assoc.*, 104 (1935), 362. (M. R. T.)

Peritonitis—Prophylactic for. Animotic fluid is recommended for the prevention of peritonitis following severe abdominal operations. References are given.—*Clin. Med. Surg.*, 42 (1935), 29. (B. S. R.)

Phenylmercuric Nitrate—Treatment of Chronic Vaginitis with. A report of a case which had resisted all efforts at treatment for $5^1/_2$ years. An apparently permanent cure was promptly brought about by the use of douches of phenylmercuric nitrate in glycerin 1:1500 diluted down to 1:20,000.—F. W. HITCHINGS. *J. Am. Med. Assoc.*, 104 (1935), 212. (M. R. T.)

Psorimangan—Value of, in Psoriasis and Ichthyosis. Case reports of the successful treatment of psoriasis and ichthyosis by the injection of Psorimangan, a colloidal form of manganese.—C. R. PERDUE. *Clin. Med. Surg.*, 42 (1935), 143. (B. S. R.)

Verodigin—Value of, in Cardiovascular Disease. A clinical study of the therapeutic efficiency of Verodigin, the gitalen glucosides of digitalis. References are given.—W. T. STROUD, *et al. Clin. Med. Surg.*, 42 (1935), 100. (B. S. R.)

Vinethene. A review, with references, of the chemical and experimental investigation of vinethene (vinyl ether). Vinethene is vinyl ether, with the addition of 3.5% of absolute alcohol and 0.01% of a nonvolatile oxidation inhibitor. The properties of vinethene are as follows: Clear, colorless liquid, except for a purple fluorescence, Sp. Gr. of 0.77, B. P. of 28.3° C., garlic odor, highly inflammable and explosive, and heavier than air. It should be preserved in well-stoppered containers, in a cool place, remote from light, fire and acid fumes. Should not be used more than twelve hours after the bottle has been opened. The writer states that vinethene possesses the best characteristics of ethylene chloride and ether without their disadvantages, being extremely rapid in action with quiet induction, not unpleasant to inhale, non-irritating to the respiratory passages, with a theoretically wide margin of safety, a rapid recovery free from unpleasant after effects, little effect on the respiration and practically no affect on the heart and blood pressure. Complete muscular relaxation has not always been obtained and liver necrosis has been reported in some cases. A brief description is given of the methods of administration with precautions and recommendations.—F. E. SHIPWAY. *Lancet*, 1 (1935), 82. (B. S. R.)

NEW REMEDIES

Synthetics

Eunarcon (J. D. Riedel-E. de Haen A. G., Berlin) is a 10 per cent stabilized aqueous solution of the sodium salt of isopropyl-β-bromallyl-*N*-methylmalonylurea suitable for intravenous injection. It is used as a narcotic in simple surgeries and in gynecology similar to ethyl chloride anesthesia, or as a full narcotic in short operations.—*Pharm. Zentralh.*, 76 (1935), 72. (E. V. S.)

Haemodan (Syntetica, Grinsted, Denmark) is an intermediate product in the preparation of adrenalin, and is used as a hæmostatic in the "Stryphnon-preparations."—*Pharm. Weekblad*, 72 (1935), 226. (E. H. W.)

Rossium. Diphenylmethylpyrazalonyl. It is used in cases of abrupt withdrawal of morphine from morphine addicts. The dosage is 0.5 Gm. per every 10 lbs. body weight per day for five days. It is supplied in bottles of 25, 50 and 100 capsules.—*Drug. Circ.*, 79 (Jan. 1935), 31. (T. G. W.)

Zephirol—New Disinfecting Agent. Zephirol is a high molecular weight-alkyl di-methyl benzyl ammonium chloride. It yields a clear, yellowish white, slightly alkaline solution which froths strongly on shaking, and which possesses a weak, agreeable odor. It kills coli, staphylococcus, streptococcus, pneumococcus, anthrax, typhoid, paratyphoid, dysentery, diphtheria and gonococcus organisms within $2^1/_2$ minutes in a one per cent solution even in the presence of 10 per cent serum albumin. The Rideal-Walker test shows that Zephirol is 10 times stronger than cresol-soap solution. Tests showed that 15-cc. bouillon cultures of various germs such as coli, streptococcus and anthrax were rendered sterile within two minutes by one drop of a one per cent solution of Zephirol. It was also shown that the solution can be used successfully in disinfecting hands, rubber gloves and bacterial filtration apparatus. The bacterial filtration apparatus may be kept always sterile and ready for instant use by being stored in a one per cent Zephirol solution; however, the membranous filters become brittle and unreliable on being kept in the solution twelve hours or longer. To avoid this, the filters should be placed in Zephirol solution for one hour, rinsed with sterile water and then kept in Nipagen-Nipasol solution. Sterile solutions of drugs for injection may be prepared by solution of the desired substance in a 0.08 per cent solution of Nipagen-Nipasol and subsequent filtration through apparatus made and kept sterile as described. —H. Eschenbrenner. *Pharm. Ztg.*, 80 (1935), 94. (G. E. C.)

Specialties

A-B-D Capsules. (Abbott Laboratories, North Chicago, Ill.) Capsules containing the equivalent of at least three teaspoonsful of cod liver oil in vitamins A and D, two cakes of moist compressed yeast in vitamin B_1 content, and one-half cake of moist compressed yeast vitamin B_2 (G) content. They are used for the treatment of disorders due to a lack of vitamins A, B_1, B_2 (G) and D. They are supplied in boxes of 25 and 100 capsules.—*Drug. Circ.*, 79 (Mar. 1935), 33. (T. G. W.)

Acetcarbromal (Syntetica, Grinsted, Denmark) is acetylcarbromal, which is also found on the market under the trade name of "Abasine."—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Aconite-dispert (Dispert Ltd., The Hague) is an aconite extract prepared by the dispert-method of Krause. In the dispert-method the liquid extract obtained from the plant parts is finely subdivided. So finely, in fact that one liter is sprayed over a surface 300 M. square. It dries during the spraying, the speed of the droplets of mist being 140 M. per second. Aconite-dispert so obtained from aconite root is made up into tablets of two strengths, standardized as equivalent to 0.05 mg. of aconite per tablet and 0.2 mg. of aconite per tablet. The tablets contain besides aconitine the other alkaloids and therapeutic constituents of aconite and are employed in neuralgia, migraine, etc.—*Pharm. Weekblad*, 72 (1935), 70. (E. H. W.)

Aderol (Kynazon-Werk, Frankfurt a. M.) is an external alcoholic preparation containing *d*-bornyl acetate (1 per cent), an isothiocyanic acid ester (0.5 per cent), camphor (5 per cent) and ethereal oil (17 per cent). It is used in the treatment of whooping cough, bronchitis and pneumonias of infants and older children.—*Pharm. Zentralh.*, 76 (1935), 104. (E. V. S.)

Adiposettes are coated tablets supplied in packages of 250 by Rudolf Reiss, Berlin, Germany. They are used as fat-reducing agents and consist of *Fucus vesiculosus*, frangula, lecithin, dihydroxyphthalophenon ester and tritetraborylbistrioxypropanyl ester.—*Pharm. Ztg.*, 80 (1935), 109. (G. E. C.)

Adormine-tablets (Apogepha, Dresden) contain 0.5 Gm. of bromdiaethylacetylcarbamide.—*Pharm. Weekblad*, 72 (1935), 70. (E. H. W.)

Agrypnal Ampuls (Medica, Prague) of 20 or 30 per cent phenylethylbarbituric acid, acetamide, propionamide, betaine and distilled water are prepared by Eggochemia, Vienna.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Albicol is composed of purified colloidal aluminum silicate, betanaphthol benzoate, bismuth subsalicylate and aromatics. It is indicated in cases of gastric ulcer, gastric hyperacidity and ulcerative colitis. It is supplied in 3-ounce canisters.—*Drug. Circ.*, 79 (Feb. 1935), 27. (T. G. W.)

Aletemilch (Alete, Pharm. Producte G. m. b. H., Munich) is dried whole milk previously acidified with lemon juice. It is used as a nourishment for infants and small children.—*Pharm. Zentralh.*, 76 (1935), 104. (E. V. S.)

Allipropan-tablets (Apogepha, Dresden) contain 0.16 Gm. of diallyldipropylbarbituric acid with bromdiethylacetamide.—*Pharm. Weekblad*, 72 (1935), 70. (E. H. W.)

Alloton (J. D. Riedel-E. de Haen A. G., Berlin) is a chemical combination of garlic oil (12 per cent) and dioxycholic acid; in addition each coated pill contains the active constituents of 1 Gm. of fresh garlic. Its use is indicated in digestive disorders, worms, climacteric changes and arteriosclerosis.—*Pharm. Zentralh.*, 76 (1935), 71. (E V. S.)

Allylpropynal ("Syntetic," Grindstedvaerket, Denmark) is allylisopropylbarbituric acid. This is employed in preparing "Givofen" and "Givonal" (see below). It is likewise a constituent of "Allonal."—*Pharm. Weekblad*, 72 (1935), 177. (E. H. W.)

Aluminium-acetate-dispert (Dispert Ltd., The Hague) is aluminium acetate in powdered form, prepared by the dispert-method, which retains its solubility and may be employed for the preparation of aluminium acetate solutions. It is supplied in 5-Gm. packages or may be obtained in bulk.—*Pharm. Weekblad*, 72 (1935), 70. (E. H. W.)

Androstina (Ciba) is a biologically titrated extract from testes. It is marketed in ampuls, six to the box, of which three contain water as the solvent, and three contain fat as the solvent for the extract. The latter must be heated to body temperature before using. Androstina tablets are red in color, each containing the active constituent of 8 Gm. of fresh testes.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Anginal Tablets (Medica, Prague) contain pyocyaneo-protein sec., menthol and oil of thyme. They are marketed in packages of 20 tablets.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Aplona (Dispert Ltd., The Hague) is a light brown powder which clots easily. It is prepared from fresh apples without the addition of other material by the dispert-method of Krause. It is used in the apple diet for diarrhoea.—*Pharm. Weekblad*, 72 (1935), 70. (E. H. W.)

Arsenetten (Zima) are tablets containing arsenious acid, yeast extract and yeast vitamins. The tablets weigh 0.2 Gm. and contain 0.001 Gm. of arsenious acid. Dose, 1–3 tablets per day.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Belladonna-dispert (Dispert Ltd., The Hague) is prepared by the dispert-method of Krause. It is a belladonna extract, free from inert substances and containing only the active constituents of Belladonna particularly l-hyoscyamine. Belladonna-dispert is given in powdered form in doses of 10–30 mg. and is biologically standardized to an atropine content of 1.5%. Belladonna-dispert-liquidum is a clear liquid of which the dose is 10–15 drops. Belladonna-dispert tablets, of which one tablet contains 0.25 mg. of atropine, are used in doses of 1–2 tablets. The suppositories contain 0.3 mg. of atropine per suppository.—*Pharm. Weekblad*, 72 (1935), 70. (E. H. W.)

Bellergal (Sandoz Chemical Factory) contain 0.0001-Gm. bellafoline, 0.0003 Gm. gynergen and 0.02-Gm. phenylethylbarbituric acid. They are used in vasoneurosis, Grave's disease, migraine, menstrual disturbances, etc. Dose, 4–6 tablets per day.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Bio-Talc (Dr. Boucard, Paris) is a talcum powder containing milk ferments.—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Blimal (Laboratories de Pharmacologie médicale, Paris) is a solution of hexamethylenediamine iodomethylate, dimethylenediamine salicylate and papaverine hydrochloride offered in ampuls for the treatment of rheumatic affections—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Brocanal (Curta and Co., G. m. b. H., Berlin-Bütz) are tablets containing, in each, 0.025 Gm. of phenylethylbarbituric acid, 0.4 Gm. of bromcalcium diethanolamine (equivalent to 0.15 Gm. of bromine and 0.037 Gm. of calcium) and 0.015 Gm. of caffeine. They are indicated in genuine and traumatic epilepsy, mental disturbances of convalescence, depression and climacteric disturbances.—*Pharm. Zentralh.*, 76 (1935), 71. (E. V. S.)

Calcidrine. Calcidrine is indicated in coughs due to colds, tracheitis and acute inflammation of the respiratory tract. Each fluidounce represents calcium iodide, 7 grs. (equivalent to iodine, 6 grs.); ephedrine hydrochloride, 3/8 gr.; nembutal, 3/8 gr., syrup wild cherry, tolu, aromatics, *q. s.* It is supplied in pint and gallon bottles.—*Drug. Circ.*, 79 (Feb. 1935), 26. (T. G. W.)

Calciphos. A slightly grayish white powder containing about 19% calcium, 15% phosphorus and 2% iron as salts of inositol hexaphosphate, occurring naturally in Indian corn. It is used for calcium medication in diseases and conditions resulting from a mineral deficiency, such as malnutrition, rickets, dental caries, during pregnancy and lactation, and in allergic conditions. It is packaged as powder in 3-ounce boxes and as 6-gr. tablets.—*Drug. Circ.*, 79 (Jan. 1935), 30. (T. G. W.)

Calmuran (Dr. Hans Truttwin, Dresden) is an ointment containing brominated uranium oxide (9% uranium; 7% bromine). The ointment has the consistency of Unguentum Leniens and is employed to relieve itching.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Camirol is composed of iodoform, iodides, menthol, camphor and oil of sweet almonds. Intramuscularly it has been found very beneficial in the treatment of the early stages of pulmonary tuberculosis, tuberculosis of the bone, sinus infections, influenza, pneumonia and the common bronchial affections.—A. E. Olpp. *Med. Rec.*, 141 (Feb. 1935), 157. (B. S. R.)

Cantan (Bayer, I. G. Farbenindustrie A. G., Leverkusen a. Rh.) is a tablet containing 0.025 Gm. of *l*-ascorbic acid, the C-vitamin Bayer. It is indicated in scurvy and all the early stages of pronounced hypovitamin conditions, in hemophilia and to assist in the treatment of infectious diseases.—*Pharm. Zentralh.*, 76 (1935), 72. (E. V. S.)

Cebione (Merck & Co., Rahway, N. J.). Cebione is cevitamic acid, a pure vitamin C, which was formerly called ascorbic acid. A white or slightly yellowish white odorless crystalline powder, used in the treatment of diseases where there is a deficiency of vitamin C. It is supplied in tubes of 10 and 100, 0.01-Gm. and 0.05-Gm. tablets for oral use and in ampuls containing 0.1 Gm.—*Drug. Circ.*, 79 (Mar. 1935), 32. (T. G. W.)

Citopogeen (Royal Pharm. Factory Brocades & Stheeman and Pharmica, Netherlands) is a disinfectant especially designed for veterinary purposes. It serves for the extermination of vermin, for the sterilization of instruments and as an irrigating liquid (1–3%). It is not poisonous; only slightly stimulant and according to the researches of Prof. de Blieck is more powerful than lysol, lysoform, carbol and therapogen.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Coderit Tablets (Sanabo-chinoin G. m. b. H., Vienna) contain 0.02 Gm. codeine hydrochloride, 0.02 Gm. Epherit (chloride of synthetic racemic ephedrine), 0.0005 Gm. total alkaloids of ipecac. They are marketed in packages of 10 tablets.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Colchicum-dispert (Dispert Ltd., The Hague) is an extract obtained from colchicum seeds by the dispert-method, the colchicine content being standardized. The extract is also standardized biologically. It is put up in capsules, the dose in chronic cases being 1–3 per day, and in acute rheumatic attacks, one capsule 6–7 times per day.—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Collumol (Dr. Blajet's Chemical Factory) is a colloidal peptic aluminium hydroxide. It is employed in various stomach affections and as an antidyspeptic in hyperacidity, in abnormal fermentation, etc. Collumol, under the influence of the acid of the gastric juice, settles as a gelatinous film on the stomach walls. It is found on the market in powdered form.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Comallysatum (Bürger, Zima) is a product obtained from *Allium ursinum* by dialysis. It occurs on the market in liquid form and in ampuls. It contains the same therapeutically active

constituents as the wild growing *Alium ursinum* which has bactericidal properties, and is recommended in intestinal dyspepsia, loss of appetite and amoebic dysentery. Dose, 1/2 teaspoonful 2–3 times a day or two ampuls 3–4 times a day.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Corcumen (Temmler Works, Berlin) is distributed in capsules and ampuls. The capsules contain 0.1 Gm. of curcumine-sodium and 0.1 Gm. calcium chlorate. The ampuls contain 5.5 cc. of a 5% solution of curcumine-sodium. They are employed in liver and gall bladder diseases.—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Corvis (M. J. Lewenstein, Amsterdam) is pentamethylenetetrazol, $C_6H_{10}N_4$, which is the same compound found on the market under the names of Cardiazol and of Pentazol. It is also employed as a powerful analeptic for the heart and respiratory center. Administration per os results in an action of greater duration than subcutaneous, intramuscular or intravenous injection. It comes on the market as a powder, in solution, in tablets of 0.1 Gm. and in ampuls of 0.1 Gm. per cc.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Cynhepatil (Lab. Benderitter) has the following composition: Extract of artichoke leaves 100 mg.; stabilized liver powder, 100 mg.; purified meat peptone, 100 mg.; talc, acacia, corn starch, glutin, gum lac, black glycine Klotz, naphthol yellow Blayn in tablet form. Marketed in bottles of 60 tablets.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Cystoblettes. This preparation manufactured by H. L. Ritter and Co., Berlin, Germany, contains 40 dragees to the package. It consists of Extract of Buchu, Salol, Benzoic Acid, Extract of Uva Ursi, Hexamethylenetetramine and Monobromated Camphor. It is recommended by the manufacturer for acute and chronic gonorrhea and their complications, simple urethritis, cystitis, pyelitis and pyelonephritis.—*Pharm. Ztg.*, 80 (1935), 72. (G. E. C.)

Danamine ("Syntetic," Grindstedvaerket, Denmark) is 3-pyridine-carbonic acid diethylamide, a crystalline material melting at 26–28° and easily soluble in water. It is identical with "Coramine" and is likewise used as a cardiac tonic. It replaces camphor for injection and is used in carbon monoxide poisoning. It is employed in 25% solution with the addition of a little acid for injection.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Danarsine ("Syntetic," Grindstedvaerket, Denmark) is the calcium salt of allylarsenious acid, $C_3H_5AsO_3Ca$, H_2O. It agrees in composition with "Arsyleen." Its content of water-free salt is 90.4%. Danarsine is a whitish powder with a light yellow tint. The name may easily be confused with Danamine (from the same factory) especially in prescriptions which are not legibly written.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Daucaysatum (Bürger, Zyma) is a dialytic prepared from *Daucus Carota*, the volatile oils of which possess anthelmintic properties especially for thread worms and round worms.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Deriphyllin Ampuls (Chemisch-Pharmazeutische Aktiengesellschaft, Bad Homburg, Germany). This preparation is used for the intravenous and intramuscular injection of theophylline-oxyamine. Each cc. of solution corresponds to 0.412 Gm. of deriphyllin. It is supplied in boxes of 6, 25 and 100 ampuls.—*Pharm. Ztg.*, 80 (1935), 109. (G. E. C.)

