PHARMACEUTICAL ABSTRACTS

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CONTENTS

TOXICOLOGY (*Continued*)

Sodium Bicarbonate—Effects of, on the Antipyretic and Toxicity of Acetanilid. Earlier work from this laboratory has demonstrated that acetanilid by mouth in doses of 12.5 mg. per Kg. is an active antipyretic in rats fevered by the injection of yeast. In normal rats the 50% acute fatal dose is 800 mg. per Kg. although 200 mg. per Kg. may be given daily for ten weeks without producing significant effects on the growth or blood morphology. One-half the fatal dose (400 mg. per Kg.) produces a significant retardation of growth and a decrease in the hemoglobin concentration and erythrocyte count with a rise in the % of reticulocytes. The effect of alkali on the antipyretic and toxic actions of acetanilid was determined by the addition of sodium bicarbonate in the molar ratio of two of bicarbonate to one of acetanilid. The minimal antipyretic dose of acetanilid was not changed. When bicarbonate was added to the 50% fatal dose of acetanilid (800 mg. per Kg.) there was only a 20% fatality, and the 50% fatal dose was now raised to over 1,000 mg. per Kg. The addition of bicarbonate did not prevent the changes in the blood produced by 400 mg. acetanilid per Kg. daily, but the growth retardation was slightly less.—PAUL K. SMITH. *J. Pharmacol. and Exper. Therap.*, 57 (1936), 142. (H. B. H.)

Strychnine. IV. Lethal Dose Studies on Cattle and Sheep. Literature on the subject is meager. Twenty-six cattle and 65 sheep were used in this investigation but conditions were adverse. Use of the animals was made possible through coöperation of governmental agencies concerned with administration of the cattle and sheep-buying programs in Idaho and Wyoming in 1934. Two major observations were made on each animal: the lethal dose and the rate and manner in which the animal accepted the ground squirrel poison which was the form of administration. Forced feeding had to be resorted to frequently. Results are tabulated and discussed. The following conclusions were reached: "1. Strychnine in the form of a 1 to 10 ground squirrel poison is not readily taken by either cattle or sheep. 2. There would be needed 1 pound 15 ounces of this 1 to 10 formula to carry a lethal dose for an 800-pound 'condemned' cow, and slightly more than 3 ounces for an 80-pound 'condemned' sheep. 3. The susceptibility of normal (healthy) animals might differ from that of 'condemned' animals. 4. Because of the slowness with which these animals accepted ground squirrel poison voluntarily, many of the tests reported were based on force-feeding methods. This system of administration excited the animals and tended to lower the lethal dose. 5. Because of the small bait spots used in ground squirrel control operations, to get a possible killing dose, a cow would have to pick up *all* the scattered grain from about 4 acres, and a sheep from 1 acre of range. 6. Properly exposed ground squirrel poison offers no hazard to cattle and only a slight hazard to sheep."—JUSTUS C. WARD and F. E. GARLOUGH. *J. Am. Pharm. Assoc.*, 25 (1936), 422. (Z. M. C.)

Toxic Substances—Endocrinian Localization of. Dogs were anesthetized with chloroform and killed by bleeding at the carotid; the organs were chopped fine under 95% alcohol, 10% of 50% tartaric acid was added to the mixture which was distilled into normal caustic potash solutions; the chloroform was decomposed by refluxing or in sealed tubes, and chlorine was determined by Nieloux's method. The results showed selective fixation of chloroform by the suprarenal cortex; the other glands also contained appreciable quantities and retained them for a long time after anæsthesia. The degree of fixation seems to be related to the lipoid content of the gland. Trichloroethylene also is fixed in considerable and approximately equal amounts by the liver, thyroid, testicles and suprarenals. Veronal is fixed selectively by the thyroid. Quinine (4-month fetus of a woman who aborted after taking quinine) shows selective fixation on the suprarenals. Chromium is fixed chiefly on the pituitary. The results are reported as per cent of organ substance, not on the basis of the total weight of the organ.—R. FABRE. *Congrès de Pharmacie (Liège 1934)*, (1935), 159–165; through *Chimie & Industrie*, 35 (1936), 891. (A. P.-C.)

THERAPEUTICS

Anemonin-Containing Plants—Peculiar Use of, in Africa. All species of the Clematis, Anemone, Pulsatilla and Ranunculus families may be regarded as containing anemonin, a lactone-like principle. The application of the crushed leaves to the skin for 20 to 30 minutes produces reddening and blisters which are slow to heal leaving a red-brown pigmentation. In the Belgian Congo, the natives drop one drop of the juice pressed from the fresh leaves of *Clematis vitalba* into each nostril for headaches. After preliminary symptoms of irritation as nasal catarrh, running

eyes, humming noises in the ears and flushing of the face which disappear in 4 to 5 minutes, the headache has disappeared.—J. MUSZYNSKI. *Scientia Pharm.*, 7 (1936), 72. (M. F. W. D.)

Arthritis—Colloidal Sulphur in. Treatment routines are outlined. Sulfur is indicated in all forms of arthritis. The effect of sulfur therapy is continuous and progressive. This report is based on close observation of 500 cases of chronic arthritis.—P. T. JOHNSON. *Clin. Med. and Surg.*, 43 (1936), 332. (W. H. H.)

Ascorbic Acid Metabolism in Tuberculosis. Increased ascorbic acid metabolism is manifest in tuberculosis.—FRED H. HEISE and GUSTAV J. MARTIN. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 642. (A. E. M.)