Deriphyllin Suppositories (Chemisch-Pharmazeutische Aktiengesellschaft, Bad Homburg, Germany). Each suppository contains 0.618 Gm. of deriphyllin. 1 to 4 suppositories may be taken daily. The preparation is especially useful in angina and cardiac dyspnea. It is supplied in packages of 6, 25 and 100.—*Pharm. Ztg.*, 80 (1935), 109. (G. E. C.)

Dermarodyl (Dr. Hugo Rosenberg, Freiburg) has as its active constituent a sulphocyanide derivative of acetyltrimethylcolamine, dissolved in a water-free solvent which is readily absorbed through the skin. It combines the blood pressure lowering properties of acetylcholine with those of the sulphocyanide. Action follows rather rapidly upon absorption through the skin.—*Pharm. Weekblad*, 72 (1935), 225. (E. H. W.)

Diacedan is prepared in a Danish factory. This name is given to diacetyldioxyphenylisatine, which is also found on the market under the name of "Isaceen" and which is official in the Danish pharmacopœia as "Acetphenolisatinum."—*Pharm. Weekblad*, 72 (1935), 226. (E. H. W.)

Digitalis-dispert (Dispert Ltd., The Hague) is obtained by the dispert-method of Krause and biologically assayed by the Houghton-Straub method. It is a cold water extract of digitalis leaf prepared in the customary way, sprayed and dried. It occurs on the market in powdered form; in tablets of 150 F. D. (frog units); as Digitalis-dispert-liquidum, of which 1 cc. is equivalent to 200 F. D. and in suppositories of 300 F. D.—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Distol (Chinoinfabriek at Budapest) is a medicament used for distomatose in cattle. According to Gehe's Codex it contains the active constituents of male fern and is marketed in capsules.—*Pharm. Weekblad*, 72 (1935), 226. (E. H. W.)

Diuretysatum (Bürger, Zyma) is a dialysate prepared from squill, juniper berries and birch leaves. It stimulates kidney function and promotes diuresis. In addition it possesses the properties of a cardiac tonic. Dose, one teaspoonful three times daily.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Dormalets (Dr. R. Weiss, Berlin) are tablets containing 0.32 Gm. of calcium lactobromide, 0.05 Gm. pyramidon and 0.08 Gm. sodium phenylethylbarbiturate. They are employed in insomnia.—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Endomin (Reed and Carnrick, Jersey City, N. J.) is the name of a tablet containing iron, 8.0 mg.; copper, 0.6 mg.; manganese, 0.4 mg.; zinc, 0.3 mg.; nickel, 0.03 mg.; cobalt, 0.03 mg.; and sodium germanate, 0.05 mg., in lipoid soluble form. Endomin is indicated in the treatment of anæmias. It is supplied in bottles of 100, 500 and 1000 tablets.—*Drug. Circ.*, 79 (Mar. 1935), 32. (T. G. W.)

Endothyrin is a product recommended for conditions due to hypothyroidism; obesity, dermatoses and ovarian dystrophies. It is supplied in bottles of fifty $^1/_2$-gr. tablets and boxes of five 1-cc. ampuls. The composition of the product is thyroid, U. S. P. triple strength, gr. $^1/_2$; lactose and starch, *q. s.* ad. gr. 4. It is contraindicated in hyperthyroidism, cardiac instability and extreme nervousness.—*Drug. Circ.*, 79 (Jan. 1935), 31. (T. H. W.)

Endothyrin (Endocrines, Ltd., London) is a standardized thyroid containing double the prescribed quantity of iodine and is used in hypothyroidism, myoxedema, etc. It is marketed in bottles of 50 or 100 $^1/_2$-grain tablets.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Ephepirine (Amsterdam Quinine Works) is a combination of acetylsalicylic acid and ephedrine appearing on the market in tablets of 0.5 Gm. The proportion is not stated.—*Pharm. Weekblad*, 72 (1935), 71. (E. H. W.)

Epitheel-Dragees (Bürger) are prepared from Glandula Parathyreoidea Siccata. Each tablet contains 8 mg. of the dried powder. They are recommended to maintain a normal calcium balance. They are used to raise the calcium content in persons with calcium deficiency, by oral administration. Dose, one tablet three times daily.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Eusod (H. Schering-Kahlbaum A. G., Berlin) is a heartburn remedy containing a synthetic aluminum sodium silicate and pure magnesium oxide in which the action of the silicate component is gradually liberated but hastened by the magnesium.—*Pharm. Zentralh.*, 76 (1935), 105. (E. V. S.)

Feosol S-K-F (Smith, Kline and French Laboratories, Philadelphia, Pa.). Tablets containing 3 grains of exsiccated ferrous sulphate, U. S. P., with a special vehicle and coating to prevent oxidation and promote disintegration. They are indicated in the treatment of secondary anemia; idiopathic hypochromic anemia; chlorosis; hypochromic anemia of pregnancy; the anemia following menorrhagia; and in other microcytic anemias accompanied by a low color index. They are supplied in packages of 100, 1000 and 5000 tablets.—*Drug. Circ.*, 79 (Mar. 1935), 33. (T. G. W.)

Frangula-dispert (Dispert Ltd., The Hague) is an extract prepared by the dispert-method from Frangula bark and made into tablets, each with a content of 25 mg. of emodin. Dose, 1–3 tablets.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Givofen ("Syntetic," Grindstedvaerket, Denmark) is a solution containing 100 Gm. allylpropynal and 100 Gm. diethylbarbituric acid in 100 cc.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Givonal ("Syntetic," Grindstedvaerket, Denmark) is a mixture of 100 parts of amidopyrine and 60 parts of allylpropynal (allylisopropylbarbituric acid). It comes on the market as tablets, each containing 0.1 Gm. of amidopyrine and 0.06 Gm. of allylpropynal.—*Pharm. Weekblad*, 72 (1935), 178. (E. H. W.)

Gynergeen, ergotamine tartrate, is a tartrate of the alkaloid obtained from ergot by the Stoll method. It has recently been employed not only in obstetrics but also in the treatment of Graves' disease.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Horosteon (Dispert Ltd., The Hague) is an extract of bone marrow prepared by the method of Dr. W. Hoffmeister. It is obtainable in ampuls containing 1.1 cc. of the colorless liquid, which serves to hasten delayed calcification in bone breaks.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Iod-Tetragnost-Powder (E. Merck, Darmstadt) is the sodium derivative of tetraiodophenolphthalein.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Kessoval (Schering-Kahlbaum) is a preparation made from valerian root by a new method. According to the manufacturer it contains all the active constituents of the root. It comes on the market in the form of capsules.—*Pharm. Weekblad*, 72 (1935), 226. (E. H. W.)

Laxatives. A general discussion introducing new products.—ANON. *Drug and Cosmetic Ind.*, 36 (1935), 31, 34. (H. M. B.)

Leukichthol. A light ichthyol preparation (Leukichthol) with a total sulphur content superior to that of ichthyol, *i. e.*, 12–13% as compared with 10–11%, is described. Not only has the preparation increased reducing power but a 2–5% concentration acts as effectively as a 10–20% preparation of ichthyol. Smaller doses are sufficient when intended for the face and other delicate skin surfaces, *e. g.*, scrotum. Since this preparation is completely colorless it is very useful for cosmetic ointments, pastes, rinses and varnishes. For the same reason, this salve may be applied for day use on the uncovered parts of the body, face and hands. A very active and practically unnoticeable preparation is made with gelanthus using 2% of the ointment. Up-to-date Unna has treated 67 cases of dermatoses with good results in dermatitis, urticarial and congestive dermatoses, keratoid eczema, and especially allergic dermatoses due to light, leather and fur.—P. UNNA, JR. *Dermatol. Wochschr.*, 100 (1935), 54; through *Squibb Abstract Bull.*, 8 (1935), A-329.

Lidrosan (Laboratory of Lansbery & Son, Rotterdam) is a liquid extract of *Drosera rotundifolia, Thymus vulgaris* and *Pinguicula vulgaris* and is used in the treatment of whooping-cough. Dose, 3–15 drops three times a day.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Mebaral. *N*-Methylethylphenylmalonylurea. A white, odorless and tasteless powder used as a sedative and antiepileptic. It is supplied in bottles of 25 and 100, 3-gr. tablets and bottles of 100, $^1/_2$-gr. tablets.—*Drug. Circ.*, 79 (Feb. 1935), 27. (T. G. W.)

Mistol (Deutsche Gesellschaft für Pharmazie u. Kosmetick m. b. H., Berlin) is an alcoholic inhalant containing camphor (12.4 per cent), menthol ester (16.8 per cent) and oil of eucalyptus (15.5 per cent) which is used as an inhalant for colds and catarrh.—*Pharm. Zentralh.*, 76 (1935), 72. (E. V. S.)

Moru-Quin. A solution of the sodium salts of the fatty acids of cod liver oil, containing 5% of sodium morrhuate; 2% of alkaloidal quinine; and 2% of benzyl alcohol. The preparation is injected for the treatment of varicose veins. It is supplied in 5-cc. and 25-cc. ampuls.—*Drug. Circ.*, 79 (Jan. 1935), 30. (T. G. W.)

Naftalan is claimed to be a mild, non-irritating crude naphthal found in the Caucasus, and to show an inhibiting effect on inflammations of various types, rapid resorption and in general therapeutic properties intermediate between those of ichthyol and tar. It is indicated in dermatoses such as rosacea, pruritus, etc., and all forms and degrees of eczema. It may be combined with a suitable base and used in ointment or suppository form.—W. CASPER. *Dermatol. Wochschr.*, 99 (1934), 1615; through *Squibb Abstract Bull.*, 8 (1935), A-301. (S. W. G.)

Neo-Oleosal (I. G. Farben.) is a painless injectable bismuth preparation. It is a 10% solution of dimethylendomethylene-hexahydrobenzoic acid bismuth in olive oil. The salt contains 30% bismuth; the oil 3%. The bismuth may be determined by dissolving in benzine, acidifying with hydrochloric acid and shaking out with dilute hydrochloric acid. Neo-Oleosal is sold in ampuls of 2 cc. exclusively for intramuscular injection. Dose (adults), one injection 2–3 times per week.—*Pharm. Weekblad*, 72 (1935), 226. (E. H. W.)

Neo-Psicobenyl (Drs. R. & O. Weil, Frankfort) is a psicaine-anæsthesine-paraffin emulsion used in throat and mouth affections.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Nitrodan ("Syntetic," Grindstedvaerket, Denmark) is α-dinitrophenol, a weight-reducing drug which has recently appeared on the market under many fantastic names. Dose, 0.05 Gm. It is a light yellow powder, melting at 111–112°, and may be titrated with bromthymol blue as an indicator.—*Pharm. Weekblad*, 72 (1935), 179. (E. H. W.)

Pancreas-dispert (Dispert Ltd., The Hague) is prepared by the method of Krause from the pancreas of healthy slaughter-house animals. It is also available in the form of an ointment

(Unguentum Pancreas-dispert) or "Pyosalva" and a plaster (Emplastrum Pancreas-dispert). Internally it is used as an aid to digestion. It is found on the market in tablets having a lipase value of 0.25 and as a powder having a lipase value of 0.35.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Pentazol ("Syntetic," Grindstedvaerket, Denmark) is pentamethylenetetrazol, a compound resembling cardiazol, of which the identity and purity may be determined as provided in the Supplement of the 5th edition of the Dutch Pharmacopœia.—*Pharm. Weekblad*, 72 (1935), 179. (E. H. W.)

Pertussine-drops (E. Taeschner, Potsdam) contain a percolate of *Thymus vulgaris*, *Drosera rotundifolia* and other saponin and silicic acid-containing plant parts with the addition of ephedrine hydrochloride.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Phenyral (Apogepha, Dresden) is phenylallylbarbituric acid.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Philonin (Chem. Fabric Promonta G. m. b. H., Hamburg) are suppositories containing copper iodo-*o*-oxyquinoline sulphate, silver nitrate and irradiated cholesterin with local anesthetics. They are indicated for use in hemorrhoids, anal fissures, perianal eczema and other anal diseases.—*Pharm. Zentralh.*, 76 (1935), 72. (E. V. S.)

Photodyn (Nordmarkwerke, G. m. b. H., Hamburg) consists of a 0.2 per cent solution of hematoporphyrin in ampuls of various sizes. The "drops" consist of 0.05 per cent hematoporphyrin in hydrochloric acid solution.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Pneumostagnine (Dr. G. Henning) is a sterile solution of quinine and camphor in ethyl chaulmoograte used in pneumonia, bronchitis, etc.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Ponine (Laboratories de pharmacologie médicale, Paris) is a weight-reducing remedy distributed as cachets and granules. The composition unknown.—*Pharm. Weekblad*, 72 (1935), 72. (E. H. W.)

Procythol forte Ampuls (Sanabo-Chinoin G. m. b. H., Vienna) consist of liver extract for injection; each ampul is equivalent to 5 Kg. fresh liver. Packages of 5 ampuls from 2–20 cc.—*Drug and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Psorimangan "Weil" is an aqueous colloidal suspension of manganese dioxide, used in the treatment of psoriasis and furunculosis. It is supplied in 1- and 2-cc. ampuls for intramuscular injections and 1- and 2-cc. ampuls for intravenous injections.—*Drug. Circ.*, 79 (Jan. 1935), 30. (T. G. W.)

Pyosalva (Dispert Ltd., The Hague) is an ointment consisting of pancreatin (2%) in vaseline. The addition of this ferment to vaseline serves to hasten the disappearance of suppurating wounds and inflamed tissue thus often making incisions unnecessary.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Quinine-Calcium-Sandoz (Sandoz Chemical Factory, Basel) is a combination containing in 10 cc. of the solution, 0.6 Gm. quinine gluconate (corresponding to 0.37 Gm. of quinine base) and a 10% solution of Sandoz-calcium-solution. It is found on the market in ampuls of 10, 5 and 2 cc. This medicament possesses the antiexudative properties of calcium with its tonic effect upon heart and blood vessels combined with the anti-infective, antipyretic and sedative properties of the quinine. It is employed in croup, pneumonia, grippe, angina, etc.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Rectidon is the sodium salt of secondary amyl-β-bromallylmalonylureide. It is marketed as a stabilized 10% aqueous solution and in suppositories. The formula is $C_{12}H_{16}O_3N_2BrNa$. It is used in surgery and gynecology in supporting inhalation narcosis at the start and also as a local and spinal anæsthetic. The dose of Rectidon is 8 cc. for men; 7 cc. for women and for ten-year-old children 4 cc. diminishing to 1 cc. for children of one year. Rectidon is employed in doses of 6–7 cc., 2–3 times daily in the treatment of the morphine habit by sleep of extended duration. Pharmacologically it is a homolog of "pernocton." The patient falls asleep within 15 minutes after (rectal) injection. Rectidon is found on the market in boxes containing one ampul of 10 cc., in 100-cc. bottles; in boxes of 3 suppositories of 0.4 Gm. and in boxes of 50 suppositories.—*Pharm. Weekblad*, 72 (1925), 226. (E. H. W.)

Risulform (Dr. L. Kaufmann, Berlin-Wilmersdorf) is a preparation containing sulphoform, an organic sulphur antimony compound, 5 Gm., cholesterin 2 Gm., castor oil 50 Gm. and

ethanol 50 Gm. It is used in the care of the hair especially against alopecia seborrhoica.—*Pharm. Zentralh.*, 76 (1935), 72. (E. V. S.)

Secale-dispert (Dispert Ltd., The Hague) is an extract of ergot prepared by the method of Krause. It is marketed in the form of suppositories standardized to contain 1 mg. of alkaloids each. Since the Secale-dispert is readily absorbed in the rectum the suppositories may be used in place of injections in abortion to promote discharge from the womb, in menorrhagia, etc.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Securodorm (Dr. E. Silten, Berlin) is a combination of butylæthylbarbituric acid ("securonal") with "cyloralose." It is a hypnotic, the dose being 1–2 tablets.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Softol (Laboratorie de Pharmacologie médicale, Paris) is an organic mercury-arsenic compound, the methyliodide of mercuric nucleo-arsenic-salicylate. It is used as an intravenous injection once a week for spirochete infections.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Solucamphor Debalande Ampuls (M. Debalande Courbevoie-Seine) contain 0.14 Gm. diethylenediaminocamphor sulphonate per cc. in 1-, 2-, 5-cc. ampuls.—*Drug. and Cosmetic Ind.*, 36 (1935), 93. (H. M. B.)

Soxolade (Nahrmittelfabrik Munchen G. m. b. H., Berlin-Charlottenburg) is a dietetic nutrient food containing 30 per cent of fat-free cocoa powder, maltose, amylose, plant albumins, egg lecithin, phosphorus, iron and calcium. It is used as a nerve food for the young or old, especially for pregnant and nursing women, nervousness and anemias.—*Pharm. Zentralh.*, 76 (1935), 72. (E. V. S.)

Specialties—Review of German, for 1934. A discussion of new German specialties which the author divides into groups according to their pharmacologic activity or use. The classification includes vitamins, hormones, ointments, antiseptics, soporifics and hypnotics, and treatment of cancer. The possibilities of heavy water are enumerated. Some advances in pharmaceutical apparatus during the past year are described and illustrated.—K. SCHULZE. *Scientia Pharm.*, 6 (1935), 1. (M. F. W. D.)

Stannoblettes (H. L. Ritter and Co., Berlin, Germany). These tablets are stated by the manufacturer to contain as the active ingredient chemically pure, lead-free tin oxide. They are recommended for use in the treatment of furunculosis, as well as all staphylococcus infections, carbuncles, acne vulgaris, acne rosacea, eczema, pyodermia, sycosis, hordeolum, abscesses of all kinds and lymphangitis. They are distributed in packages of 35 and 80 tablets.—*Pharm. Ztg.*, 80 (1935), 72. (G. E. C.)

Stomachetten (Zyma) is composed of vitamin-yeast-extract and vitamin-yeast-powder, both of which by virtue of their content of amino acids and purine compounds stimulate the flow of gastric juice. In case of loss of appetite, 3–4 tablets are taken $^1/_2$ hour before meal-time.—*Pharm. Weekblad*, 72 (1935), 179. (E. H. W.)

Thymodronal (Orgapharm Ltd., Amsterdam) is a syrup made from Extract. Primulæ, Violæ odoratæ, Pimpinella, Drosera, Castaneæ vescæ, Plantaginis, Thymi, Liquirtiæ 7.5 Gm., Extract. Aconiti, Belladonnæ, Bryoniæ, Hyoscyami, Ipecacuanhæ, 0.25 Gm., Sulphoguajacolas kalicus 4.5 Gm., Simple syrup and 150 Gm. and flavoring oils. It is an expectorant which is given in doses of a half tablespoonful for adults and a half to one teaspoonful for children. It also appears on the market with 0.1% codeine.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Thyreoid-dispert (Dispert Ltd., The Hague) is obtained by the method of Krause and consists of the dry powder of the thyroid gland, standardized in thyroid units by the method of Straub on white mice. It appears on the market in tablets of 5 and 10 units.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Valeriana-dispert (Dispert Ltd., The Hague) is prepared by the method of Krause from valerian root and physiologically standardized on mice by the method of Haffner. It occurs on the market in capsules, the dose being 1–3 as necessary.—*Pharm. Weekblad*, 72 (1935), 73. (E. H. W.)

Vaxa (Dr. Boucard, Paris) is a bullion-vaccine used as an internal medicament. Because of the unpleasant odor of this preparation, it is advised to aromaticise the contents of the ampul, which must be well shaken before taking. In the preparation of Vaxa a number of different organisms are used: *B. coli, Streptococcus fecalis, Staphlococcus aureus, Streptococcus proteus*, etc. It is said to contain the exotoxins and endotoxins. Vaxa immunizes the peritonium and is used

in Coli bacilliosis, cystitis and other infections. A spoonful of olive oil is taken in the morning. This is followed twenty minutes later by an ampul of milk ferments and 10 minutes later by an ampul of vaxa. One-half hour should elapse before breakfast is begun.—*Pharm. Weekblad*, 72 (1935), 74. (E. H. W.)

Viatol (Dr. Boucard, Paris) is a vitamin preparation (mostly vitamin B) in tablet form, used as a strength reinforcing medicament for children and as a nutrient for adults. Dose, 1–2 tablets.—*Pharm. Weekblad*, 72 (1935), 74. (E. H. W.)

Viscophyll (Gehe and Co., Dresden) is a specially processed extract drop solution prepared from the choline ester of fresh mistletoe, chlorophyll and *Fucus vesiculosus*, used against hypertonic and sclerotic vessel variations and conditional maladies of the aged.—*Pharm. Zentralh.*, 76 (1935), 73. (E. V. S.)

Zittmangan (Bürger) is prepared by Zyma from sarsaparilla root with the addition of manganese and sulphur. It serves as an adjuvant in arsenic-, bismuth-, mercury therapy. Dose, 2–3 tablets three times a day.—*Pharm. Weekblad*, 72 (1935), 179. (E. H. W.)

BACTERIOLOGY

Antiparalysis Serum—One Hundred Per Cent Effectiveness with. During an infantile paralysis epidemic seven hundred persons were injected with antiparalysis serum and not one developed the disease. This serum was developed by Maurice Brodie and is made through infection of a rare type of Indian monkey with virus taken from the nasal passages. The infected monkey's spinal cord is then excised and the emulsion made of it is sterilized with formalin, which makes the vaccine harmless.—*Med. Rec.*, 141 (Feb. 1935), 212. (B. S. R.)

Antipoliomyelitis Serum—Virus Adsorbed to Alumina-Gel for Production of, in Sheep. Ether-treated virus was shaken with alumina-gel (Willstaetter, Type C) at a p_H 6.5. Two injections of 50 and 65 cc. produced antiserum of a titer beyond 1:500.—F. B. Gordon, J. A. Harrison and N. P. Hudson. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 689. (A. E. M.)

Antitoxic Serum—New Method of Treatment of Diphtheria with. The author attributes the high mortality in diphtheria to be due to the unsystematic use of insufficient doses of serum. He injects the serum daily without omission until all symptoms, including general symptoms, completely disappear. The method is given in detail.—A. T. Jarotzky. *Med. Rec.*, 141 (Feb. 1935), 125. (B. S. R.)

Azochloramid—Bacterial Action of. *N, N*-Dichlorazodiacarbonamidine, a new chlorine compound, was tested as to its bactericidal action on *Staphylococcus aureus* and *Hemolytic streptococci, Cl. Welchii, C. Diphtheriæ*, Pneumococci types I, II and III, *Ps. Pyocyanica* and *Esch. Coli*. Both + and − organisms were killed by low concentrations in the presence of blood serum. It can be used advantageously for general bactericidal purposes but its action is impaired in the presence of laked red cells.—Schmelkes and Horning. *J. Bact.*, 29 (March 1935), 323. (A. H. B.)

Coli-Aerogenes Group—Comparative Studies of Presumptive Test Media for. Presumptive tests for 201 pure strains of Escherichia, Aerobacter and Citrobacters were tested for gas formation in plain lactose broth, brilliant green lactose peptone bile, crystal-violet buffered broth and fuchsin broth. When small inocula were used (less than 50 organisms per tube) lactose broth and brilliant green lactose peptone bile gave positive tests after twenty-four hours of incubation at 37° C. for all 201 strains tested. In crystal-violet broth after forty-eight hours of incubation using similar small inocula, only 49 per cent of these strains gave positive tests. Very few strains formed gas in fuchsin broth when small inocula were used, and with relatively large inocula only 33 of the 201 strains were able to form gas in forty-eight hours.—I. Shunk. *J. Bact.*, 29 (1935), 163. (A. H. B.)

Fungicides—Clinical Implications from the Testing of. Fungicidal determinations with 1% concentration of tetraiodomethanamine (I), thymol (II) and a mixture of I and II (III), iodine (IV), salicylic acid (V), benzoic acid (VI), boric acid (VII), Arning's tincture (VIII) and sodium chloride (IX) were made, using test-tubes for the culture media which had been lined with collodion, impregnated with the chemical to be tested. I, II, III, IV, V and VI completely inhibited growth and acted to some extent as fungicides, VII delayed growth and VIII and IX had no effect. When the collodion was not in contact with the medium but was present only in the upper portion of the tube, II alone inhibited growth. In treatment of parasitic infections of

the skin, salicylic acid is ideal in meeting the requirements of a fungicide, boric acid, that of a fungistat since both of the chemicals diffuse rapidly through the skin and readily manifest themselves in the urine.—H. SHARLIT. *Arch. Dermatol. Syphilol.*, 31 (1935), 217; through *Squibb Abstract Bull.*, 8 (1935), A-294. A. H. B.

Germicidal Substances—Comparison of Resistance of Bacteria and Embryonic Tissue to, I. Merthiolate. Bacteria and chick embryo hearts were tested separately. The phenol coefficient of merthiolate was found for *E. Typhi* to be 50, for *Staph. aureus* 70. The highest dilution showing no tissue growth was 1:840 for phenol, 1:176,400 for merthiolate. The toxicity index, calculated from both results, was found to be for phenol 10.5 and 12.0, for merthiolate 44.1 and 35.3.—A. J. SALLE and A. S. LAZARUS. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 665. (A. E. M.)

Immunity—Relative Importance of Reticulo-Endothelial Tissues and Circulating Antibody. The relative importance of the circulating antibodies as compared with the recticuloendothelial tissues in immunity is studied by noting the primary clearance of virulent streptococci, *B. Anthracis, Pneumococcus* type III and the *B. Freidlander* from the blood stream, and the presence or absence of protective antibodies conferring a passive immunity. It was found that the recticuloendothelial tissues can completely clear the peripheral circulation and prevent secondary bacteriaemia in the absence of any germicidal power of the whole blood. The positive conclusion is of far-reaching importance regarding the use of antisera in treatment of infections, in that the state of the tissues is the chief factor in establishing immunity.—F. TEALE. *J. Immunol.*, 28 (1935), 133. (A. H. B.)

Pathogenic Fungi—Effect of Dyes on Colonies of Certain. The medium (4% peptone, 1% dextrose, 1½% agar, p_H 5.6) was prepared with the following dyes: 2% fluorescein, 1% methylene blue and 1% eosin Y, ½% neutral red, ½% janus green and ½% Wright's stain suspension. Growth was more profuse on acid stains. The absorption of different dyes is described. The microscopic picture was often better, than when specimens grown on ordinary media were stained. Double staining was frequently observed.—J. W. WILLIAMS and L. GREEN. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 625. (A. E. M.)

Pathogenic Fungi—Scalp Products and Hair of Men and Women as Culture Media for Certain. Hair autoclaved with water and hair extracts were used. A large number of fungi showed more or less prompt development on this medium.—J. W. WILLIAMS. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935) 624. (A. E. M.)

Poliomyelitis—Active Immunization Against. Tests on human volunteers in which 1 to 3 doses of 5 cc. of a 10 per cent virus, inactivated with 1 per cent formalin, were given showed no systemic reaction. Similar tests on children showed no discomfort or general reaction followed by appreciable antibody response.—M. BRODIE. *J. Am. Pub. Health Assoc.*, 25 (1935), 54. (A. H. B.)

Poliomyelitis—Active Immunization against, with Germicidally Inactive Virus. Five cubic centimeters of 10% suspension of infective cord of formalized virus proved the best immunizing dose for active immunization of monkeys against intracerebral inoculation of one or more infective doses of the virus of poliomyelitis.—M. BRODIE. *J. Immunol.*, 28 (1935), 1. (A. H. B.)

Scarlet Fever Antitoxin—Concentration of. The best method of concentration of scarlet fever antitoxin is that followed in the production of diphtheria antitoxin, using 45% ammonium sulphate and heating at 63° C.—CIANCIARULO and MALCOLM. *J. Immunol.*, 28 (1935), 47. (A. H. B.)

Staphylococcus Toxoid. Prepared by treating staphylococcus toxin with formaldehyde and standardized so that each cc. contains the toxoid derived from at least 1000 necrotizing doses of toxin. It is a clear straw-colored fluid, used for the treatment and prevention of recurrent boils and carbuncles, and pustular acne, particularly when associated with furunculosis. It should not be used where there is generalized blood stream infection with staphylococcus, and should not be used when it has become cloudy or turbid. It is supplied by E. R. Squibb & Sons, New York City, in 5-cc. rubber-capped vials.—*Drug. Circ.*, 79 (Mar. 1935), 32. (T. G. W.)

Typhoid Prophylaxis—Efficacy of, in United States Army. The Army vaccine may be improved by reverting to a monovalent strain vaccine and increasing its bacterial content. Army

and Navy statistics both prove the undeniable value of typhoid prophylaxis.—R. PATTERSON. *Am. J. Pub. Health*, 25 (1935), 258. (A. H. B.)

Water—Bacteriological Control of. A review article concerned chiefly with methods used at the Swedish State Veterinary Bacteriological Control Laboratory.—H. HEDSTRÖM. *Farm. Revy*, 34 (1935), 190. (C. S. L.)

Whooping-Cough—Immunization against. The morality of infants under 1 year old afflicted with whooping-cough may reach 1.5%. The disease causes more deaths than diphtheria, measles or scarlet fever. About $^4/_5$ of the annual 6000 fatal cases occur in children under three years old. The immunizing pertussis vaccine is made from recently isolated hemolytic strains of Bordet-Gengou bacillus. The medium contains about 20% of freshly defibrinated human blood. The 48-hour growth is scraped off and suspended in physiological sodium chloride solution containing 0.5% phenol. After a week the vaccine is diluted to contain 10,000,000,000 bacilli per cc. The active immunity conferred seems to depend on the potency and dosage of the vaccine and the interval (at least 4 months between) injection and exposure. The total dosage after 6 months of age is 8 cc.; one cc. is injected just under the skin in the deltoid region of each arm; one week later 5 cc. are injected in the biceps region of each arm. The optional age of immunization is probably 7–10 months. Reactions are chiefly local, although there may be a transient rise in temperature. Over 650 children have been immunized, including 150 infants 3 months old, each of whom received a total of 6 cc. with negligible local and systemic reaction. The infants have not yet been exposed and it cannot be detected whether immunity was conferred.—L. W. SAUER. *Am. J. Diseases Children*, 49 (1935), 69; through *Squibb Abstract Bull.*, 8 (1935), A-278.

Whooping-Cough—Significance of Bacteriological Methods of Diagnosis and Control of. In the preparation of Pertussis Vaccine the cultures are isolated from recent cases which show high titre agglutination, with a smooth strain antiserum, and with a final titre of 1:10,000 to 1:25,000 against rabbit serum using the rapid test. The test antigen is a saline suspension of *B. pertussis*, 1 billion per cc. of living virus, which gives a typical skin hemorrhagic necrosis within 24 hours, at the site of inoculation. The organisms are killed and preserved with merthiolate 1:10,000. The cough plate diagnosis is available to physicians for finding the etiological organisms. Statistics indicate the greatest period of infectivity to be the first 3 weeks, with gradual decline from then on.—KENDRICK and ELDERING. *J. Am. Pub. Health Assoc.*, 25 (1935), 147. (A. H. B.)

BOTANY

Fungi. A commemorative address concerning the poisonous fungi such as the Amanita and Boletus.—W. FRIESE. *Pharm. Zentralh.*, 76 (1935), 81. (E. V. S.)

CHEMISTRY

General and Physical

Emulsions—Studies in—III. Lipin-Containing Substances as Emulsifiers. Aqueous dispersions of lipins from various sources and of various ages yield dual emulsions on shaking by hand with fat solvents. At oil-rich phase volume ratios, both types of emulsions appear to be simultaneously present (possibly as complex emulsion systems), as far as can be judged by drop tests. It is thought that a possible explanation of this behavior might be the presence in the lipins of opposite-type emulsifiers, which simultaneously exert their actions to some extent incidendently of each other.—R. M. WOODMAN. *J. Soc. Chem. Ind.*, 54 (1935), 70T. (E. G. V.)

Inorganic

Calomel—Physical and Chemical Investigation of. Sixteen specimens of calomel of at least seven different origins were examined. All were assayed and other U. S. P. tests applied. All were examined microscopically. Detailed descriptions are given. The different types of calomel described in the literature, differentiated by their methods of manufacture and their titles are discussed. The survey showed the high quality of the specimens and illustrated variance in size and type of particles.—C. H. LAWALL. *J. Am. Pharm. Assoc.*, 24 (1935), 97. (Z. M. C.)

Potassium Permanganate—Electrolytic Manufacture of. For some time it has been considered difficult to produce potassium permanganate commercially by electrolytic methods. Several processes have been evolved and the outcome of experimentation has been the modern method of electrolytically producing the pure salt from the crude metal. The process is as follows: Anodes containing 80% of manganese are suspended in the middle compartment of a diaphragm cell, made by dividing a sheet-iron tank into three chambers by means of prepared asbestos-paper diaphragms. The cathodes are made of iron, while the electrolyte is made up of two different solutions. The catholyte is composed of a solution of caustic potash and the anolyte consists of potassium carbonate. The current efficiency tends to rise somewhat with the anodic current density, and requires to be accurately registered. The plant consists of cathodes of sheet iron surrounded by porous diaphragms. The temperature of the bath is maintained throughout the day by a steam coil, and the electrolytes are kept in motion. The main features which influence the course of the electrolysis are the composition of electrolyte and anode, the current density, and the temperature. As the manganese content in the anode increases, the current efficiency rises rapidly, but the voltage only increases very slowly, and the energy consumption per pound of permanganate produced tends to fall. The final stages in the process consist of concentrating the electrolyte and recovering the crystals of permanganate, after which the mother liquors are returned to the electrolysis bath.—*Chem. and Drug.*, 122 (1935), 270. (T. G. W.)

Sodium Hypochlorite—Easy Production of. A brief note on the production of sodium hypochlorite by passing a solution of ordinary salt and sodium bicarbonate through an electric cell.—*Med. Rec.*, 141 (Feb. 1935), 162. (B. S. R.)

ORGANIC

Alkaloids

Cocaine-Reactions of Solutions of, on Sterilization and Storage. A brief review of the literature on the subject is given along with criticisms. The chief cause for the disagreement of the literature lies in inaccurate methods of analysis of the cocaine solutions. A method of analysis as applied to morphine is discussed and applied to cocaine. The method used is briefly as follows: 10 cc. of a 1% solution of cocaine hydrochloride is treated with 10 cc. of isopropyl alcohol-chloroform mixture (1 volume and 3 volumes) made alkaline with 0.5 Gm. sodium carbonate and shaken vigorously for one minute, the organic solvent drawn off, the extraction repeated twice, the combined extractive being evaporated on a water-bath, the residue dissolved in excess of 0.1 *N* hydrochloric acid and back titrated with 0.1*N* sodium borate solution. An examination of the dissociation constants reveals that the substances formed in the hydrolysis are too weakly basic to affect the end-point when methyl orange is used in the titration and the method is thus adaptable to the determination of cocaine in solutions partially hydrolyzed. The determination of benzoic acid is as follows: 2 cc. of a 1% solution of cocaine hydrochloride are completely hydrolyzed by boiling with 2*N* sodium hydroxide, the solution is transferred quantitatively to a separatory funnel, is acidified to methyl orange using 2*N* hydrochloric acid, extracted three times with the isopropyl alcohol-chloroform mixture, the combined extractive evaporated on a water-bath, cooled and titrated with 0.1*N* alkali using phenolphthalein. Using these two determinations the progress of the hydrolysis of cocaine solutions is studied under different conditions, the results being compiled in tables. It is shown that if alkali-free glass ampuls are used, 1% solutions of cocaine hydrochloride in distilled water can be sterilized at 100° for 30 minutes without hydrolysis, and if it is made 0.001*N* with hydrochloric acid it can be sterilized in a steam autoclave at 120° for 20 minutes. Contrary to the literature, it is shown that the presence of phosphate as a buffer does not stabilize the solution but rather accelerates the hydrolysis. The effect of long standing of solutions of cocaine prepared as above is taken up and also the effects of filtration of similar solutions through a Seitz filter.—S. A. SCHOU and E. HEIM. *Pharm. Acta Helv.*, 10 (1935), 31. (M. F. W. D.)