Barbital—Excretion of, in Normal and Nephropathic Subjects. The excretion of 1,125 mg. of sodium barbital (equivalent to 1 Gm. of barbital) taken by mouth on an empty stomach during a period of twenty-four hours was studied in 9 normal and 8 nephropathic human subjects. The twenty-four-hour excretion of this drug in the normal subjects averaged 14.3% (varying from 10.8 to 17.6%) whereas the excretion in patients with different renal diseases averaged 5.8% (varying from 3.2 to 8.7%). These results suggest (*a*) that there is a lag in excretion or retention of barbital in nephropathic individuals, which upon repetition of the dose is more likely to result in accumulation, and (*b*) that a diminished excretion of this drug indicates renal disease.—WILLIAM P. ARGY, CHARLES R. LINEGAR and JAMES M. DILLE. *J. Pharmacol. and Exper. Therap.*, 57 (1936), 113. (H. B. H.)

Bismuth—Oral Absorbable. Soluble sodium bismuthate, given by mouth or stomach, in solution or in capsule, is well tolerated and produces the actions of bismuth in animals and humans. Bismuthate is a stable, alkaline, electronegative complex; does not precipitate in acids and alkalies of the alimentary tract or with protein; absorption is prompt and rather uniform; bismuth occurs in all organs, including central nervous system; blood concentration of bismuth is of the order for antisyphilitic action; action in body is well sustained; excretion is chiefly in feces, and in urine attains amounts similar to intramuscular injection; antisyphilitic action occurs experimentally and clinically (late syphilis); fatal dosage is obtained in animals; therapeutic administration is safe. Soluble bismuthate is also effective intramuscularly, without local precipitation, and is well tolerated, the volume of injection being small. Convenience for both oral and intramuscular administration is an advantage of bismuthate; orally, supportive or continuance treatment for courses of intramuscular bismuth or other antisyphilitic medication, and possible prophylaxis.—P. J. HANZLIK, A. J. LEHMAN and A. P. RICHARDSON. *J. Pharmacol. and Exper. Therap.*, 57 (1936), 126. (H. B. H.)

Caffeine—Intravenous in Emergencies. The author reviews the literature and records sixteen cases, of which nine were examples of post-operative collapse, three of puerperal septicemia, and four of severe hemorrhage, in which excellent results were obtained by the intravenous injection of caffeine sodium benzoate in doses of 0.2 to 0.5 Gm., either alone or in a 20% solution of glucose. Only a single injection was given in each case. A considerable rise in blood pressure followed the injections, and was succeeded by a fall of varying degree, depending on the state of the patient's neurovegetative system.—P. FRASSINETI. *Il Policlinico, Sez. Prat.* (March 16, 1936), 479; through *Brit. Med. J.*, 3936 (1936), 1238B. (W. H. H.)

Calcium Creosotate—Studies on. New and Non-official Remedies states that the clinical use of calcium creosotate has seemingly demonstrated that relatively large amounts of this material may be administered without producing the undesirable gastric symptoms following the use of even small amounts of creosote. This is attributed to the possibility that calcium creosotate is absorbed and eliminated less readily than creosote. Data are presented showing that the creosote bodies of calcium creosotate solution are eliminated in rabbit urine in a manner entirely comparable with the elimination of creosote. This would indicate that the absorption of calcium creosotate is analogous to that of creosote. In a series of *in vitro* bactericidal and bacteriostatic tests, comparative figures for creosote, calcium guaiacolate and calcium creosotate are presented. For the strains of *B. coli communior*, *B. typhosus* and *Staphylococcus aureus* examined, calcium creosotate was found to be an effective bactericidal and bacteriostatic agent in decidedly higher dilutions than either creosote or calcium guaiacolate.—EDWIN J. FELLOWS. *J. Pharmacol. and Exper. Therap.*, 57 (1936), 122. (H. B. H.)

Camphor—Japanese, Synergetic Association with Boric Acid in the Treatment of Skin Diseases. Intimate mixture of equal parts by weight of camphor and boric acid gives a product

possessed of remarkable antiseptic properties. In the treatment of skin diseases it replaces advantageously preparations of zinc oxide, bismuth salts, etc. As a result of numerous tests it can be stated that the camphor-boric acid mixture is highly effective for the treatment of eczema, purulent wounds, erysipeloid inflammations, etc.—G. GANINO. *Boll. Chim. Farm.*, 74 (1935), 671–674; through *Chimie & Industrie*, 35 (1936), 1139. (A. P.-C.)

Cod Liver Oil—Action of, in Tuberculosis. The value of cod liver oil in tuberculosis is based on a stimulation of the lipolytic power of the digestive organs which leads to an easier destruction of the bacilli, and an increase of the oxidation-reduction processes.—LEONIDAS L. SILVA and ROBERTO CÁRCAMO. *Semana méd.* (Buenos Aires), 43, II (1936), 373. (A. E. M.)

Dental Anesthesia—Evipan Sodium in. The author commends the intravenous injection of evipan sodium for dental purposes on the score of simplicity of administration and the relative lack of contraindications. Vomiting is very rare with it, there is no effect on pregnancy, struggling is eliminated in alcoholic cases and it can be given to patients who have chest troubles or laryngeal obstruction. In young and healthy subjects the upright position in the dental chair is quite safe, but feebler patients should be kept lying down. The author lists the disadvantages as follows. Reasonably prominent veins are essential. The signs of overdose are not strikingly obvious; the patient may have a good color and pulse for some minutes after an overdose has been injected. Headache sometimes follows a moderate dose. The rate of recovery is slower than after gas, and the patient should not be allowed to go home unaccompanied. There is a great difficulty in estimating the necessary dosage. An extraction may be estimated in advance to necessitate only a minute's anesthesia, and some dental emergency may require prolongation of the unconsciousness; in such cases gas and oxygen should be given. The depth of anesthesia is uneven, being deepest immediately after the injection and then lightening as the drug leaves the circulating blood. Twitching of the limbs may occur at the onset, but is unlikely if the solution has been prepared five to ten minutes only before being used. The airway must remain free and the color should remain good. The awakening patient may show a lack of orientation, and patients should remain quiet for half an hour or more after returning to consciousness.—J. A. TREWICK. *Dent. Gaz.* (Feb. 1936), 331; through *Brit. Med. J.*, 3934 (1936), 1142C.

(W. H. H.)

Digitalin and Ouabain—Action of. The author discusses the views held about the ways in which digitalin and ouabain bring about their action in the body, and reports personal investigations designed to clear some of the disputed points. He used heart-muscle preparations, as first described by Loewe, the animals employed were guinea pigs and rabbits. The muscle preparations, especially rich in ganglion cells, were found to be much more reactive to the effects of ouabain than were muscle preparations of other parts of the heart, and the conclusion was reached that the action of this drug is through the sympathetic system, and not directly on the muscle fibres. The injection of ouabain was found to produce in animals a secretion of adrenalin by the suprarenal glands, raising the level of the blood sugar. The author thinks that his experimental conclusions, coupled with clinical observations indicate that ouabain acts principally on the sympathetic nervous system, with a special effect on that of the heart, and that some of the symptoms produced by poisoning with large doses may be due to this mobilization of adrenalin. It seems doubtful whether the action of digitalin is purely directly on the muscle, and also in this case the symptoms of poisoning appear to be due in considerable measure to a hypersecretion of adrenalin, the manifestations of which are a rise of blood sugar, acute pulmonary edema, renal changes and in animals paralysis of the posterior limbs. These manifestations were absent when the suprarenal glands had been previously removed.—O. SPUHLER. *Arch. des Mal. du Coeur* (March 1936), 207; through *Brit. Med. J.*, 3936 (1936), 1238B. (W. H. H.)

Digitalis Preparations—Therapeutic Uses of. The history of digitalis preparations is briefly surveyed and a discussion is presented of digitalysat-Bürger (containing digitoxin, gitalin and digitalis saponins), the therapeutic value of digitalis preparations, their dosage, symptoms of toxicity and contraindications, and specific indication for strophanthin.—E. E. BAUKE. *Munch. med. Wochschr.*, 83 (1936), 86; through *Squibb Abstract Bull.*, 9 (1936), A-230.

Dinitrothymol and Dinitrocresol—Antagonistic Action of, on Cellular Respiration. Concentrations of dinitrothymol, which alone have no respiratory effect, reduce the elevated rate caused by dinitrocresol.—G. H. A. CLOWES and M. E. KRAHL. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 565. (A. E. M.)

Edwenil—New Bacteriolytic Agent for Treatment of Pneumonia. The histories of ten cases of pneumonia (seven of lobar pneumonia and three of bronchopneumonia), treated with Edwenil are recorded, with a successful outcome in nine and fatality in one. In the one case that did not respond, Edwenil was used late (on the third day), and then for only twenty-four hours. The absence of local and general reaction following Edwenil therapy is a decided advantage, in comparison with both specific vaccines and foreign proteins. No anaphylactic reaction follows its use, even when the patient has been sensitized with horse serum. It will keep at room temperature for at least a year without deterioration. The cost is within the means of the average patient. The doses should be pushed during the first forty-eight hours of treatment, giving four cc. to adults every four to eight hours; then three cc. twice daily; and continuing with two cc. until the temperature subsides. In children under two years of age, half doses should be given. To be effective the treatment should be started as soon as possible after the diagnosis is made or suspected. In the author's opinion, this new polyvalent antibacterial agent represents one of the most effective therapeutic weapons in the management of lobar and bronchopneumonia.—L. SAXON. *Clin. Med. and Surg.*, 43 (1936), 329. (W. H. H.)

Hematoporphyrine—Value of, in the Treatment of Melancholias. The substance was given by mouth or injection. It is absolutely innocuous. Improvement was obtained in 78% of the cases treated.—ALFREDO SANTAMARIA, JULIO N. QUARANTA, OSCAR F. GAIBISSO and RODOLFO NELLI. *Semana méd. (Buenos Aires)*, 42 (1935), 1747. (A. E. M.)

High Blood Pressure—Atropine Treatment of. The authors treated 122 cases of vascular hypertonia by daily doses of 0.6 mg. atropine given orally; in two-thirds the blood pressure fell by more than 10 mm. Hypertonic subjects with a systolic pressure of 240 mm. or more showed a reduction of 70 to 80 mm., in combination with a notable improvement in the subjective symptoms. In hypertonia due to heart disease atropine treatment was found completely ineffective.—S. MURAKAMI and A. OKINAKA. *Jap. J. Med. Sci.* (Feb. 1936), Sec. 8, 89; through *Brit. Med. J.*, 3942 (1936), 210C. (W. H. H.)

Histidine in the Treatment of Gastric and Duodenal Ulcers. Results obtained in the series show at least a temporary loss of symptoms comparable to those obtained by ordinary medical treatment. It is doubtful if histidine has any healing effect on the ulcer directly, its action probably being a reduction in gastric acidity and a lowering of gastric motility. The ulcer therefore has a chance to heal as the irritative factors are removed with a consequent loss of symptoms. It does not seem possible that a lasting cure is to be obtained from histidine as from any other form of medical treatment for chronic ulcer similar to those in the cases recorded, but it is a form of treatment which gave satisfaction to both patient and physician.—R. H. GARDINER. *Lancet*, 230 (1936), 1352. (W. H. H.)