Novocaine—Reactions of Solutions of, on Sterilization and Storage. Although novocaine was for several years the only local anesthetic in use, the knowledge of its stability and the effect of sterilization on its solutions is quite limited. A few of the methods of the estimation of novocaine reported in the literature are reviewed and their defects pointed out. Novocaine (the hydrochloride of *p*-aminobenzoyl-diethylaminoethanol) on hydrolysis yields *p*-aminobenzoic acid

and diethylaminoethanol, and the p_H of the solution obtained is the result of the basic tendency of novocaine and the amine liberated and the acidic tendency of the *p*-aminobenzoic acid. Novocaine could thus be determined by the same method as cocaine as given by S. A. SCHOU and E. HEIM [*Pharm. Acta Helv.*, 10 (1935), 31]. In determining the novocaine in a solution having undergone partial hydrolysis, several difficulties are encountered because of the mixture of possible substances, and in the addition of the proper amount of acid so as to precipitate quantitatively the *p*-aminobenzoic acid. After several tests the following procedure was worked out: 2 to 10 cc. of a solution of novocaine is treated with 0.5 Gm. sodium carbonate in a separatory funnel and shaken out three times with isopropyl alcohol-chloroform (1 volume and 3 volumes), the extractive being filtered into and combined in a second separatory, the solution treated with 2*N* hydrochloric acid drop by drop until a red color appears with methyl orange, then shaken out three times with the same organic solvent, the extractive being filtered and evaporated on a water-bath, the residue dissolved in water and titrated with 0.1*N* alkali using phenolphthalein (*p*-aminobenzoic acid); the extractive of the alkaline solution is shaken out with 10 cc. 0.1*N* hydrochloric acid, and the excess of acid then back-titrated with 0.1*N* alkali using one drop of methylene blue and two drops of methyl red (novocaine and amine). The influence of sterilization on 2% solutions of novocaine in water, in 0.001*N* hydrochloric acid, and in the presence of 0.15*M* phosphate is compiled in a table. The solution in 0.001*N* hydrochloric acid is most stable, only 2% of the novocaine being split and the p_H not changing at all after autoclaving at 120° for 20 minutes. For maximum stability the p_H of the solution must not exceed 5.0 and the ampuls must be of Jena glass. It was found that 0.01*N* hydrochloric acid produced practically no hydrolysis, and 0.1*N* only a slight amount but 1*N* destroyed more than half of the novocaine on autoclaving at 120° for 30 minutes. Analysis of several old samples of solution ranging from 0.5% to 5% shows that the solution is fairly stable, a maximum of 5% deterioration being shown by a sample seven years old.—J. ABILDGAARD. *Pharm. Acta Helv.*, 10 (1935), 38. (M. F. W. D.)

Strychnine Sulphate—Adsorption of, by Various Charcoals and by Lloyd's Reagent. Research was undertaken to determine diminution of potency of strychnine sulphate solutions in contact with commercial charcoals and with Lloyd's reagent. Seven charcoals were tried. Experimental work is described. There was wide variation. One charcoal showed complete adsorption up to nearly 5 Gm. per L. Willow charcoal which is the type usually used in pharmaceutical preparations was the poorest, taking up only 11 per cent when the concentration was 1 Gm. per L. Lloyd's reagent took an intermediate place and differed from the others in that the percentage adsorbed was only 11 per cent when the concentration was 1 Gm. per L. One charcoal required more than 24 hours to reach an equilibrium. Some absorbed less salt from alcoholic than aqueous solution. Langmuir's equation represents the adsorption curves better than Freundlich's.—J. F. SUCHY and R. V. RICE. *J. Am. Pharm. Assoc.*, 24 (1935), 120. (Z. M. C.)

Essential Oils and Related Products

Cymbopogon Georingii—Volatile Constituents of. The volatile oil derived from the influorescence of the graminaceous plant *Cymbopogon Georingii*, Honda, has as constants: α_D^{13} — 34.96°, d_{20}^{20} 0.9585, n_D^{17} 1.52128, acid no. O, sap. no. 12, sap. after acetyl 30.6, methoxyl 25.42%. Of the terpenes present camphene was identified by conversion into iso-borneol, m. p. 212°. Sesquiterpenes constituted an important portion of the oil. The cadinene present, $\alpha 25_D$ −106.11°, yielded a hydrochloride, m. p. 117° and a hydrobromide, m. p. 123°. A small quantity of borneol was isolated. Elemicin, estimated from the methoxyl content of the oil, amounted to 57%: iso-elemicin dibromide, m. p. 89° to 90°; permanganate oxidation yielded gallic acid trimethyl ether; dihydroelemicin, by reduction with platinum oxide catalyst, had b. p. 120° to 125° at 3 mm. The b. p. recorded by Will (*Ber. d. d. Chem. Gesel.*, 21 (1888), 2025) should probably read 264°.—T. KARIYONE and A. MAJIMA. *J. Pharm. Soc. Japan*, 55 (1935), 14 to 16. (R. E. K.)

Oils of Flacourtiaceæ—Actual Situation of Production of, in View of Their Utilization in Therapeutics. A survey of the conditions surrounding the cultivation of the plant and the therapeutic use of the oils obtained from certain members of the Flacourtiaceæ family. Remarks on the method of production of the oil, as carried out at the Pondichery Laboratories, are given. The author believes more intensive studies in the cultivation of the plant should be instituted

and attempts should be made to improve the oil from the standpoint of its acid content.—M. FRANCOIS. *Bull. sci. pharmacol.*, 42 (1935), 24. (C. T. I.)

Fixed Oils, Fats and Waxes

Chaulmoogra Oils in Pharmacopœas and in Commerce. The reaction of Dymock (H_2SO_4 causes the separation of a red resinous material leaving the oil green) and the index of refraction ($n_D^{20} = 1.4842-1.4888$) should be included in the requirements of the Pharmacopœa. The inferior limit of acidity and the superior limit of optical rotation should be omitted. The 10% solution in chloroform (10 Gm. in 100 cc.) must give a rotation of at least +5°12′.—A. and C. CHALMETA. *La Farm. Mod.*, 46 (1935), 63 and 94. (A. E. M.)

Chinese Insect Drug, Chiu-Hsiang-chung—Study of Oil of. The insect yielding the Chinese drug Chiu-Hsiang-chung is *Aspongopus chinensis*, Dallas, which is found in Southern China and Formosa. The name first appears in the "Sheh-sheng-chung-miaofang" and afterwards was introduced into the "Pan-tsao-kan-mu," one of the old Chinese Materia Medicas. General Ho-Ching of Szechuan Province mentioned this drug about 1526 in his Biography of the Min Dinasty, which proves that the drug had come into use more than 400 years ago. The oily material examined was in ether extract of the insect. Stearic, palmitic and oleic acids were identified. They exist partly combined and partly free. The oil also contains a small amount of an aldehyde or ketone, to which the peculiar odor of the oil is attributed.—L. C. WAUNG. *J. Pharm. Soc. Japan*, 55 (1935), 8 to 14. (R. E. K.)

Cod Liver Oil—Iodine Content of. The iodine content of twenty representative samples of American cod liver oil was determined. The iodine apparently varies with the locality in which the oil is produced. The average values for the different localities in parts per billion are: Nova Scotia 13,260, Gaspe Peninsula 11,250, Newfoundland 8360, the area around George's and Brown's Banks 5340, Massachusetts 4930 and Maine 3950. Remington's values for the iodine content of fruits and vegetables of South Carolina are reproduced.—A. D. HOLMES and R. E. REMINGTON. *Am. J. Diseases Children*, 49 (1935), 94; through *Squibb Abstract Bull.*, 8 (1935), A-251.

Fat—Production of, from Glucose by Molds. Cultivation of Penicillium javanicum van Beijma in Large-Scale Laboratory Apparatus. A survey of sixty-one organisms of the genera Aspergillus and Penicillium showed nine Penicillia and one Aspergillus whose mycelia contained more than 15 per cent ether-soluble material. An intensive study of *Penicillium javanicum* van Beijma showed that its mycelium may contain as much as 41.5 per cent fat, depending on culture conditions. In flask cultures, media containing 40 per cent glucose gave mycelia of highest fat content. A cabinet for experimental study of shallow-pan fermentations is described, and representative results of culture experiments conducted therein are presented. In such cultures, increase of the glucose content of the medium apparently does not increase the fat content of the mycelium of *P. javanicum*, as it does in flask cultures. The free fatty acid content of the fat obtained from the mycelium grown on 30 and 40 per cent glucose solutions is much higher than that of fat similarly derived from 20 per cent glucose solutions. In addition to fat, the mycelium of *P. javanicum* yielded a complex carbohydrate and a chitinous material.—G. E. WARD, *et al. Ind. Eng. Chem.*, 27 (1935), 318. (E. G. V.)

Fats and Oils—Spoilage of. III. Rancidity and Constitution of Oleic and Elaidic Acids. A continuance of the review and discussion from the *Allg. Oel- und Fett-Ztg.* (1933), 11–12, of the literature on the properties of oleic and elaidic acids relative to the molecular structure.—R. NEU. *Pharm. Zentralh.*, 76 (1935), 65. (E. V. S.)

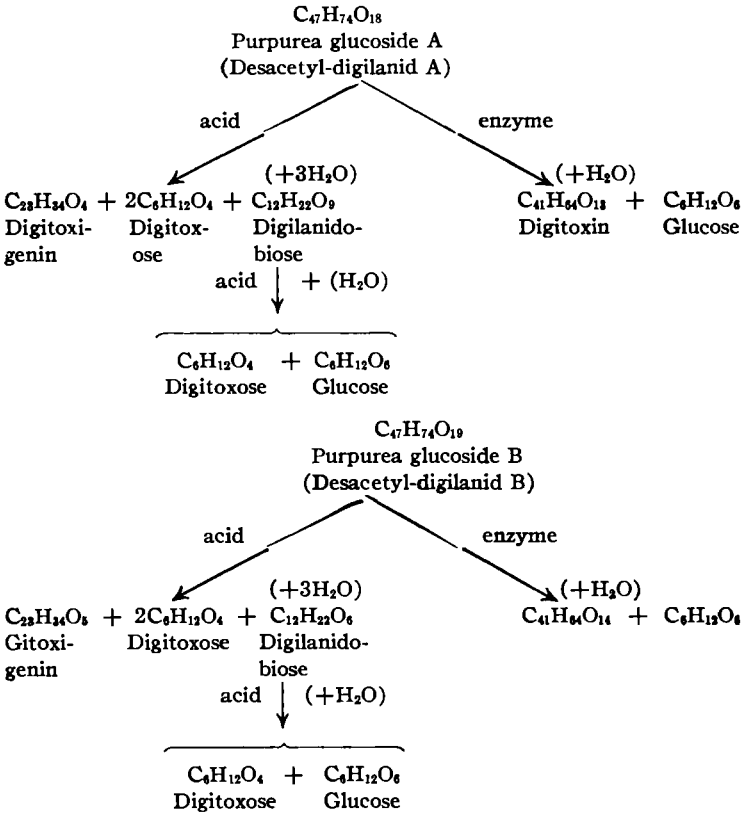
Glycosides, Ferments and Carbohydrates

Beechwood Lignin—Product of Reaction of Carbohydrates in the Determination of. The difference between the woods of red-beech and pine chemically is in the high per cent of methoxyl groups and low per cent of lignin (beech 24%, pine 29%). The theoretical yield of lignin in beechwood was calculated at 27–33% against the actual yield which was 24%. Lignin is not found in woods as such but is only a by-product of the chemical reaction. The beechwood was mixed with acids and most of it dissolved. The mixture was diluted with water; a precipitate formed. The product was methylated cellulose anhydride with a formula of $2C_6H_{10}O_6 \cdot H_2O$ with one methoxyl and 2 cellulose anhydride groups. At 15–20° with concentrated hydrochloric acid this changed to lignin, which had a methoxyl group content of 21%. This proved that the collected beechwood lignin was not a constituent of the wood but a by-product of the chemical reac-

tion, formed with a low temperature and the addition of an acid. A change of methoxyl group is also evident. The appearance of quantities of cellulose anhydride shows that hydrolysis is not completed in the wood. The reaction of methoxyl group during the addition and reaction of acid has been proven. Oxidation of woods is not easily explained. There is a possibility of a chemical affinity between the carbohydrate and the process of oxidation.—R. S. HILPERT and H. HELLWAGE. *Ber.*, 68 (1935), 380. (G. B.)

Chenopodium Ambrosioides L.—Saponins of. Some plant parts of *Chenopodium ambrosioides* L. contain saponin, especially the roots (2.5%). The seeds, leaves and branches are relatively poor in saponins. The principal constituent is a neutral saponin; but it also contains a saponin which gives an acid reaction. For purification of the saponins, 96% alcohol was found to be the best solvent to use. The pure neutral saponin is amorphous, readily soluble in dilute alcohol. The m. p. is 196–200°. The product has little hemolytic power (hemolytic index 1:40,000). The saponin content of the root increases naturally with the age of the plant; but it can be further increased by the use of a fertilizer.—S. GRIFINGER. *Wiadomosci farmac.*, 61 (1934), 275–277, 289–291; through *Chem. Zentr.*, 106 (1935), 746. (G. B.)

Digitalis Purpurea—Glucosides of. Purpurea glucosides A and B are claimed to be the true glucosides of *Digitalis purpurea*, their relation to the other so-called glucosides of this plant being given below:



These glucosides differ from the corresponding ones present in *D. lanata, i. e.*, digilanid A and B, by having one acetyl group less. It seems that the C-series of lanata glucosides disclosed in the form of digitoxin, are not present in *Digitalis purpurea*. The genuine glucosides of *Digitalis purpurea* have thus far been obtained only in amorphous form. Details of the separation (differential solubility) and isolation of the two glucosides as well as their enzymatic and acid hydrolysis are given.—A. STOLL and W. KRIES. *Helv. Chim. Acta.*, 18 (1935), 120; through *Squibb Abstract Bull.*, 8 (1935), A-360.

Lignin—Presence of, in Leaves. The principal constituents of leaves are mostly cellulose and a little lignin, which are usually found in the fibrovascular bundles. In order to better establish the properties of the framework (venation) of leaves, experiments were tried with leaves of beech, plane and hazel; the type leaves used were green and yellow. To remove wax and resin organic solvents were used. The extraction using either water or benzol-alcohol as solvent proved higher in the green leaves than in the yellow leaves. Trichlor-ethylene dissolves out more extract from the yellow leaves. This would indicate that the carbohydrate undergoes further changes so that more extract is obtained with organic solvents than water. The same changes occur using acids. Such variations are probably due to chemical changes in the leaves. All leaves were collected in late fall, when the proteins in leaves underwent chemical changes. The lignin obtained from leaves is 59–60% poorer in carbon than that lignin obtained from woods. Lignin from leaves is more soluble in water than that from straw and woods. Chemically leaf lignin is similar to wood lignin. Lignin combines readily with acids and so makes the material easy to work with. Different quantities of lignin are extracted from leaves when using sulphuric or hydrochloric acids. The quantity of lignin obtained with acids after the leaves have been extracted with benzol alcohol solvent is different. In green leaves the total extract is greater in lignin output than that found in yellow leaves. Sugars under the influence of acids and low temperature become resinous and hard so that they cannot be separated out together with lignin. For plant parts having no lignin, a low temperature is useless since such plants hydrolyze poorly. Throughout the experiment 72% sulphuric acid was used. Sodium sulphide proved to be a solvent for cellulose, especially on some plants belonging to the family Graminaceæ. It was then used as a solvent for fibrous leaves. The mesophyll of leaves is resistant to the solvency of sodium sulphite but fibrovascular bundles completely dissolve in it. Sodium hydroxide is not such a good solvent for cellulose. The product obtained with either sodium sulphite or sodium hydroxide is not pure cellulose but in combination as hemicellulose. The method of detecting pure cellulose of Cross and Bevan was employed; not more than 19% of pure cellulose was obtained although 80% of the extract from leaves went into solution. This makes evident the theory that most of the lignin occurs in chemical combination with other carbohydrates. Wood-lignin contains from 13–15% of methoxyl groups (OCH_3) in contrast to leaf-lignin of only 4% of (OCH_3) group. Methoxyl groups under the influence of acids become hard and refuse to go into solution. The framework (venation) of foliage plants contain hemicellulose, in contrast to alfalfa whose cellulose is readily soluble in caustic soda. The leaf of alfalfa trails to the ground, therefore must support itself, hence its framework is composed mostly of cellulose, the same is true in *Chamerops humilis*, etc., which have no stems. The leaves of these plants contain cellulose fibres which are put in solution with caustic soda. Cellulose and not lignin give support and strength to leaves.—R. S. HILPERT and R. WAGNER. *Ber.*, 68 (1935), 371. (G. B.)

Maple Syrup—Aerobacter Aërogenes as Cause of Ropiness in. A group of bacteria was isolated from the sap of *Acer saccharum* which, when inoculated into sterile sap or dilute maple syrup, produced a ropy maple syrup upon being concentrated to the consistency of syrup. Since these bacteria were isolated from the sap from which the ropy maple syrup was produced in the sugar bush, it is evident that they were responsible for the condition. The morphological, physiological and cultural characteristics of the bacteria responsible for this condition corresponded in all essential details to those of *Aërobacter aërogenes*. The addition of an amount to acetic acid of approximately the acidity found in the fermented sap did not influence the consistency of the evaporated sap. The addition of a similar amount of lactic acid did influence its consistency. Neutralizing the acidity of fermented sap reduced somewhat the ropy condition of the concentrated sap.—F. W. FABIAN and H. H. BUSKIRK. *Ind. Eng. Chem.*, 27 (1935), 349. (E. G. V.)

Maté—Tannin in. The composition of maté is of considerable importance because of its wide use in South American countries as a beverage in a manner similar to our very popular tea. The authors of this paper have made an elaborate investigation of its tannin content and summarize their conclusions as follows: (1) "It has been shown that maté is completely free from genuine tannin. This is a matter of considerable importance, in view of the effects of ordinary tea upon the digestion. (2) It has also been shown that maté contains an appreciable amount of a natural yellow plant coloring matter; it is reasonably certain that this coloring matter is a derivative of flavone. (3) Certain evidence has been obtained pointing to the presence in maté of caffetannin or some closely allied compound. (4) Comparisons have been made with coffee and

tea, and attention has been drawn to important differences and similarities."—W. A. WOODARD and A. N. COWLAND. *Analyst*, 60 (1935), 135–145. (A. H. C.)

Primula Root. Data are given showing the saponin content of the root of *Primula veris* as revealed by the hæmolytic test of Kofler and Adam.—A. TOMINGAS. *Pharmacia*, 14 (1934), 197–212; through *Chem. Zentr.*, 106 (1935), 594. (G. B.)