1-Hyoscyamine—Action of, on the Human Eye. 1-Hyoscyamine (0.25%) can replace atropine sulfate (1%) in eye treatment.—L. Y. BENSHTEIN. *Khin. Farm. Prom.*, No. 4 (1934), 45; through *J. Soc. Chem. Ind.*, 54 (1935), B., 700. (E. G. V.)

Insulin—Absorption from Application to the Skin. Under proper conditions insulin may be absorbed through the skin and produce a marked fall in blood sugar.—RALPH H. MAJOR. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 775. (A. E. M.)

Iodine—Treatment of Lead Poisoning with. The author has observed six cases of lead poisoning in his hospital in Oslo in the course of eleven years. The poisoning was invariably due to the inhalation of lead, which in his opinion plays at the present time a much more important part than lead poisoning by the mouth. All these cases were treated with potassium iodide with the object of hastening the elimination of the lead. The last patient of the six was an able-bodied man, aged 31, who had developed severe lead poisoning as the result of mixing dry lead paints over a considerable period. In the hospital he was given 20 minims of colloidal iodine three times a day. Three weeks after admission he was seized with convulsions, which lasted a couple of minutes and were associated with complete loss of consciousness. Two days later he sat up in bed with a cry and fell back dead. Neither the macroscopical nor the microscopical examination of the brain showed any abnormality, and the other organs showed only slight parenchymatous degeneration. The author considers this as a case of encephalopathia saturnina, the diagnosis of which has hitherto always depended on a process of exclusion. He is inclined to incriminate the iodine on the assumption that it may have mobilized a dangerous quantity of lead in the system. He refers to the experiences of H. Engelsen, who in his dealings with many cases of lead poisoning

in the Norwegian port of Horten has come to the conclusion the potassium iodide may provoke much more headache, giddiness and psychic disturbance in the subjects of lead poisoning than in other persons.—K. MOTZFELDT. *Norsk. Mag. f. Laegevid.* (May 1936), 269; through *Brit. Med. J.*, 3941 (1936), 162B. (W. H. H.)

Iron in Hypochromic Anemia. The author records sixteen cases of hypochromic anemia treated at the General Medical Institute of the University of Rome during the period 1931 to 1935 by the oral administration of iron in large doses. The preparation usually employed was reduced iron in doses of 2 to 4 Gm. daily; sometimes more was given according to the case and the tolerance of the individual. Ferrous carbonate was also used in doses of 3 to 5 Gm. daily, as well as the ammonia-citrate of iron in daily doses of 3 to 6 Gm. The iron treatment was combined with a diet rich in meat, green vegetables and fruit. Arsenic and iron extract may be employed at the same time but are not indispensable in hypochromic anemia. Treatment along these lines proved satisfactory.—F. CORELLI. *Il Policlinico, Sez Med.* (March 1, 1936), 105; through *Brit. Med. J.*, 3934 (1936), 1142B. (W. H. H.)

Laxatives. Constipation and its causes are discussed. Laxatives are classified and the following conclusions drawn: (1) Cascara and phenolphthalein are the two most desirable medicaments to be used as direct stimulants in the treatment of this disorder, (2) mineral oil is valuable as a lubricant, (3) agar and karaya are valuable as ballast and maintenance of moisture, (4) salines are indicated when a mild pleasant laxative is desired and administered as a pleasant effervescent drink.—L. STAMBOVSKY. *Drug and Cosmetic Ind.*, 38 (1936), 773–774. (H. M. B.)

Ouabain in Cardiac Affections. While ouabain has been chiefly employed as a treatment of urgency in acute cardiac dilatation and left ventricular insufficiency, the author maintains that it can be beneficial in other cardiac affections. These include the complete arrhythmia of arteriosclerosis, chronic myocarditis or inflammation of the coronary musculature, the sequels of myocardial infarcts, hypertensive cardiopathies, syphilitic or atheromatous aortitis, the cardiopathies of pulmonary sclerosis and thoracic malformations, and in valvular affections not reacting to digitalis. Intravenous injections of 0.25 mg. should be given daily for a more or less prolonged period (twenty to sixty consecutive injections). With these may be advantageously combined the daily administration of large oral doses of the drug (twenty-five to seventy-five minims of a 2% solution), repeated aspirations of effusions, subcutaneous injections of neptal or intravenous ones of salyrgan (to aid resorption of edemas), injections of glucose serum and insulin, and in daily doses of 1.5 to 2 Gm. of theobromine. Appropriate dieting and absolute rest are essential adjuvants. This treatment brings about great improvement in the patient's general condition and dyspnœa, and prolongs life. It is contraindicated when advanced renal lesions are present, if cardiac dilatation is complicated by bigeminism, polymorphous extrasystoles or ventricular disturbances, during the critical period (the first five days) of myocardial infarcts, and in old cardiac affections complicated by malignant infections, endocarditis or by coronary thrombosis.—E. BENHAMOU. *Paris Med.* (May 2, 1936), 375; through *Brit. Med. J.*, 3943 (1936), 268B. (W. H. H.)

Pelvic Sympathetic Nerves—Rossium Therapy of. Diphenylmethylpyrazolonyl (Rossium) produced symptomatic relief from pain and general nervousness in a majority of 65 patients treated, who had manifested evidence of irritation of the pelvic sympathetic. It would, therefore, seem that this drug is indicated in pelvic disorders where an irritation of the sympathetic nervous system is a factor.—D. W. TOVEY. *Clin. Med. and Surg.*, 43 (1936), 226. (W. H. H.)

Phenthiazine—Possible New Urinary Antiseptic. When phenthiazine, which is practically insoluble in water, is administered orally or gastrically to rats, rabbits and man, there appears in the urine a water-soluble product. This water-soluble substance is a reversible oxidation–reduction system, being red in the oxidized form and colorless in the reduced form. The potential of this system places it on the oxidation–reduction scale between Lauth's violet and 2,6-dibromphenol-indophenol. This reversible oxidation–reduction system confers bactericidal properties upon urine as shown by effects upon experimental cystitis in rabbits and by preliminary clinical trials. Acute toxicity of phenthiazine is so low that fatal doses have not been determined and therefore the margin of safety in therapeutic administration appears to be ample. However, prolonged administration of very high or extra therapeutic doses may produce variable degrees of fleeting anemia.—FLOYD DEEDS., JOHN O. THOMAS, C. W. EDDY and A. B. STOCKTON. *J. Pharmacol. and Exper. Therap.*, 57 (1936), 118. (H. B. H.)

Pregnancy Antigen. A neutralized, inorganic, alkaline hydroxide extract of placental tissue constitutes an antigen specific to the determination of pregnancy by intradermal injection.—BENJAMIN GRUSKIN, assignor to LAKELAND FOUNDATION. U. S. pat. 2,042,430, May 26, 1936. (A. P.-C.)

Prontosil in Puerperal Infections. A single dose of prontosil or protosil soluble given by stomach tube or subcutaneous injection did not suffice to save mice infected one to two hours earlier with hemolytic streptococci (Group A), but subcutaneous injections repeated daily for six days were usually effective—even against 100 to 1,000 minimum lethal doses. Such curative effects in mice were only obtained against hemolytic streptococci of very high mouse-virulence; they were not obtained with six strains of medium or low mouse-virulence, freshly isolated from human infections. A large subcutaneous dose (50 mg.) of prontosil in suspension protected mice against infection four days later with the highly virulent streptococcus. Protection after a longer interval was not tested, but absorption of the drug from the subcutaneous depot continued for at least three weeks, as adjusted by discoloration of the urine. Curative effects in mice (but not prophylactic effects) similar to those obtained with prontosil were obtained by repeated injections of the colorless compound *p*-aminobenzenesulfonamide. Thirty-eight puerperal fever cases infected by hemolytic streptococci have been treated by oral plus intravenous or intramuscular doses of prontosil. Subject to confirmation by further experience the impression has been gained that in many of the more severe cases the drug has exerted a definitely beneficial effect manifested by unexpected prompt fall of temperature and remission of symptoms; and this impression is supported by a substantial reduction in the case-mortality of the whole series. The clinical results with the mouse protection experiments support the view that further clinical trial is amply justified, and that there is more hope of controlling these streptococcal infections by the early administration of this or some related chemotherapeutic agent than by any other means at present available. While the drug has been well tolerated by most of the patients there have been transient toxic effects in some cases and many have shown indications of a mildly irritant effect upon the tissues of the urinary tract. Three cases have developed sulphemoglobinemia. There is at present no indication from animal experiments that the drug is likely to have a beneficial effect upon puerperal infections by organisms other than hemolytic streptococci; and in view of the toxic effects referred to above, its administration should be confined to such cases. Apart from the fact that the growth of the streptococcus is somewhat retarded (although not suppressed) in the serum of patients under treatment by the drug very little is known at present as to the nature of its antimicrobic influence in the animal body. On the one hand the invasive character of the streptococcus seems to be unchanged by contact with the drug or the serum of treated animals; and on the other hand, there is no evidence of any "immune-response" being evoked by it.—L. COLEBROOK and M. KENNY. *Lancet*, 230 (1936), 1281. (W. H. H.)

Quinine Chlorobismuthate, Bromobismuthate and Iodobismuthate—Treatment of Syphilis with, in Solution. The chemistry of these bismuth compounds is discussed. They were rendered soluble in water by the addition of certain organic substances. The three compounds are equally effective in the treatment of syphilis. The action is rapid but not of duration, for which reason combination with insoluble bismuth salts is recommended. The treatment is less dangerous than that with most other bismuth salts.—E. P. FIDANZA, F. CARILLO, J. M. M. FERNÁNDEZ, O. CALCAGNO and S. SCHUJMAN. *Semana méd.* (Buenos Aires), 43, I (1936), 1353. (A. E. M.)

Rheumatoid Arthritis—Gold Treatment of. Gold treatment was used in 374 cases of rheumatoid arthritis. Cure or marked improvement occurred in 78%, and slight improvement in a further 15%. Reduction in dosage has been followed by considerable reduction in the toxic reactions without sacrificing the therapeutic effects. There is no notable difference in the curative effects or toxicity between intravenous and intramuscular methods of administration. The maximum single dose should not exceed 0.1 Gm., and the total for each course not more than 1.0 Gm. All patients should have at least two courses, and the interval between courses should not be less than three months. Chrysotherapy is the most important form of treatment for rheumatoid arthritis.—S. J. HARTFALL and H. G. GARLAND. *Lancet*, 230 (1936), 1459. (W. H. H.)