Saponins and Sapogenins—III. Sapogenins Obtained from Chlorogalum Pomeridianum. Hydrolysis of the alcoholic extract of the bulbs of *Chlorogalum Pomeridianum* or California soap plant, a plant used as fish poison by the California Indians, yielded two sapogenins. One, reported for the first time and named chlorogenin by the authors, has the formula $C_{26}H_{42}O_3$, melting point 273–276°, and isomeric with gitogenin. The other has the formula $C_{23}H_{42}O_3$ and appears to be identical with tigogenin.—P. LIANG and C. R. NOLLER. *J. Am. Chem. Soc.*, 57 (1935), 525. (E. B. S.)

Sugars and Sugar Mixtures—Hygroscopicity of. A definite relationship between the sucrose, invert sugar and water content of various sugars and the relative humidity of the surrounding atmosphere has been found, and the equilibrium points have been graphed. The equilibrium relative humidity or vapor pressure of pure sucrose, dextrose, fructose, invert sugar or sucrose-invert sugar mixtures with varying percentages of water can be determined directly from the graph.—J. H. DITTMAR. *Ind. Eng. Chem.*, 27 (1935), 333. (E. G. V.)

Other Plant Principles

Brucella Abortus, Toxic Principles—1. Preparation, Toxicity and Biochemical Nature of Alcoholic Precipitate. Alcoholic precipitates were prepared from shaken and filtered suspensions of *Brucella abortus*. These precipitates were highly toxic for guinea pigs by intraperitoneal injection. The toxic and antigenic fraction was water soluble. Filtration did not modify the toxic effect. Dialysis removed some of the lethal substance in one trial but did not affect the suspension in a subsequent experiment. Varying volumes of alcohol did not affect the toxic and antigenic qualities of the precipitate. Preparation of these precipitates on several occasions gave rise to symptoms simulating undulant fever in a hypersensitive human subject. Preliminary biochemical examination suggested that the precipitate consisted almost entirely of carbohydrates.—R. GWATKIN. *Can. J. Research*, 12 (1935), 115. (S. W. G.)

Digitalis—Flavones from. A flavone dye, luteolin or 5,7,3′,4′-tetrahydroxyflavone has been reported to be obtainable from *Digitalis purpurea* and an unidentified dye, $C_{19}H_{18}O_8$, has been isolated from *D. lutea*. Karrer isolated an entirely different flavone which he calls thapsin, from the dried, pulverized leaves of a Spanish species of Digitalis which is probably *D. Thapsi*. The new dye crystallized from hot glacial acetic acid in beautiful, lemon-yellow prisms, m. 224° (uncorr.). It proved readily soluble in chloroform and methyl acetate, less soluble in alcohol, difficultly soluble in dilute alcohol and in ether, and insoluble in water and petroleum ether. It dissolved in alkalies with a yellow color but could be reprecipitated with acid. From a study of the decomposition products of the methylation and ethylation products of the dye the probable structure was arrived at.—W. KARRER. *Helv. Chim. Acta*, 17 (1934), 1560; through *Squibb Abstract Bull.*, 8 (1935), A-359. (S. W. G.)

Phosphatide Preparations. A phosphatide material such as that derived from grain or vegetable material is added to a neutral liquid such as benzene or alcohol and then mixed with dried, purified and ground germs of grain. The product is a powder suitable for therapeutic use.—R. ROSENBUSH and G. REVEREY. U. S. Pat. 1,988,050, Jan. 15, 1935. (S. W. G.)

Phytochemical Notes—No. 112. Preliminary Chemical Examination of Corydalis Aurea. The air-dried herb was extracted with alcohol and this extractive studied. Dimyristylcarbinol was isolated. An optically active alkaloid, colorless in sulphuric acid, red with nitric was found. Determination of methoxy groups gave 33.47 and 32.7 per cent. An optically inactive alkaloid, probably identical with a previously reported one, $C_{20}H_{23}O_4N$, shows four methoxyl groups. An insoluble, optically inactive alkaloid containing no methoxy groups seemed similar to one which Chou compares to protopine.—H. EPPSON. *J. Am. Pharm. Assoc.*, 24 (1935), 113. (Z. M. C.)

Vegetable Lecithin—Antioxidant Properties of. Vegetable lecithin is shown to possess antioxidant properties in vegetable oils where the autoxidation is catalyzed by an active metal. It is believed that it may serve as an efficient antioxidant in the protection of edible oils if used in

the amounts of 0.05 to 0.1 per cent by weight.—E. I. EVANS. *Ind. Eng. Chem.*, 27 (1935), 329. (E. G. V.)

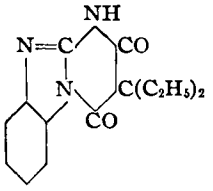
Unclassified

Acidum Aceticum. This article is No. 3 of a series of extended reviews of the organic, chemically pure substances official in the Belgian Pharmacopœia. The review is a very complete one and is divided into the following sub-heads: Synonyms; History; Foreign Pharmacopœias; Preparation; Physical Properties; Chemical Properties; Identification Reactions; Official Requirements; Uses; and Literature. Each division is further subdivided and its subject matter is discussed at length with equations, calculations, tables, etc.—V. EVRARD. *Pharm. Tijdschrift.*, 13 (1935), 4–15. (E. H. W.)

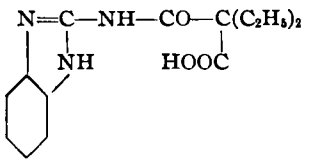
Amine Salts of Antimonic and Benzenestibonic Acids. Powders (colorless to yellowish) suitable for use by injection against infectious diseases. Obtained by reaction of an antimony acid or a stibonic acid, such as a benzenestibonic acid such as $RSbO(OH)_2$, where R is a phenyl radical which may be substituted by halogen, amino, substituted amino, hydroxyl groups, or by reaction upon the acids of antimony in their higher molecular complex state of a primary, secondary or tertiary amine, such as methylamine, diethylamine, peperazine, quinine, etc., at room temperature or at water-bath temperature. The two components are allowed to react either in aqueous solution or in a suitable organic solvent, such as methyl or ethyl alcohol. It is best to finely suspend the organic or inorganic antimony acid in water and introduce in small portions an amine until the whole of the antimony acid has dissolved. The quantities of the two components of the reaction may be varied, generally less than an equivalent of the amine calculated on the stibonic or antimonic acid being sufficient, due to the high-molecular state in which the acids of antimony generally are present. The complex state prevents the representation of the formulas of the products. The reaction between the antimony acids and the amines appears as a neutralization of the acidity of the antimony acids by the amines. The new compounds may be obtained by evaporating their solutions to dryness or by adding an organic precipitant, such as ether or acetone.—H. SCHMIDT (to Winthrop Chemical Co.). U. S. Pat. 1,988,632, Jan. 22, 1935.

Amines and Diamines with Ethylene Grouping—Chemical and Physiological Study of. A review giving methods of preparation and the physiologic properties of these amino compounds. —G. BENOIT and R. HERZOG. *Bull. sci. pharmacol.*, 42 (1935), 34, 102. (C. T. I.)

2-Aminobenziminazole—Structure and Derivatives of. 2-Aminobenziminazole is prepared from *o*-phenylenediamine in aqueous suspension and freshly prepared bromocyanogen. It is condensed with diethylmalonyl chloride in anhydrous pyridine solution, giving 1-diethylmalonyl-2-amido-benziminazole, melting point 243° C. (I) The physiological action of this derivative of barbituric acid derivative is being investigated. Treatment with aqueous alkali opens the ring presumably between the N atom common to both rings and the vicinal carbonyl group to give



I



II

2-benziminazolyl-amido-diethyl malonic acid.

an acid, melting point 214°. (II) Treatment with acetic anhydride removes a molecule of water from II and gives the ring form again. The methyl ester of II, melting point 116°, is prepared by saturating an ether solution with diazomethane. With carbon bisulphide an alcoholic solution of I gives after 50 hours heating 2,2-benzimidazolyl thiourea, melting point 208°. These reactions characterize I as 2-aminobenziminazole with a primary amine grouping, rather than as phenylene guanidine. Benzaldehyde reacts with I to give a product not completely characterized.—GIUNIO B. CRIPPA and GIULIO PERRONCITO. *Gaz. Chim. Italiana*, 65 (1935), 38–43. (A. E. W.)

Antimony Compounds—Complex Pentavalent, with Aromatic Polyhydroxy Compounds. The Compounds are prepared by causing antimonic acid or a water-soluble salt to react with an aromatic polyhydroxy compound containing at least two hydroxyl groups in ortho positions to each other and being substituted by at least one acid group capable of forming a water-soluble salt, and which polyhydroxy compound may be otherwise substituted. Suitable aromatic acids are pyrocatecholmono- and disulphonic acid, pyrogallolmono- and disulphonic acid, pyrocatecholcarboxylic acid, protocatechuic acid, gallic acid, etc. The quantities of the two components reacting with each other may be varied within wide limits, the proportions used determining the antimony content of the products. Generally molecular quantities of reactants are used. The process is carried out by dissolving the reactants in water and heating the reaction mixture preferably on a water-bath for some hours. When starting with a water-soluble salt of an aromatic *o*-dihydroxy carboxylic or sulphonic acid and a water-soluble antimonate, the complex compound is formed immediately after mixing the components. Several examples with details of procedure are given.—H. SCHMIDT (to Winthrop Chemical Co.). U. S. Pat. 1,988,576, Jan. 22, 1935.

Calcium Gluconate Solutions—Stable. Clear, stable, sterile, supersaturated aqueous solutions suitable for intramuscular injections free from irritation of the tissues contain calcium gluconate 4–20 and calcium mannonate 1–3%. U. S. Pat. 1,989,565. U. S. Pat. 1,989,566 deals with stable solutions containing calcium gluconate 4–25% and 0.5–25% of calcium salts of monocarboxylic acids derived from polyaldoses such as calcium lactobionate.—A. STOLL and E. BURCKHARDT (to Chemische Fabrik vorm. Sandoz). Jan. 29, 1935.

ω-Chloracetopyrocatechol—Some Thiazol Derivatives of. The author condensed, 3,4-hydroxy-ω-chloracetophenone in acetone with thiourea or derivatives of thiourea, obtaining the corresponding thiazol derivatives. The following were prepared: 2-Amino-derivative; hydrochloride, m. p. 235° to 236°; acetyl derivative, m. p. 268°. 2-Allyl-amino-derivative, m. p. 208° to 209°; hydrochloride, m. p. 213°. 2-Phenyl-imino, 3-phenyl derivative, m. p. 251° to 252°. The 2-ortho-tolyl-imino, -3-ortho-tolyl derivative, m. p. 130°; hydrochloride, m. p. 185°. The analogous meta-derivative, m. p. 227° to 228°; hydrochloride, 226° to 227°. The analogous para-methyl-derivative, m. p. 280° to 281°; hydrochloride, m. p. 170°. The analogous 2-para-hydroxy-phenyl-imino, -3-para-hydroxy-phenyl derivative, hydrochloride, m. p. 198° to 200°. The proof of structure was established by analyses, by a negative reaction for the CO group with phenyl-hydrazine and a negative Grote reaction. The parent thiazol derivative was synthesized by condensing potassium thiocyanate with the ω-chloracetopyrocatechol. The corresponding derivative of acetophenone differed from the thiocyanate prepared from acetophenone by Dyckerhoff.—ZENICHE HORII. *J. Pharm. Soc. Japan*, 55 (1935), 6–8. (R. E. K.)

Chlorinated and Brominated Hydroxybiphenyls. A halogenated hydroxybiphenyl is prepared by the reaction of free halogen with hydroxybiphenyl in a solvent such as carbon disulphide or glacial acetic acid. Keeping the temperature below 20° facilitates the production of a monohalo derivative such as 2-hydroxy-5-bromobiphenyl or 2-hydroxy-5-chlorobiphenyl. Some 3-halo- and 3,5-dihalo-derivatives are also formed. The products possess strong bactericidal action.—W. G. CHRISTIANSEN, E. MONESS and S. E. HARRIS (to E. R. Squibb and Sons). U. S. Pat. 1,989,081, Jan. 29, 1935.

Derris Resin—Constituents of. A dimorphic substance, m. p. 189° and 192–194°, is isolated in very small yield from a derris resin which contains only a small amount of rotenone. The substance probably has the formula $C_{23}H_{22}O_7$; it differs from the isomeric tephrosin in being phenolic and in not readily losing the elements of water, and from the isomeric toxicarol in being colorless; it has insecticidal properties. Toxicarol does not exist as such in derris resin; evidence shows that only small quantities of *dl*-deguelin or tephrosin exist as such in derris resin.—R. S. CAHN and J. J. BOAM. *J. Soc. Chem. Ind.*, 54 (1935), 42T. (E. G. V.)

1,2-Dimethyl-Naphthaline—Isolation of, from Coal Tar. So far four dimethyl-naphthalines were known, that is 1,6; 2,6; 2,7 and 2,3-dimethyl-naphthaline. All 4 isomers were easily separated with the exception of 1,6-dimethyl-naphthaline which requires special care in being crystallized out from sulphonic acid. The discovery of the 5th isomer was that of 1,2-dimethyl-naphthaline. The separation and washing of the crystals were done with the aid of picrates. The material used was tar oil, the process of extraction employed, was fractional distillation. Especially hard was the separation of 1,2-dimethyl-naphthaline from the isomer 2,3-dimethyl-naphthaline, which has the same boiling point, but higher melting point. The formation of ace-

naphene during the fractional distillation, was easily removed using dilute sulphuric acid. The distillate was then mixed with picric acid and alcohol, and after several recrystallization processes beautiful picrate crystals separated out. The fractional distillation was done at a temperature of 266–270° and the yield was that of 23% of 1,2-dimethyl-naphthaline in heavy oil coal tar. To prove the constitution of 1,2-dimethyl-naphthaline the method given by F. Mayer and A. Sieglitz was used. Its properties such as boiling point, refractive index, Sp. Gr. were identical with hydrocarbons obtained from coal tar; even the picrate and its mixture showed the same melting point. The splitting up with chromic acid to obtain α-chinons, with potassium permanganate resulted in 1,2,3,4-benzoltetracarbonic acid, and after the oxidation of the hydrocarbons with nitric acid naphthaline-dicarbonic acid was obtained. The dimethyl ester of this acid corresponds with the synthetic product. The discovery of 1,2-dimethyl-naphthaline in coal tar is important because (coal tar) hydrocarbons give us one of the few true oils; and because there are only 4 true liquid hydrocarbons obtained from it, namely: α-methyl-, 1,6; 1,2-dimethyl-naphthaline and *m*-methyl-diphenyl.—O. KRUBER and W. SCHADE. *Ber.*, 68 (1935), 11. (G. B.)

Glycerin—Regeneration of, in Production of Glycerophosphates. In the production of glycerophosphates, the free glycerin is recovered, with alcohol in which it is soluble while sodium glycerophosphate, for example, is not. In this way 25% of the glycerin is recovered. The product contains but traces of sodium chloride, and a little sodium glycerophosphate, and thus can be esterified without further purification with sodium monophosphate.—N. O. BOLZ and R. W. MURACHWER. *Chimiko pharmazew Titscheskaja Promyschlennost* (1934), 25–26. *Pharmaz. Fabrik Im. Karpow;* through *Chem. Zentr.*, 106 (1935), 594. (G. B.)

β-Iodohydroxynaphthalenedisulphonic Acids. The compounds are slightly colored in the dry state, soluble in water and suitable for therapeutic use and for use as intermediates for the manufacture of other compounds. They are obtained by heating in an aqueous medium the diazonium iodides of beta-diazohydroxynaphthalenedisulphonic acids.—A. STOLL, A. BINKERT and W. KUSSMAUL (to Chemische Fabrik vorm. Sandoz). U. S. Pat. 1,988,222, Jan. 15, 1935.

Lactic Acid—Physical Characters of, in Course of Aging. Of the following physical constants studied: density, viscosity, surface tension, conductivity and p_H values, it is the surface tension of a particular acid which permits the determination of the degree of concentration, purity and age. Freshly prepared lactic acid of the French Codex has a S. T. of 46 dynes/cm.—W. KOPACZEWSKI. *Bull. sci. pharmacol.*, 42 (1935), 87. (C. T. I.)

Penicillium Charlesii—Molecular Constitution of, Metabolic Acids of. A series of acids produced from glucose by *Penicillium Charlesii* G. Smith is shown from a study of the products of hydrolysis, bromination, reduction and reactions with dinitrophenylhydrazine and diazomethane to have the following structures: *l*-γ-methyltetronic acid $C_5H_6O_3$; carolic acid $C_9H_{10}O_4$ in non-aqueous solvents; carolic acid $C_9H_{10}O_4 + H_2O$ in aqueous solution; carolinic acid $C_9H_{10}O_6$; carlic acid $C_{10}H_{10}O_6$ in non-aqueous solvents; carlic acid $C_{10}H_{10}O_6 + H_2O$ in aqueous solution; carlosic acid $C_{10}H_{12}O_6$. Carolic, carolinic, carlic, carlosic and synthetic α-acetyl-tetronic acids, all contain the α-keto-substituted tetronic acid ring. On reduction with palladium-charcoal-hydrogen the carbonyl group of the side chain attached to the α-carbon is in all cases reduced to CH_2. Synthetic α-acetyltetronic acid contains the same nucleus as the metabolic acids and gives a complete analogy with these acids in respect to the series of reactions described above. The metabolic products are derivatives of γ-methyl- and γ-carboxymethyl tetronic acids.—P. W. CLUTTERBUCK, H. RAISTRICK and F. REUTER. *J. Soc. Chem. Ind.*, 54 (1935), 171. (E. G. V.)

Organic Arsenic Compounds. Examples are given of the preparation of compounds having the general formula HO-CHY-CO-NH-Ar-X where X represents $-AsO_3H_2$ or $-As = 0$, Y stands for H or lower alkyl groups and Ar represents a phenyl group or a phenyl group which has an hydroxy, or a lower alkyl group, or a lower alkoxy or a halogen substituted for one hydrogen. The products are claimed to be nontoxic.—K. STREITWOLF, A. FEHRLE and H. OESTERLIN (to Winthrop Chemical Co.). U. S. Pat. 1,988,758, Jan. 22, 1935.

Potassium Stannic Pyrocatecholdisulphonate and Other Complex Metal Compounds. Complex metal salts of polyhydroxybenzene compounds containing at least two hydroxyl groups in ortho position and at least one acid group capable of forming a salt of an alkali metal, and a metal capable of being oxidized. Various oxidizing agents may be used, *e. g.*, hydrogen peroxide, magnesium peroxide, sodium persulphate, etc. The oxidation is generally carried out in solution. The solutions containing the products are evaporated or the new compounds are precipitated by

adding an organic solvent, *e. g.*, methyl alcohol. In certain cases the compounds may be oxidized in the solid state. The new compounds are generally colored powders, soluble in water and generally are less toxic than the unoxidized compounds. Several examples with procedures are given.—H. SCHMIDT (to Winthrop Chemical Co.). U. S. Pat. 1,988,575, Jan. 22, 1935.

BIOCHEMISTRY

Anterior Pituitary—Clinical Manifestations of Dysfunction of. A review of the more important literature relating to laboratory and clinical symptomatology with deficiency or absence of one or another of the several hormones elaborated by the anterior lobe of the pituitary gland.—H. M. Evans. *J. Am. Med. Assoc.*, 104 (1935), 464. (M. R. T.)

Anterior Pituitary—General Physiology of. A discussion and review of the literature dealing with the physiological rôle of the several hormones of the anterior pituitary.—P. E. SMITH. *J. Am. Med. Assoc.*, 104 (1935), 548. (M. R. T.)

Blood Iron—Methods for Determining. Comparison of Wet and Dry Ashing. Wong's method was changed in so far as the blood mixture with sulphuric acid and persulphate was heated to 80° for 10 minutes. For the dry method, the blood was evaporated on a hot plate, ignited for 8 hours and, after addition of one cc. nitric acid, dried again. The solution in 6*N* hydrochloric acid was centrifuged after addition of ammonium hydroxide and the liquid was used for copper determination by McFarlane's method. The precipitate was dissolved in sulphuric acid, oxidized with persulphate and used for colorimetric estimation with potassium thiocyanate. The deviation between both methods is less than 1%.—A. A. FABIAN, A. SACHS and V. E. LEVINE. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 662. (A. E. M.)

Calcium Phosphate—Colloidal, of Blood Serum and Calcium Partition in Serum. The maximum of protein-bound non-diffusible calcium in beef serum is 14 mg.% with a concentration of 7.2% protein. Colloidal calcium phosphate found in blood serum has the composition of the tertiary salt, and the equilibrium between protein bound and ionized calcium conforms to the mass law.—D. M. GREENBERG, C. E. LARSON and E. V. TUFTS. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 647. (A. E. M.)

Carotenoids of Butter. A number of ordinary and colostrum butter carotenes have now been submitted to a detailed chromatographic analysis with spectroscopic control. Using either alumina or calcium hydroxide as adsorbents, it has been found that the pigment can be separated into two fractions having the properties of α- and β-carotene, respectively, the relative amounts of each varying considerably in different samples. β-Carotene is commonly present in 2–3 times the amount of α-isomeride but in some cases the latter predominates. In addition to these two isomers the yellow pigments of butter, petrol-phasic to 90 per cent methyl alcohol, usually contain minute amounts of other carotenoids, the adsorption properties and spectroscopic criteria of which indicate the presence of kryptoxanthin and lycopene. Thus, in addition to vitamin-A, butter contains two, and sometimes three, other compounds exhibiting growth-promoting activity.—A. E. GILLAM and I. M. HEILBRON. *J. Soc. Chem. Ind.*, 54 (1935), 173. (E. G. V.)

6,7-Dimethyl-9-L-arabo-flavin.—Lacto-flavin in *N*/20. Sodium hydroxide is levorotatory. The specific rotation $[\alpha]_D^{20} = -115°$ is the same of substances found in milk, liver and lucern. Synthetic 6,7-dimethyl-9-L-arabo-flavin which is active because of vitamin B_2 content, is also levorotatory. The synthetic tetraacetyl-6,7-dimethyl-9-L-arabo-flavin resembles natural tetraacetyl-lacto-flavin. Specific rotation is also the same. *L*-Arabinose (synthetic) is dextrorotatory; the levorotatory rotation of flavin is due to the formation of *l*-arabinamins which are little levorotatory. In order to better understand the specific rotation of natural vitamins, a study was made of the position of hydroxyl groups on other synthetic sugars such as *l*-arabinose, *d*-xylose, *l*-xylose and *d*-ribose. H. Theorell obtained protein substances from the yellow ferment which are not identical with lacto-flavin. By denaturizing the yellow ferment he obtained 1 molecule of phosphoric acid. The activity of lacto-flavin in the ferment is due to lacto-flavin phosphoric acid and not to lacto-flavin alone. Former experiments with animals, proved the presence of vitamins to contain proteins; now the activity seems to be due to phosphoric acid also. Vitamin + Phosphoric Acid + Protein = Ferment. According to H. Theorell, the activity of the yellow ferment is due to the replacement of purine with 6,7-dimethyl-alloxazin, which makes it (yellow ferment) a nucleotid. 6,7-Dimethyl-iso-alloxazin = 6,7-dimethyl-flavin. There is a great difference between alloxazins and flavins but little difference between synthetic flavins and yellow ferment. The lack

of hydroxyl-groups makes the esterification of 6,7-dimethyl-9n-amyl flavin with phosphoric acid impossible, hence its lack of vitamin B_2 activity.—R. KUHN and F. WEYGAND. *Ber.*, 68 (1935), 166. (G. B.)

Dimethyl-Flavin—6,7-Dimethyl-Flavin-9-Acetic Acid. The synthesis of flavin carboxylic acid is not important with respect to the substance, but is important from a biological standpoint. The carboxyl group attaches itself to the benzene ring through oxidation of lumi-lacto-flavin with potassium permanganate; it is suspected that the formation of carboxylic acid in the system from vitamin B_2, is produced through the oxidation of the methyl groups in the chain. There is present a carboxylic acid whose group is attached to the 9th position of the chain. 1,2-Dimethyl-4-nitro-5-amino-benzol was condensed with acetic acid bromide into 1,2-dimethyl-4-nitro-5-anilin-acetic acid. The reduction to amino acid with alloxan was not very successful. With sodium stannate the reduction is hastened, and 6,7-dimethyl-flavin-9-acetic acid obtained. The methyl ester melts at 293°. The free carboxylic acid is soluble in water but not in chloroform. 6,7-Dimethyl-flavin-9-acetic acid is susceptible to light in neutral and slight acid solution. In alkaline solution it is stable to light. This proves that the carboxylic acid is not a by-product in the photo-chemical reaction from lumi-lacto-flavin to lacto-flavin. The water-soluble 6,7-dimethyl-flavin-9-acetic acid shows no nourishing effect on rats, deficient in vitamin B_2. The same is true of the glycerin ester. The lacto-flavins are active biologically, soluble in water, insoluble in chloroform; the residual tetraoxy-butyl plays an important part in the constitution of vitamins.—R. KUHN and H. RUDY. *Ber.*, 68 (1935), 300. (G. B.)

Ergosterol—Attempt to Ketonize. Since an earlier investigation had concluded that activation of ergosterol by ultraviolet light is due to a chemical isomerization and because keto-enol isomerism is theoretically possible, ergosterol was subjected to a reaction with hydroxylamine under conditions which were known to give an almost quantitative yield in the formation of the oxime of cyclohexanone. Ergosterol was recovered unchanged from the reaction material. Details of experimental work are reported.—E. MONESS and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 24 (1935), 115. (Z. M. C.)

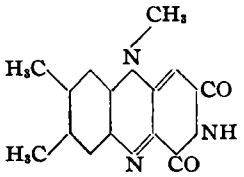
Gonadotropic Factors—Interrelationships among Urinary, Pituitary and Placental. A review, with discussion, of available evidence emphasizing similarities and differences among the gonadotropic factors demonstrable in the urine, pituitary and placenta, and the physiological interrelationships made apparent by the existing evidence.—J. B. COLLIP. *J. Am. Med. Assoc.*, 104 (1935), 556. (M. R. T.)

Gonadotropic Hormones—Hypophyseal. A review of published evidence showing that the gonadotropic substance from the hypophysis is composed of two principles, one a gametokinetic (follicle stimulating) hormone, the other a "luteinizer" causing luteinization of the ovary and presumably acting also on the interstitial tissue of the testes.—P. E. SMITH. *J. Am. Med. Assoc.*, 104 (1935), 553. (M. R. T.)

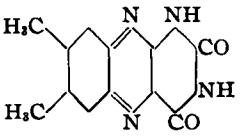
Lacto-flavin (Vitamin B_2)—Isolation of, from Hay. Research proved that flavin is a constant component of all green leaves, as is chlorophyll. Its properties are compared to that of a ferment-like substance. Whether it is part of the chloroplasts or chlorophyll or whether it is present in the cell content, or whether it is assimilated during the formation of carbonic acid or during the respiration process, that is unknown, but its presence is there as such. To answer these and other questions the isolation of flavin from green plants was undertaken. It was found that milk and liver were rich in lacto-flavin (vitamin B_2); but the fact to be proven was whether the vitamin B_2 reached the liver and mammary glands of animals unchanged or whether it undergoes changes the same as the carotine in plants into vitamin A. Hay-meal was chosen because it is used in food for cows and also because cows' milk is rich in vitamin B_2. One hundred and three Kg. of hay-meal was boiled with 1480 liters of water and, after extraction, 50–70 mg. of lacto-flavin in the form of tetraacetyl was obtained. The crystals obtained showed the same general structure, optical rotation, absorption spectrum and constructive metabolism properties as the tetra-acetyl lacto-flavin found in milk. It was proven also that lacto-flavin is a plant-coloring material (pigment) and that it passes from the animal, through his liver and into its milk undergoing no changes. The increase in the amount of vitamin B_2 in green leaves is possibly due to respiration in plants during the formation of carbonic acid or liberation of carbon dioxide. One Kg. of fresh green leaves contains 0.0005 Gm. vitamin B_2 and 2.0 Gm. chlorophyll. The relation of the coloring material is flavin to chlorophyll = 1:2000. Not much stress is laid on this theory, that is, the

increase in amount of vitamin B_2 during the assimilation of carbonic acid.—R. KUHN and H. KALTSCHMITT. *Ber.*, 68 (1935), 128. (G. B.)

Lumi-lactoflavin—Natural and Synthetic. Synthetic 6,7,9-trimethyl-flavin obtained from formic acid in the form of yellow needles, differs from dye products ($C_{13}H_{12}N_4O_2$) of natural origin as follows: 1. On hydrolysis, oxy-carbonic acid ($C_{12}H_{12}N_2O_3$) formed and not 6,7-dimethyl alloxazin or the compound $C_9H_{10}N_2O_2$. 2. The coloring action of the synthetic material is 7% greater than in the natural products. Synthetic 9-methyl, 6, 9-dimethyl and 6,7,9-trimethyl flavin show no melting point but decompose and carbonize at 300°; natural lumino flavin crystals melt at 330°. Such deviations depend, in the natural lacto-flavin, on the purification over silver salts and recrystallization from acetic acid. These preparations are composed of a mixture of methyl-imid free coloring substance (α-lumi-lactoflavin) and methyl-imid in combination (β-lumi-lactoflavin). Lumi-lactoflavin is not a flavin (iso-alloxazin) but 6,7-dimethyl-alloxazin. β-Lumi-lactoflavin is identical with 6,7,9-trimethyl-flavin. Lumin-lactoflavin $C_{13}H_{12}N_4O_2$ was synthetized for the first time in a pure state. The separation of a mixture of 6,7,9-trimethyl-flavin from 6,7-dimethyl-alloxazin is difficult because of close resemblance of their properties.



6,7,9-Trimethyl-flavin



6,7-Dimethyl-alloxazin

The origin of 6,7-dimethyl-alloxazins in natural lumi-lactoflavin preparation is not clearly understood. Further investigation led us to consider the formation of other constituents during the preparation of "whey" from milk.—R. KUHN, H. RUDY and K. RENIEMUND. *Ber.*, 68 (1935), 170. (G. B.)

Luteal Hormone. The author gives a complete review of the literature and discusses the method of Allen for preparing pure crystalline luteal hormone substance. He modifies the technique as follows: Extract with 70% alcohol, using 3 Kg. of alcohol per Kg of tissue. The residue is then extracted with 2 portions of absolute alcohol, and the extract is dried *in vacuo*. This residue is then extracted with several portions of ether, which after distillation of the ether leaves an oily residue. Acetone is then added to precipitate the fatty insoluble materials. The liquid is then distilled in vacuum and the oily residue is taken up in methyl alcohol. On cooling, most of the oil containing a little active material settles out. This residue is extremely difficult to purify. The alcoholic solution is diluted with water, then cooled in an ice-salt mixture for several hours and then filtered. This is repeated until no further precipitation occurs, thus eliminating cholesterol and neutral fats. The alcoholic filtrate is mixed with ethyl alcohol, and shaken out with petroleum benzin. The luteal substance goes into the petroleum benzin which is removed *in vacuo*. The oil is then distilled *in vacuo*, and the fraction obtained between 140–160° is richest in hormone. After a while, crystals separate. The crystals are washed with absolute alcohol, and may be recrystallized from ethyl acetate. The author believes the product is the same substance as that isolated by Hartmann and Wettstein.—D. VAN STOLK and M. H. PENAU. *J. pharm. chim.*, 21 (1935), 193. (M. M. Z.)

Pituitary—Separation of Anterior Thyreotropic Hormone of. The thyreotropic hormone (I) can be separated from the gonadotropic (II) in the pituitary extracts by precipitating with benzyl alcohol the isoelectric soluble fraction obtained in the isoelectric precipitation at p_H 4.2 of crude pyridine extract containing I and II. I is precipitated quantitatively. When preparations containing I and II were heated, no deleterious effects were observed at 60° C.; at 70°, both I and II were seriously impaired; at 80°, I was completely inactivated and II nearly so; at 100°, both were completely destroyed. Excessive doses of placental extract, and urine and blood serum of pregnancy had no effect on the thyroid. I in a dosage equivalent to 1 Gm. of sheep pituitary powder per week, produced the greatest stimulation of guinea pig thyroid in one week. By the end of the third week of treatment, the thyroid had practically returned to normal. It was previously re-

ported that the thyroid could not maintain a hyperfunctioning capacity in the presence of chronic hyperpituitarism.—R. O. GREEP. *Am. J. Physiol.*, 110 (1935); through *Squibb Abstract Bull.*, 8 (1935), A-307.

Pituitary—Chromatophorotropic Principles of Pars Intermedia of. A review of the literature, with emphasis on the presentation of evidence proving the existence of a specialized pigment-influencing hormone, called "intermedin," elaborated by the pars intermedia of the pituitary.—B. ZONDEK. *J. Am. Med. Assoc.*, 104 (1935), 637. (M. R. T.)

Pituitary—Lactogenic Factor of. A review of pertinent literature dealing with the factor, elaborated by the pituitary gland, which is essential to lactogenesis.—OSCAR RIDDLE. *J. Am. Med. Assoc.*, 104 (1935), 636. (M. R. T.)

Plasma Fibrin—New Method of Determining. One cc. of oxalated plasma is diluted 25 to 30 times with normal saline solution. To this 0.3 cc. of a 1 : 5000 dilution of dried tiger snake venom in saline is added. The fibrin clot is washed thoroughly on a filter and dried at 37° or 110°. S. ROSENFELD and A. S. WIENER. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 788. (A. E. M.)

Posterior Pituitary. A review of the more important pharmacological and bio-chemical literature dealing with the acutely potent hormones existing in the posterior lobe of the pituitary gland.—E. M. K. GEILING. *J. Am. Med Assoc.*, 104 (1935), 738. (M. R. T.)

Thrombin—New Method of Preparation. Fresh fibrin from calves was washed free of hemoglobin and extracted with ether. The dried material was extracted with 8% sodium chloride solution and the filtered extract dialyzed first against water, then against a Sørensen buffer mixture of p_H 7.38, finally again against water. The solution was dried with an electric fan. The potency of the dry preparation is stable.—A. C. ROBERTS. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 606. (A. E. M.)

Van Der Bergh Reaction of Bilirubin—Variations in Xanthochromic Cerebrospinal Fluid. A prompt reaction is obtained, when the concentration of the pigment is above 0.3 mg. % and at low protein concentration. Increase of proteins or low pigment content produce delayed reactions. It is supposed that delayed reactions in blood are brought about by the same conditions.—S. L. VAUGHAN and R. S. HUBBARD. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 618. (A. E. M.)

Vitamin-A Active Substances in Egg Yolk. The presence of carotene in egg yolk was confirmed, removing carotene from the total pigments by partition between petroleum ether and 90 per cent methyl alcohol. Analysis reveals kryptoxanthin to be associated with the carotene; the content of the former was raised to 0.2 mg. per 100 Gm. of yolk by feeding hens on a rich maize diet.—A. E. GILLAM and I. M. HEILBRON. *J. Soc. Chem. Ind.*, 54 (1935), 173. (E. G. V.)

Vitamins B—Experimental Investigations on, in Their Relations to Glucides, Proteins and Lipids of Diet. After a critical review of recent work on vitamins B, extensive experiments carried out on pigeons are described, and the results discussed. *Conclusions:* The B-group of vitamins comprises 3 distinct vitamins: B_1 or antineuritic, B_2 or antidermatitic (antipellagrous), and B_3 or antidenutritional, which exert complementary and interdependent actions on the animal organism. Absence of vitamins B in presence of glucides, proteins or lipids produced attacks of polyneuritis typical of avitaminosis B, rapidly followed by death; preventive or curative addition of brewers' yeast ensured the maintenance or recovery of health in all the birds experimented upon, provided the diet itself was properly balanced. The specific nature of the glucides, proteins and lipids exert considerable influence on the rate of evolution of total avitaminosis B and also on the dose of vitamins B required to maintain the birds in a satisfactory physiological condition. The individual effects of simple compounds can be very considerably attenuated when they are combined in more complex molecules, *e. g.*, levulose in sucrose or inulin, polypeptides bound in natural proteins (and liberated in peptones). The digestibility (rate of intestinal assimilation) of glucides, proteins and lipids, control to a considerable extent the requirements of vitamins B necessary to ensure utilization of the diet; *e. g.*, the vitamins B requirements are considerably reduced with diets comprising largely potato starch, beef muscle and cod liver oil, while they are especially high with diets based on glucose or sucrose, peptones or olive oil. With substantially equal digestibility, the vitamins B requirements seem greater in the case of glucides. The presence in the diet of large proportions of certain substances (*e. g.*, galactose, lactose, castor oil and, to some extent, muscle peptone) unbalances the diet so that its equilibrium cannot be restored with doses of brewers' yeast which are sufficient for a normal diet. In rebalancing a diet contain-

ing such substances, the addition of lipids or of unpeptonized proteins apparently plays an important part, these lipids and proteins apparently exercising a reserve action toward the vitamins B supplied by the diet or present in the organism.—RAOUL LECOQ. *Bull. soc. sci. hyg. aliment.*, 22 (1934), 278–331. (A. P.-C.)