Sangostop is a pectin preparation used as a hemostatic in surgery and is also used internally in stomach bleeding, etc. In place of the tampons of earlier times solutions were used to stop parenchymatous bleeding; the animal hemostatic ferments, coaguline, clauine, etc., were also used. Later it was found that centrifuged ox-blood plasma had the property of coagulating

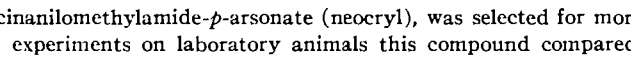
the blood in the operative wound into a gelatinous mass and thus stopping bleeding. The hemostyptic properties of the substances known as pectins and found in the cell walls of various fruits has been known in domestic medicine since the time of the Romans. In 1924 the pectins were used as hemostyptics by Violle and Saint-Rat. Their use was later clinically verified by other workers. Sangostop is a purified ester of lacturonic acid, freed from extraneous matter and obtained from vegetable hemicelluloses. It is made from the marc in cider manufacture and also obtained in other fruit industries. The coagulability of the blood is raised when it is taken by mouth, or injected intramuscularly or intravenously. As a local hemostatic a 5% solution is used. The ampuls contain 20 cc. of solution containing 0.3 Gm. of the pectin, 0.01 Gm. of calcium chloride and 0.14 Gm. of sodium chloride.—*Pharm. Weekblad*, 73 (1936), 737. (E. W. H.)

Sodium Chloride in Diphtheria. Consideration of the results leads to the conclusion that the administration of extra sodium chloride to a series of cases of diphtheria is associated with an improvement as compared with a series that does not receive extra sodium chloride. It may also be stated that the beneficial effect is present throughout the series and is not merely shown by an increase in the number of dismissals at the minimum period of treatment and by a decrease in the number of deaths, the changes in the intervening stages are hidden, because such a class of cases, for example, as "recovery with severe paralysis" will receive case from the class which would rank as "deaths after fourteen days' treatment," and simultaneously give cases to the class "recovery with mild paralysis," and thus will leave its own number with little obvious variation, when such a beneficial effect is at work.—A. MACLEAN. *Lancet*, 231 (1936), 131. (W. H. H.)

Sodium-Ethyl-Pentyl-Malonyl-Thiourea—Anesthetic Properties of. The substance, "Pentothal-sodium," has a sulfurous odor. It is soluble in water with a greenish color and has a strong alkaline reaction. The solution loses the odor after a week's standing. The toxicity is higher than that of pentobarbital-sodium, whereas larger doses are required to produce anesthesia.—MICHAEL G. MULINOS. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 506. (A. E. M.)

Sulfur Compounds—Action of Certain, on Coagulation of Blood. Cystine and methionine prolong the clotting time of blood *in vivo* as well as *in vitro*. Glycine, alanine and cysteic acid have no such effect. The effect is due to action on the prothrombin.—J. H. STERNER and GRACE MEDES. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 597. (A. E. M.)

Syphilis and Trypanosomiasis—New Arsenical for. As a result of examining the trypanocidal activity of a large number of arsenicals of the general formula



one, sodium succinanilomethylamide-*p*-arsonate (neocryl), was selected for more detailed therapeutic trial. In experiments on laboratory animals this compound compared favorably with tryparsamide in that it was found to be rather less toxic and of somewhat greater trypanocidal activity than the latter drug. In man neocryl was well tolerated in doses which is customary to employ for tryparsamide, namely, in weekly amounts of from 2 to 4 grams. The usual course consisted of the administration of this amount weekly until a total quantity of from 30 to 36 grams had been given. A number of patients had several such courses, the total quantity ranging from 66 to 141 Gm. while one patient had an uninterrupted course of 69 Gm. without showing any toxic symptoms. Apart from very occasional nausea and vomiting, the only toxic signs observed were mild arsenical dermititis in two patients and temporary jaundice in two or three very advanced cases of neurosyphilis after prolonged courses of the drug. Visual disturbances have not been encountered, but it would be unwise to assume that there is no risk of their production with neocryl, in view of the close chemical relationships of this drug to other pentavalent arsenicals known to produce such disturbances. In further trials, therefore, the same unrelaxed attention will have to be given to the possibility of this danger. Neocryl exhibited in a pronounced degree the stimulating action which one is accustomed to associate with tryparsamide and the other pentavalent aromatic arsenicals. In contrast with tryparsamide the new drug exerts a definite action in primary, secondary and tertiary syphilis. In primary syphilis neocryl by itself is inadequate since, although the lesion cleared up rapidly, secondary manifestations subsequently developed. When neocryl was combined with bismuth the effects on primary syphilis seemed to be more permanent, and so far none of the patients treated in this way have relapsed. Neocryl has a very definite action on tertiary manifestations of syphilis, the lesions disappearing

completely in twenty out of twenty-five cases. In early neurosyphilis and in tabes neocryl gave very satisfactory results. On eleven cases of Nigerian sleeping sickness treated by a single course of neocryl, it gave very satisfactory results, ten became clinically normal and the other was improved. Eight of these cases had at the time of treatment pathological spinal fluids; in three of them the fluid had become normal after the single course of treatment, in two it had become considerably improved; and in one pathological changes had apparently increased, although clinically the patient had become quite normal; the other two cases absconded owing to their clinical improvement before the completion of the treatment. In addition, a twelfth very advanced case, which had failed to react to very full courses of tryparsamide, of Bayer 205 and of antrypol, for some reason or other improved remarkedly after a course of neocryl. While, of course, it is too early to make any definite claims for neocryl in the therapy of syphilis and trypanosomiasis, they consider that they have produced sufficient evidence to show that the drug is of definite value in the therapy of these diseases, and that a more extensive trial is warranted.—W. YORKE, F. MURGATROYD, F. GLYN-HUGHES, H. M. O. LESTER and A. O. F. ROSS. *Brit. Med. J.*, 3933 (1936), 1042. (W. H. H.)

Tannic Acid—Effect of, on Intranasal Infection with Pneumococci. Tannic acid has no preventive influence in pneumococcus infection through the nasal mucosa.—HERALD R. COX and GEOFFREY RAKE. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 514. (A. E. M.)

Toxemia Medicament. A medicament for internal use in the treatment of toxemia comprises a dried inorganic gel of such a degree of fineness that 50 to 75% thereof will remain in suspension in water after 2 hrs., and 20 to 40% after 24 hrs.—DUDLEY H. WIGGINS, assignor to THE DAVISON CHEMICAL CORP. U. S. pat. 2,038,694, April 28, 1936. (A. P.-C.)

Tropacocaine Lumbar Anesthesia. The author recounts his experiences in a Danish hospital with 978 lumbar anesthesias induced with tropacocaine, supplemented by a preliminary injection of morphine and ephetonin. Contraindications were ages under 18 and a blood pressure over 180. Paradoxically enough the troubles did not begin until several hundred anesthesias had been given and the technic and dosage had, it seemed, been satisfactorily worked out. Then one mishap after another, including two deaths, supervened. The ages of the two patients who died were 67 and 68, respectively, and it may be that the dosage of tropacocaine had been too high for their ages. Other mishaps were headaches beginning a few days after the anesthesia, and in some cases causing protracted anguish. Occasionally nausea and vomiting but never paresis, were observed. The most disconcerting effect was the uncertainty of the action of the tropacocaine due to undetermined causes; the composition of the drug may not have been constant. After having given the drug in over 400 cases with uniform success, the author had several mishaps; in a series of 160 consecutive anesthesias there were twenty-seven which were unsatisfactory and eight which could be considered as complete failures. Had his disappointments come early instead of late in his tests with tropacocaine the author admits that he would assuredly have abandoned it. Now, however, he continues to use it, remarking that no narcotic or anesthetic is free from risks or shortcomings and that the problem is one of choice of evils. His indications for tropacocaine anesthesia at present are subumbilical operations, the only supraumbilical operation chosen for lumbar anesthesia being for perforated gastric ulcer, in young and strong patients. Those with hernias too large to be dealt with by local anesthesia are also given lumbar anesthesia which the author finds indispensable when operating on the bladder, prostate, vagina, perineum and lower limbs.—T. EIKEN. *Ugeskrift for Laeger* (March 12, 1936), 215; through *Brit. Med. J.*, 3934 (1936), 1142C. (W. H. H.)

Trypan Red in the Kidney Function Test as Described by Yasienski. Trypan red is completely retained by the healthy kidney. Passage of dye indicates albuminuria which is in proportion with the quantity of dye eliminated.—CARLOS V. ZERBINI and ANTONIO J. GHIBAUDI. *Semana méd.* (Buenos Aires), 43, I (1936), 1754. (A. E. M.)

Tuberculosis—Merthiolate Treatment of. No toxic effects were seen in any case. All except one case, in which the patient was probably beyond human aid, showed reduction or stabilization of the temperature after the exhibition of the drug, and in one case there was a gain in weight and subjective improvement. It remains to be decided whether the action of the drug (if any) on tuberculosis is merely due to the antipyretic properties of its salicylate component. The best means of giving the drug and the optimum dose also need to be determined. Accurate controlled work is not possible in the district hospital where this work was carried out, and it is hoped that

those in a more favorable position will carry this investigation further.—D. P. LAMBERT. *Lancet*, 230 (1936), 1176. (W. H. H.)

Viscum Album in Hyperpiesia. The author has had favorable results in asylum practice from the use of a proprietary preparation of mistletoe; it was not given for longer than three weeks together and was found to be well tolerated and non-toxic. Hypertension about the climacteric became diminished sometimes with an accompanying improvement in mental condition. Hyperpiesia complicating, but not casually connected with mental disease in old subjects became improved. *Viscum album* seemed most successful in the cases in which cerebral arteriosclerosis was deemed responsible for the psychosis; of these cases 60% showed notable improvement in mental condition as well as a reduction in blood pressure.—F. BALDOUF. *Med. Welt.* (Feb. 15, 1936), 234; through *Brit. Med. J.*, 3933 (1936), 1090C. (W. H. H.)

Whooping-cough—Gold Tribromide in. The author records his observations on 300 cases of whooping-cough, 212 of which were treated with gold tribromide in the form of an elixir known as elixir bromaurate. To the other eighty-eight the usual remedies for whooping-cough were given. The results were undoubtedly in favor of the gold treatment, which shortened the duration of the illness from months to weeks, reduced the violence of the spasms and gave the child considerable rest. Since gold tribromide is incompatible with many drugs, and is readily decomposed when dispensed in pills, capsules or aqueous solution, care should be taken to prescribe it in a reliable preparation.—J. EPSTEIN. *Arch. Pediat.* (June 1936), 52; through *Brit. Med. J.*, 3995 (1936), 1190B. (W. H. H.)

Wounds—Preparation for Protecting and Sealing. A hemostatic preparation capable of swelling when in contact with aqueous liquid, for mechanically sealing and protecting bleeding wounds, comprises gum tragacanth or carob-bean seed kernels powdered to pass through a 35-mesh and be retained on a 200-mesh sieve. With the wound secretions it forms a firm coherent coating mass which adheres strongly to the flesh of the wound.—KARL JUNGMANN. U. S. pat. 2,039,082, April 28, 1936. (A. P.-C.)