Vitamin B_1, Crystalline—Studies of. II. Elementary Composition and Ultraviolet Absorption. The authors, after careful analysis of the hydrochloride of vitamin B_1 which had been crystallized several times from 85% alcohol and dried over calcium chloride in partial vacuum at 55°, suggest $C_{12}H_{16}ON_4S.2HCl$ as the formula. They also found ultraviolet absorption to occur in two bands at 235 mμ and 276 mμ, respectively.—O. WINTERSTEINER, R. WILLIAMS and A. E. RUEHLE. *J. Am. Chem. Soc.*, 57 (1935), 517. (E. B. S.)

Vitamin B_1, Crystalline—Studies of. Cleavage of Vitamin with Sulphite. The vitamin was treated with sodium sulphite solution containing sufficient excess of sulphurous acid to bring the p_H to 4.8–5.0 and having a sulphite content of 2.6*N*. Cleavage was completed at room temperature in twenty-four to forty-eight hours, and at steam-bath temperature in one hour or less. A sparingly soluble acidic product having the composition $C_6H_9N_3SO_3$ and a chloroform-soluble base having the composition C_6H_9NSO were obtained.—R. R. WILLIAMS, R. E. WATERMAN, J. C. KERESZTESY and E. R. BUCHMAN. *J. Am. Chem. Soc.*, 57 (1935), 536. (E. B. S.)

Vitamin B_2—Condition of, in Cows' Milk. Fresh cows' milk containing lacto-flavin (Vitamin B_2) is about 90% dialyzable. The dialyzing test did not determine whether the coloring material is combined with protein in milk. The test was made to determine whether the vitamin is present in the free state or is esterified with phosphoric acid. The behavior in the electrical field of lacto-flavin and lacto-flavin-phosphoric acid was easily told apart. The milky suspension has a p_H of 7.2 and travels to the anode, in contrast to the yellow-green fluorescent coloring material which does not ionize. To prove this test, skimmed milk, the yellow-green fluorescent crystals of which did not ionize, was used. This experiment proved that the coloring material from the "whey" is not identical with the properties of the "yellow ferment," and during the process of isolating vitamin B_2 from milk no phosphoric acid ester of the vitamin was detected. Although lacto-flavin, a plant coloring material is, naturally found as such in plants, the name lacto-flavin is more properly established because it was crystallized ($C_{17}H_{20}N_4O_6$) first from milk and also because it is found there free, that is, not as an ester.—R. KUHN and H. KALTSCHMITT. *Ber.*, 68 (1935), 386. (G. B.)

Vitamin B_2-Phosphoric Acid—Synthesis of. This test was to determine whether, the "yellow-ferment," the color component of flavin is in any way connected with phosphoric acid. The color component of the ferment contains a vitamin B_2 which is important in metabolism. The experiment was to prove whether the vitamin B_2 is found in its free dialyzable form, as phosphoric acid ester, or whether there is a difference in metabolism between flavin and phosphoric acid flavin. There is a possibility that synthetic flavin might react in the system to be esterified with phosphoric acid. To answer this and other questions, the problem of lacto-flavin-phosphoric acid has been taken up. From the lacto-flavin esters only one tetraacetyl combination is known. Obtaining the phosphoric acid ester was accomplished with the use of phosphoroxychloride in pyridine. After washing with silver and sodium salts the formation of lacto-flavin phosphoric acid crystal aggregates separated out. The correct position of phosphoric acid in the structural formula is unknown, but its molecular formula is $C_{17}H_{21}N_4PO_9$. The phosphoric acid ester of lacto-flavin is the same in color and fluorescence as that of lacto-flavin; the p_H (7.17) of the synthetic vitamin B_2-phosphoric acid is the same as that of the "yellow ferment" but differs from that of lacto-flavin whose p_H ranges from p_H3 to p_H9.—R. KUHN and H. RUDY. *Ber.*, 68 (1935), 383. (G. B.)

Vitamin D—Transformation of Highly Potent Physiological Products with Ultraviolet Rays. Irradiation of the known ester of *m*-dinitrobenzoic acid or its derivatives converts the mixed ester to the ester which is physiologically active. It separates out in crystalline form, which can be purified through recrystallization, saponified and the active principle isolated from the saponifiable mixture through extractions. Vitamin D in heptane is first irradiated with magnesium light, dried, dissolved in pyridine, and esterified with dinitrobenzoylchloride. It is washed with water acidified with hydrochloric acid then with sodium carbonate solution and finally collected in iced sodium chloride. The ester crystallizes out, and is purified by recrystallization from acetone. After saponifying it with methyl alcohol and potassium hydroxide, an organic substance,

$C_{28}H_{44}O$, is obtained.—O. LINSERT. D. R. P. 603088 Kl. 12 p. from 6/11/1932 rendered 22/9/-1934; through *Chem. Zentr.*, 106 (1935), 110. (G. B.)

ANALYTICAL

Acimo—Analysis of. Acimo consists of 55 Gm. of a powder containing magnesium carbonate 25 Gm., bismuth carbonate 1 Gm. and sodium bicarbonate 14 Gm. The author describes methods of analysis. Sodium is determined by igniting 2 Gm. of the powder for 30 minutes, cooling in a calcium oxide desiccator, taking up in CO_2 free water, filtering, adding 4 cc. of dilute H_2SO_4 to the filtrate, evaporating to dryness, igniting and weighing the sodium as sodium sulphate. 142 mg. of sodium sulphate is equivalent to 168 mg. of sodium bicarbonate. Bismuth is determined by dissolving the water-insoluble residue obtained in the sodium determination in dilute HCl and precipitating with H_2S after which the precipitate is filtered off on an ashless filter paper, ashed, and after cooling treated with HNO_3, heated and again treated with HNO_3 and finally heated to red heat, the bismuth being weighed as Bi_2O_3. 42.5–45 mg. of Bi_2O_3 represents 50 mg. of bismuth carbonate. Magnesium is determined by boiling the filtrate from the bismuth determination until all the H_2S has evolved. The precipitated sulphur is filtered out and the magnesium is precipitated with sodium phosphate, the resulting magnesium pyrophosphate being ignited and weighed. 1.3815–1.485 Gm. magnesium pyrophosphate is equivalent to 1.250 magnesium carbonate. Purity requirements are given as follows: The powder must be free from chloride, sulphate and arsenic, and 2 cc. of a 500-mg. solution in 10 cc. dilute H_2SO_4 must give no stronger nitrate reaction than that of 2 cc. of a solution of 3.26 mg. of KNO_3 in 1 liter. The analysis of "*Bismuthated Magnesium*" may be carried out in the same way.—H. J. VAN GIFFEN. *Pharm. Weekblad*, 72 (1935), 189. (E. H. W.)

Adhesive Plasters—Lesions Produced by and Method of Determining Adhesive Power. Constituents of adhesive plasters, which may cause skin affections, are rosin, turpentine, lead and sulphur chloride. When piece of plaster is applied to a test object, it must resist separation therefrom evenly throughout the entire adhesive surface but the plaster mixture must not separate from its ribbon base on either side. The adhesive power can be estimated by pressing a 50-cm. square piece vertically against a smooth surface (glass) and placing a weight at the upper end sufficient to pull it slowly off. The time required and the weight used give a means for comparison. Resistance against traction is estimated by sticking a 5-cm. square piece against a smooth surface and determining the weight which will pull it off when applied to the lower end.—FRANCISCO N. COSENTINO. *Semana méd., Buenos Aires*, 42 (1935), 688. (A. E. M.)

Bromides—Determination of Small Quantities of, in Sodium Chloride. The reagents used are: An aqueous Cl solution (about 0.24 mg. Cl per cc.) and a 0.2% solution of fuchsine (pararosaniline hydrochloride) in H_2O. Determine the number of drops of Cl water required to decolorize one drop of the fuchsine solution in 10 cc. H_2O. This should require 6–8 drops. Dissolve 3 Gm. NaCl in 10 cc. H_2O, add 10 cc. H_2O containing a drop of fuchsine solution and add twice the number of drops of Cl water, as determined before. A violet-blue color indicates the presence of Br. Large quantities cause a violet precipitate. The reaction is sensitive to 0.1 mg. KBr.—R. CASARES LÓPEZ. *La Farm. Mod.*, 46 (1935), 55. (A. E. M.)

Calcium Glycerophosphate—Analysis of. The different forms of calcium glycerophosphate are shown and methods of analysis are reviewed. The results obtained on analysis of three commercial samples are given.—E. DELVAUX. *J. pharm. Belg.*, 17 (1935), 167, 183. (S. W. G.)

Calcium Hypochlorite—Value of, as Volumetric Oxidizing Agent—Stability and Standardization of Solution of. Determination of Ammonia. Solutions of hypochlorite have found little application in volumetric analysis since in general they are unstable. It was found that Mathieson Alkali Works' "H. T. H." calcium hypochlorite yielded solutions which were quite stable. By adding an excess of bromide to the sample to be titrated, the hypochlorite behaves as hypobromite. The solution may be standardized against arsenic trioxide using Bordeaux as indicator, in acid or weakly alkaline solution. For the determination of ammonia (from 0.5 to 20 mg.) the mixture is allowed to stand 3 to 5 minutes with a slight excess of hypochlorite, then treated with potassium iodide and acid, and back-titrated with standard thiosulphate.—I. M. KOLTHOFF and V. A. STENGER. *Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 79. (E. G. V.)

Chlorate Ion—Rapid Test for. Qualitative and Approximately Quantitative Test Especially Suitable for Work with Plant Extracts. A method has been devised for the detection of small

amounts of chlorate which is especially suitable for work with plant extracts. Ammonium thiocyanate in test paper is oxidized by the chlorate compound with the production of yellow oxidation products of thiocyanic acid. The yellow coloration can be made roughly quantitative as well as qualitative by comparing the color of the unknown against the color of standard test papers. Under the conditions of the test the oxidation products consist largely of canarine and pseudothiocyanic acid, with small amounts of hydropseudothiocyanic acid and isoperthiocyanic acid. The sensitivity of the test and the influence of other constituents on the accuracy of the method are also discussed. Halogens, bromate and iodate, hypohalites, persulphates, peroxides and cupric salts give somewhat the same coloration of the thiocyanate test paper as the chlorates.—H. R. OFFORD. *Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 93. (E. G. V.)

Cholesterol—Quantitative Determination of Free, and as Ester without the Use of Digitonin. One cc. of serum is extracted with alcohol-ether by Bloor's method, dried and dissolved in anhydrous chloroform. Two standards are prepared one with cholesterol oleate equivalent to 1.6 mg. cholesterol, the other with 1.6 Gm. free cholesterol in 10-cc. chloroform. One cc. of a mixture of 25 volumes of sulphuric acid with 1000 acetic acid cooled to 0° is added. Colorimetric reading is made after 50 minutes standing at 0–2°. The solutions are compared with a 0.0025% solution of naphthyl green B. The color corresponds to the esters, while the free cholesterol gives only a very faint color which must be considered in the calculation of results. After keeping the solutions for 40 minutes at 38°, a second reading is obtained corresponding to the total cholesterol.—J. G. REINHOLD. *Proc. Soc. Exptl. Biol. Med.*, 32 (1935), 614. (A. E. M.)

Cinchona Bark Preparations—Production and Tests of. A comparative critical investigation of the useful methods for determining the alkaloid content of the cinchona preparations described in dispensatories and pharmacopœias. The report discusses the determination alkaloids of the bark of *Cinchona succirubra* with particular reference to the fineness of the powder used for extraction and the moisture content of the powder. The uses of the individual cinchona preparations and their alkaloids are also considered. For details, the original article must be consulted.—K. MATOLCSY. *Magyar Gyógyszerésztudományi Társaság Értesitője*, 10 (1934), 488–524; through *Chem. Zentr.*, 106 (1935), 595. (G. B.)

Citrine Ointment—Assay of. Following a brief historical introduction, the composition of the ointment is discussed. It is essentially mercuric nitrate solution mixed with elaidin containing basic oxides of mercury, mercuric oleate, palmitate, stearate and elaidate. In the experimental work, most of the suggested methods for ointments of mercury compounds were rejected because of their complexity and the time required. Strickland's method which treats the ointment with nitric acid and titrates the mercuric nitrate solution with potassium thiocyanate was tried. Results were low and variable, probably because the long time required to break down organic matter in the ointment permitted volatilization of mercury. A stronger oxidizing mixture seemed necessary and perchloric acid (Sp. Gr. 1.615), 1 part; fuming nitric acid (Sp. Gr. 1.49), 2 parts; and distilled water 2 parts was found satisfactory. The following method was developed: "Place about 5 Gm. of the ointment, accurately weighed, in a flask containing 50 cc. of the above acid mixture and reflux until a clear solution is obtained and the brown fumes are no longer distinguishable. Dilute the solution with about 20 cc. of distilled water, and pass it through a filter paper into a 100-cc. volumetric flask. Wash the funnel with sufficient distilled water to bring the volume up to 100 cc. Take a 20-cc. aliquot of this solution, titrating it with $N/10$ potassium thiocyanate solution, using ferric alum as the indicator, until a permanent reddish brown color is obtained. The condenser and flask used should be fitted with ground glass connections in order to avoid contamination and error which might occur from the action of the acid mixture upon either cork or rubber stoppers." Details of experimental work are reported and results are tabulated.—T. G. WRIGHT. *J. Am. Pharm. Assoc.*, 24 (1935), 102. (Z. M. C.)

Coffees, Decaffeinated—Caffeine Content and Value of, in Nutrition. The method used by G. and L. for the determination of small amounts of caffeine in decaffeinated coffee involved the following procedure: 25 Gm. of finely ground coffee are placed in a flask and moistened with 20 cc. dilute ammonium hydroxide (1 + 3) and then shaken intermittently for one hour. The product is then extracted with 300 cc. of ethyl acetate (100-, 100-, 50- and 50-cc. portions). The solvent is distilled off *in vacuo* over a water-bath. To the residue 5 cc. of 5% sulphuric acid are added and mixed for ten minutes; finally 40 cc. of distilled water are added and the solution is

raised slowly to boiling. One gram of paraffin is added and the mixture filtered. The filtrate is alkalinized with ammonium hydroxide and then 20 cc. of potassium permanganate (1:10) are added. The excess potassium permanganate is taken up by hydrogen peroxide. The resulting mixture is heated for 15 minutes on a water-bath, filtered and the precipitate is washed. The filtrate is extracted with four 20-cc. portions of chloroform. This extract, after the removal of the chloroform, yields silky crystals of caffeine. Analysis of four samples met the requirements of the food and drug decree of the French authorities and the other was slightly overstrength.—A. GUILLAUME and C. LEFRANC. *Bull. sci. pharmacol.*, 42 (1935), 14. (C. T. I.)

Copaiba Balsam—Examination of. Several samples of copaiba balsam of known purity and one of gurjun balsam were subjected to the tests prescribed in the various pharmacopœias. Van Itallie and Nieuwland's color reaction is not specific; the ammonia reaction for detecting fixed oils is inapplicable to mixtures of copaiba and gurjun. Vodge, Alcott and Turner's reaction for gurjun (blue coloration on pouring over sulphuric acid a solution in glacial acetic acid containing sodium nitrite) is fairly characteristic; it seems to depend on the presence of large quantities of cadinene, which is also present, but only in traces, in copaiba; in doubtful cases the test should be repeated and compared with the color obtained on a copaiba of known purity to which 1% gurjun is added. The samples examined had a specific gravity ranging from 0.958 to 0.990; the non-volatile residue varied within wide limits, but was always greater than 45%. The acid number varied from 62 to 92.5, the saponification number from 66 to 96, and the Wolff precipitation number (addition of water to an alcoholic solution of balsam) varied from 12 to 14 for copaiba and from 3 to 4 for gurjun. The essential oil separated on steam distillation of the balsam had an optical rotation of from $-7.50°$ to $-37.75°$ for copaiba and of $-69.30°$ for gurjun.—J. W. BIRZA. *Aan. P. van der Wielen* (1934), 76–90; through *Chimie & Industrie*, 33 (1935), 423. (A. P.-C.)

Copper—Determination of, in Organic Matter. Ansbacher's method, with some modifications, was used for determining copper in organic matter previously ashed. Instead of placing the crucible containing the copper sulphide in a glass triangle over a crystallizing dish, it is placed in a 50-cc. Erlenmeyer flask, the top of which has been cut off so that the crucible will fit into it to a depth of about 1.25 cm. A lip is also made in one side of the flask for pouring and rinsing out the copper nitrate and sulphate solution. The use of the Erlenmeyer flask decreases the danger from copper contamination, and loss of the sample due to the crucible tipping over. To dissolve the copper sulphide and evaporate the copper nitrate and sulphate solution the Erlenmeyer flask is placed on an aluminum water-bath which rests on an electric hot plate having aluminum top and sides. The hot plate is placed in a metal-free hood lined with asbestos sheet rock. Evaporation to dryness can usually be completed on the water-bath, but it may be necessary to place the flask directly on the hot plate for a few minutes. It is also desirable, as Ansbacher suggests, to have a glass plate over the crucible and flask to exclude copper contamination.—O. SHEETS, R. W. PEARSON and M. GEIGER. *Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 109. (E. G. V.)

Cyanide—Separation and Detection of. The apparatus consists of two 15 x 180-mm. test-tubes and a 100-cc. Erlenmeyer flask connected by rubber and glass tubing. Two-tenths Gm. of the substance to be analyzed for cyanide (or 3 cc. of a prepared solution, made by treating 3 Gm. of the substance with 50 cc. of 1.5*M* sodium carbonate, boiling for 3 minutes, and filtering) is introduced into the flask. The first test-tube contains 6 cc. of 3*M* hydrochloric acid, and the second, 10 cc. of 6*M* sodium hydroxide. A plug of absorbent cotton in the neck of the flask prevents any of the liquid from being carried over into the alkali. By slowly turning on the compressed air, the acid in the first test-tube is forced over into the flask. A slow stream of air is then allowed to bubble through the flask for 30 minutes. Any cyanide in the mixture is thus carried over into the second test-tube, where it is absorbed by the alkali. It is detected in this solution by means of the Prussian blue reaction carried out as follows: To the alkaline solution are added a few drops of a freshly prepared 1*M* ferrous sulphate solution, the mixture is heated almost to boiling and then thoroughly cooled. The solution is then carefully neutralized with 12*M* hydrochloric acid and a few drops of 1*M* ferric chloride solution are added. The formation of a blue precipitate or, with very small amounts of cyanide, of a blue or blue-green coloration indicates the presence of cyanide.—L. J. CURTMAN and S. M. EDMONDS. *Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 121. (E. G. V.)

Essential Oils—Estimation of Alcohols in. A report given by S. Sabetay at L'Academie

des Sciences in which he detailed a method of determining the content of primary and secondary alcohols, which reduces the time of estimation considerably, with results approximating very closely to those obtained by the process usually employed. This latter consists in acetylation with acetic anhydride by heating for two hours on a sand-bath in the presence of anhydrous sodium acetate. With the readily dehydratable tertiary alcohols, satisfactory results are only reached by formulation in the cold by means of a mixed aceto-formic anhydride—an operation taking at least three days on account of the slow esterification of these alcohols. In the preparation of acetates of tertiary alcohols the catalytic action of phosphoric acid has been used for the acetylation in the cold by means of acetic anhydride. To prepare the catalyzer 10 Gm. of orthophosphoric acid are mixed with 90 Gm. of acetic anhydride. The catalyzer keeps well in spite of the yellowish tint it develops after some time. Seven to 10 cc. of the essential oil for analysis are dissolved in 14 to 20 cc. of acetic anhydride, then 1 to 1.5 cc. of the catalyzer is added; it is only necessary to cool the container if the temperature due to the disengagement of heat should rise above 50° C. The mixture is left for 15 minutes, then 50 cc. of distilled water are added and the whole is heated over a water-bath for ten minutes, boiling and shaking frequently. It is now decanted and washed successively with 25 cc. of saturated brine, 25 cc. of brine containing 1 per cent of potassium carbonate, 25 cc. of brine and 15 cc. of water; in the case of cetyl alcohol only three washings with 50 cc. of hot water are necessary. It is then dried over sodium sulphate and hydrolyzed for an hour on the water-bath by alcoholic seminormal caustic potash. Two hydrolyses are made and the mean taken. A table showing the results obtained by the rapid acetylation compared with those by the ordinary method is given.—*Perf. and Ess. Oil Rec.*, 26 (1935), 44. (A. C. DeD.)

Identification Numbers of Drugs and Galenicals—V. Copper Numbers of Drugs Used Most. The reducing power (Copper Number) of 37 vegetable drugs in various forms using Fehling's solution are reported. Other data included in an elaborate table for these drugs are (1) % moisture, (2) ash content of air-dried and water-free drugs, (3) Copper numbers of air-dried and water-free drugs, (4) Inversion Copper numbers of the air-dried and water-free drugs and (5) Copper Number Quotients $\frac{\text{Cu No. In.}}{\text{Cu No.}}$.—J. A. MULLER. *Apoth. Ztg.*, 50 (1935), 93. (H. M. B.)

Indophenine Reaction—Use of, for the Identification of Some Organic Polyacids. Many acids form thiophene derivatives when heated with phosphorous trisulphide and consequently give the indophenine reaction. A small quantity of the acid is neutralized with Na_2CO_3, evaporated to dryness and mixed with phosphorous trisulphide. A drop of a solution of isatine in H_2SO_4 is added and the mixture is heated until vapors develop. A blue color is developed, when the reaction is positive. The latter is sensitive to 25δ with succinic acid, 25 with fumaric acid, 50 with maleic and malic acid, 100 with pyrotartaric acid and 250δ with tartaric and citric acid. The presence of glutaric, suberic, azelaic and sebacic acid disturbs the reaction. The addition of some drops of a 2.5% solution of lead acetate permits the performance by the method described, though the reaction is less sensitive. All acids which give the reaction can be destroyed with $KMnO_4$ with exception of pyrotartaric and succinic acid. This permits the investigation of the latter in mixtures.—José VÁZQUEZ SÁNCHEZ. *La Farm. Mod.*, 46 (1935), 58. (A. E. M.)

Lactic Ferments—Determination of Biologic Value of. The following method is given: Inoculate aseptically 500 cc. of sterile milk with an average sample of the product, or 4 ampuls, or 6 Gm., in the case of tablets or powder. Determine the acidity of 10 cc. of the mixture at the beginning, using 0.1*N* sodium hydroxide and 10 drops of 1% phenolphthalein. Incubate at 37° C. Note the rapidity of coagulation and the kind of curds formed. Determine the acidity after 6 hours of incubation. A table for comparison is given. The product should not give an appreciable reaction for catalase.—M. VAN HAUWAERT. *J. pharm. Belg.*, 17 (1935), 151. (S. W. G.)

Lacto-flavins—Optical Activity of. In neutral solution lacto-flavin is optically inactive. In alkaline solution it is levorotatory. In order to compare it with stereoisomers of synthetic flavins $C_{17}H_{20}N_4O_6$ it is important to know its optical activity under different conditions.

$$[\alpha]_D^{20} = \pm 3^\circ \ (2/N\ H_2SO_4)$$
$$[\alpha]_D^{20} = \pm 5^\circ \ (H_2O,\ N/100\ NaCl)$$

$[\alpha]_D^{20} = -114°$ (N/75 NaOH)
$[\alpha]_{C\ D}^{20} = -70.5°$ (N/75 NaOH)
$[\alpha]_D^{20} = -115°$ (N/10 NaOH)
$[\alpha]_{C\ D}^{20} = -60°$ (N/10 NaOH)
$[\alpha]_D^{20} = -110.5°$ (N/5 NaOH)
$[\alpha]_{C\ D}^{20} = -60°$ (N/5 NaOH)
$[\alpha]_D^{20} = -78°$ (1.4/N NaOH)
$[\alpha]_{C\ D}^{20} = -34°$ (1.4/N NaOH)
$[\alpha]_D^{20} = -123.5°$ (Molybdic Acid)
$[\alpha]_{C\ D}^{20} = -71°$ (Molybdic Acid)
$[\alpha]_D^{20} = +350°$ (Borax)
$[\alpha]_{C\ D}^{20} = +219.5°$ (Borax)
$[\alpha]_D^{20} = -59°$ (Glacial Acetic Acid)
$[\alpha]_{C\ D}^{20} = -370°$ (Glacial Acetic Acid)

The yellow [sodium] light optical activity is twice as great as that of the red (cadmium) light. There is a connection between the optical activity and light sensitiveness of lacto-flavin in alkaline solution.—R. KUHN and H. RUDY. *Ber.*, 68 (1935), 169. (G. B.)

Magnesium Carbonate—Analysis of. Eight samples of magnesium carbonate showed a magnesium oxide content varying from 41.8% to 48.5%. If we assume that $MgHC_6H_5O_7$ and $K_2HC_6H_5O_7$ or $Na_2HC_6H_5O_7$ are desired in the finished solution of magnesium citrate, the U. S. P. X formula has insufficient citric acid. The formula should probably be flexible and provide for varying amounts of magnesium oxide in the carbonate used. Precipitation logically takes place more rapidly and in greater quantity if a carbonate high in oxide is used. A more uniform product from standpoint of chemical composition and physiological action could be obtained by use of a flexible formula.—H. R. BOWERS. *J. Am. Pharm. Assoc.*, 24 (1935), 128. (Z. M. C.)

Medical Products—Tollens' Reaction in Analysis of. Tollens' reagent (Ammoniacal $AgNO_3$) gives reaction with a large number of reducing substances. Non-reducing admixtures usually do not interfere with the reduction of the reagent to metallic Ag. The determination of guaiacol in presence of terpinol and iodoform was studied. One molecule guaiacol corresponds to 2 atoms of metallic Ag. The assay should be performed with about 0.05 g. guaiacol. It gives rather accurate results (4% error).—R. SAN MARTIN CASAMADA. *La Farm. Mod.*, 46 (1935), 89. (A. E. M.)

Monosaccharides—Microchemical Detection of. Relatively large quantities of material are required for the characterization of monosaccharides. The sugar to be studied is placed with the reagent upon a microscope slide or in a glass capillary. After reaction is complete, the resulting crystals of hydrazone or osazone are covered on a slide with a cover-slip and washed under observation with a microscope. Recrystallization, in most cases, is superfluous. The melting point is determined after drying for 3 minutes. Micromelting points so determined are in agreement with the reported macromelting points. The identification of a sugar requires an average of about 1 mg. of sugar and may be finished in about $^1/_2$ hour. The same reagents are used as by macromethods.—P. FISCHER and W. PAULUS. *Arch. Pharm.*, 273 (1935), 83. (L. L. M.)

Morphine—Colorimetric Microdetermination of, in Opium, Its Preparations and in Morphine Syrup. The reagent is a solution of 140-Gm. anhydrous sodium carbonate, 20 Gm. disodium phosphate and 70 Gm. molybdic acid in 500 cc. water which is brought to one liter by the addition of 200 cc. nitric acid and water. If a morphine solution is to be tested, 10 cc. is mixed with one cc. of the reagent and a drop of nitric acid; after 10 minutes, 20 drops of ammonia water is added. A blue color develops which is in proportion to the morphine content and suitable for colorimetric comparison with a standard. Morphine hydrochloride syrup can be tested without extracting the morphine. Opium and its preparations are extracted with a calcium hydroxide solution. The solution is acidified, alkalinized with ammonia and extracted with a mixture of 8 parts chloroform and 2 parts secondary propyl alcohol. The mixture is evaporated and the residue is dissolved in hydrochloric acid. The solution is ready for the test.—J. A. SÁNCHEZ. *Semana médica* (Buenos Aires), 42, 1 (1935), 191. (A. E. M.)

Morphine—New Method for Determination of, Especially in Opium. The method depends upon the conversion of the alkaloid to a readily crystallizable derivative by means of 2,4-dinitro-

chlorobenzene. Two methods are described, the one cumbersome but affording a high degree of precision, the second simplified yet sufficiently accurate for the requirements of most pharmaceutical laboratories. The latter follows: 4.50 Gm. of finely divided opium are triturated with 1.5 Gm. of calcium hydroxide and 10 cc. of water. Thirty-five cc. of water are added, the mixture is agitated vigorously for $^1/_2$ hour and then transferred to a dry folded filter paper. To 26 Gm. of filtrate (= 2.50 Gm. opium), placed in a 100-cc. Erlenmeyer flask are added 38-Gm. methanol, then 7 Gm. of alkaline potassium oxalate solution containing in 100 Gm. 18.4 Gm. of neutral potassium oxalate ($C_2O_4K_2 + H_2O$) and 10 cc. of normal potassium hydroxide. The mixture is heated on a water-bath for $^1/_4$ hour and then is allowed to cool. Fifty-six Gm. of filtrate (= 2.00 Gm. of opium), obtained by filtering through a covered 8 cm. filter paper, are mixed with a solution of 0.6 Gm. of dinitro-chlorobenzene in 10 Gm. of methanol and 10 Gm. of water are added. The clear solution is set aside over night for crystallization. The precipitate is then collected on a pledget in a 5-cm. funnel, adhering mother liquor is removed with gentle suction and by washing with 5 cc. of methanol, followed by 5–10 cc. of water until the filtrate is neutral to litmus. The precipitate is washed with the pledget into a wide-mouthed, 100-cc. Erlenmeyer flask, 10 cc. of 0.1*N* hydrochloric acid is added and the mixture warmed on a water-bath until solution is effected. To the cooled solution are added 5 Gm. of sodium chloride, 3 drops of methyl red solution and sufficient water to bring the total volume to 50 cc. The excess acid is titrated with 0.1*N* potassium hydroxide. 0.11 is added to the required number of cc. of 0.1*N* acid to correct for the amount of morphine derivative remaining in solution. The total number of cc. of 0.1*N* hydrochloric acid required multiplied by 0.02852 gives the amount of morphine in 2 Gm. of opium. Methods are described also for the determination of morphine in simple solution, in mixed opium alkaloids, in Pantopon and in opium concentrates. The preparation and physical constants of morphine-2,4-dinitrophenyl-ether are given.—C. MANNICH. *Arch. Pharm.*, 273 (1935), 97.
(L. L. M.)

Narcotics—Detection of, in Sense of Opium Law. According to the law the following are listed: Cocaine, ecgonine and its esters, morphine, diacetylmorphine (heroine), benzylmorphine (peronine), dihydroxycodeine (Dicodid), dihydromorphinon (Dilaudid), dihydrocodeinon (Eucodal), dihydromorphine (Paramorfan), acetyldihydrocodeinon (acetyldimethylo-dihydrothebaine, Acedicon) thebaine, codeine, ethylmorphine (Dionin); also genomorphine and morphinamino-oxide, which are of little importance in Germany. Others of importance are Narcophin, Holopon, Laudanon and Pantapon. These substances may be divided into groups as a basis for their analytical separation: (1) Morphine and related bases and (2) Cocaine, its related bases and substitutes. If a small amount of the substance in question on a slide is dissolved in water and yields much precipitate with Mayer's reagent or with potassium iodide-iodine solution, the substance belongs to the two groups mentioned above. If only a little precipitate or a slight reaction occurs, this is due probably to adulterants or to preparations containing the above substances and in such cases the bases must be separated by the Stas-Otto process. If a strong reaction occurs with the above reagents, test a small amount of the substance with Marquis reagent using a small shallow porcelain dish or slide placed on a piece of white paper in order to observe color changes better. If *no color* arises, the 2nd group is present; group 1 produces a strong coloration immediately or in a few seconds. The groups designated may be further separated by the scheme outlined.—GRIEBEL. *Apoth. Ztg.*, 50 (1935), 15. (H. M. B.)

Nylander Test—Simple and Rapid Procedure for. The author found that since bismuth subnitrate is soluble in 50% sodium hydroxide solution, the potassium and sodium tartrate becomes superfluous. Such a solution of bismuth oxide in alkali will give a quick, fairly sensitive test for sugar in the urine. A few drops are heated with a drop of urine in a watch glass or test-tube. The sensitivity is easily 0.1% which is satisfactory for practical use.—K. SCHERINGA. *Pharm. Weekblad*, 72 (1925), 194. (E. H. W.)

Phosphorus Determinations—Rapid Method of Preparing Biological Materials for. In making phosphorus determinations on biological materials, the addition of perchloric acid during the sulphuric-nitric acid method of digestion decreases the time required for the digestion from hours to about 15 minutes. A water-clear solution is obtained. The method of digestion results in no loss and the phosphorus may be accurately determined on the solution volumetrically, gravimetrically or colorimetrically without interference.—H. W. GERRITZ. *Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 116. (E. G. V.)

Potassium Permanganate—Employment of Potassium Ferrocyanide in Standardization of Dilute. To each cc. of 0.01*N* potassium ferrocyanide add 2 cc. of *N* sulphuric acid and titrate with 0.01*N* potassium permanganate in the presence of 0.05 cc. of 0.1 per cent aqueous erioglaucine. Subtract an end-point correction of 0.012 cc. from the titer for the erioglaucine.—E. J. DE BEER and A. M. HJORT. *Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 120. (E. G. V.)

Pyrethrum Products—New Method of Analysis of. An investigation of the composition of the ether extract of pyrethrum revealed the presence of the following free acids: Mono- and di-carboxylic chrysanthemic acids, a resin acid having a neutralization no. of 300, protocatechuic acid, iso-valerianic, caproic, lauric, palmitic, oleic, linoleic and linolic (the fatty acids in very small amounts only); all these acids, except the phenol-carboxylic acids, are also present in the combined state, together with traces of acids very difficult to identify and which will be further investigated. The interference of free and fatty acids on present methods of determining pyrethrins is discussed at length, and a method which is based on the solubility in water of the barium salts of chrysanthemic acids, which overcomes the above-noted drawbacks and which is applicable to all products containing pyrethrum, is described in detail. It is essentially as follows: Saponify the pyrethrum extract with normal alcoholic potash, evaporate the alcohol under reduced pressure on the water-bath, take up the residue in distilled water, saturate with sodium chloride, add barium chloride, filter, acidify the filtrate with hydrochloric acid, extract the liberated chrysanthemic acids with ether, wash with sodium chloride solution, evaporate the ether, take up in a little alcohol and titrate total chrysanthemic acids with *N*/5 alcoholic caustic potash; acidify the titrated solution with excess normal sulphuric acid, steam distil and determine monocarboxylic chrysanthemic acid in the distillate by standard methods; the dicarboxylic acid is obtained by difference. The method was applied to the analysis of pyrethrum flowers cut at various stages of development, and showed that the pyrethrins contents varied very considerably at different stages, so that in accurate investigations the exact stage of development of the flowers must be specified. The pyrethrin I and II contents are substantially equal. The presence of methyl-pyrethrolone was confirmed.—J. RIPERT. *Ann. fals.*, 27 (1934), 580–595; 28 (1935), 27–38. (A. P.-C.)

Rotenone—Determination of, in Derris Root and Resin. The carbon tetrachloride method for determining rotenone has been examined. The method gives low results if the rotenone content of the resin is below 17 per cent, and is seriously in error if the rotenone content is below 10 per cent. The rotenone-carbon tetrachloride crystals are probably only 80 to 90 per cent pure.—R. S. CAHN and J. J. BOAM. *J. Soc. Chem. Ind.*, 54 (1935), 37T. (E. G. V.)

Sulphur—Determination of Small Amounts of, in Certain Organic Compounds. The authors of this paper have worked out a method in which they use an apparatus for spraying a jet of the substance mixed with air and carrying the spray into a specially designed combustion tube. Numerous examples of analyses are given and the results seem to be very satisfactory and the elaborate apparatus employed is well illustrated. The original article should, however, be consulted for details.—N. STRAFFORD and H. CROSSLEY. *Analyst*, 60 (1935), 163–169. (A. H. C.)

Sulphur—Oxidation of, in Organic Chemistry—Application to Determination of. A study was made of the action of various oxidizing agents on sulphur compounds such as mercaptans, disulphides, thio-ureas, thiocyanates, thiophenes, sulphoxides, sulphones, sulphonic acids and sulphamids. Results indicate that sulphur in the organic molecule can be satisfactorily determined in this manner. The procedure is as follows: A known weight of the substance to be analyzed (about 0.5 Gm.), 20 cc. of sodium hydroxide solution and 50 cc. of distilled water are introduced into a 1-liter flask. The mixture is cooled, and 25 cc. of 4% alkaline potassium permanganate is introduced. The mixture is agitated from time to time during one-half hour, and then heated (if organic compound is volatile, heating must be very gentle). The heating is maintained for one hour, during which time small quantities of permanganate solution are added until a red color persists. The mixture is then cooled, and excess hydrochloric acid is added. The excess chlorine is then expelled by heating. After washing down the apparatus with a little water, barium chloride solution (10%) is added until no further precipitation occurs. The precipitate is dried and weighed and the amount of sulphur calculated. Sodium hypobromite also gave very consistent results, and a modification of the technique employed in using this oxidizing agent is given. Results are tabulated.—C. LEFEVRE and M. RANGIER. *J. pharm. chim.*, 21 (1935), 151. (M. M. Z.)