NEW REMEDIES

SYNTHETICS

Argidal (C. F. Boehringer and Söhne G. m. b. H., Mannheim-Waldhof) is a silver acetylsalicylic hexamethylenetetramine. It is used for the painless treatment of nasal and renal catarrhs.—*Pharm. Zentralh.*, 76 (1935), 754. (E. V. S.)

Flavadin (Curta and Co. G. m. b. H., Berlin) is a 2% solution of 3,6-diamino-10-methylacridiniumglycolaminophenylarsenic acid brought into solution by an excess of 3,6-diamino-10-methylacridinium chloride. It is used in the treatment of gonorrhœa by injection of 1–3 cc.—*Drug and Cosmetic Ind.*, 39 (1936), 117. (H. M. B.)

Selvoral (Bayer, I. G. Farbenindustrie A. G., Leverkusen) is the calcium salt of glucohexacitric acid containing 8.5% calcium. It is slightly soluble in water, tasteless and useful by oral administration for calcium deficiency, etc.—*Drug and Cosmetic Ind.*, 39 (1936), 117. (H. M. B.)

Tussaval Dragees (Chem. Fabr. Beringer G. m. b. H., Oranienburg) contain pure bromisovalerylguaiacol, a white powder, soluble in alcohol, insoluble in water, m. p. 69–70° C. In the intestines it splits into guaiacol and bromvalerianic acid and as such as a sedative expectorant. For cough 2 dragees 3–4 times a day are taken.—*Pharm. Monatsh.*, 17 (1936), 119. (H. M. B.)

Valotrat (Nordmark-Werke, Hamburg), *d*-α-ethylpropionyl diethylamide, is marketed in drops and pills. It is used for all forms of neurasthenia.—*Pharm. Zentralh.*, 77 (1936), 306. (E. V. S.)

SPECIALTIES

Aciletten (Chem. Fabrik J. A. Benckiser G. m. b. H., Ludwigshafen a. Rh.) are souring tablets containing citric acid. They are used for the preparation of acid milk for the artificial nutrition of infants.—*Pharm. Zentralh.*, 77 (1936), 256. (E. V. S.)

Calcipot "D" (Troponwerke Dinklage and Co., Köln-Mülheim) contains 28% of calcium citrate, 2% of calcium glycerophosphate, vitamin B and vitamin D equivalent to 30 Schutz unit

doses per 1 Gm. tablet. It is used as a preventative for rickets and scrofula, in childhood for bone building and during the teething period, to replenish the calcium needs of pregnancy and in diseases of the teeth.—*Pharm. Zentralh.*, 77 (1936), 256. (E. V. S.)

Calcium-Egger Powder (Eggochemia, Vienna, 19th dist.) is calcium gluconate and occurs in packages of 50, 100, 250 and 500 Gm.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

Carbon Tablets. A formula is given for *Tablettæ carbonis compositæ*, stated to correspond to Eucarbon tablets. It contains Carbo medicinalis, 190 Gm., Bolus alba, 60 Gm., Folium Sennæ pulveratum, 100 Gm., Sulfur sublimatum, 50 Gm., Extractum Rhei pulveratum, 20 Gm., Ætheroleum Menthæ Piperitæ, 30 gtt., Ætheroleum Foeniculi, 30 gtt., binder fluid, *q. s.* The formula for the binder fluid is: Mucilago gummi arabici, 100 Gm., Aqua destillata, 300 Gm., Spiritus concentratus, 75 Gm. Granulate through a No. 5 sieve, dry to convenient punching condition, compress about 65 centigrams per tablet and dry. Formula makes 1,000 tablets.—O. F. PETERSEN. *Arch. Pharm. og Chemi*, 43 (1936), 385. (C. S. L.)

Charcoal Pastilles (E. Vaillant & Co., Paris) are put up in packages of 35 pastilles containing in each 0.90 Gm. charcoal from poplar wood and 0.30 Gm. sugar.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Cidospermex (G. Arends, Fabrik pharm. Präparate, Chemnitz), a gonorrheal prophylactic, is composed of a delicate non-irritating mucilage, melting at body heat, and containing potassium *o*-oxyquinoline sulfate and sodium biborate.—*Pharm. Zentralh.*, 77 (1936), 305. (E. V. S.)

Colloidal Manganese. Manganous chloride (11 Gm. in 200 cc. of distilled water) is treated with 4.4 Gm. of sodium hyroxide in 100 cc. of distilled water. Gluconic acid (28 Gm. in 100 cc. of water) is added, the mixture is treated with 20 cc. of benzyl alcohol and made up to 1 L. with water. The hydrogen-ion concentration is adjusted and after 48 hours the mixture is filtered, and the filtrate sealed and sterilized in ampuls at not over 100° C. The human dosage is 1 cc. of the composition on the basis of 160 lbs. of body weight.—JOHN TORIGIAN, assignor to DRUG PRODUCTS CO., INC. Can. pat. 358,830, June 30, 1936. (A. P.-C.)

Consechin-Dragees (Dr. Geissler and Co., chem.-pharm. Präparate, Essen), for headache, arteriosclerosis and similar disorders, contain in each quinine hydrochloride 0.023 Gm., extract of gentian 0.05 Gm., iron albuminate 0.035 Gm. and ergot 0.012 Gm.—*Pharm. Zentralh.*, 77 (1936), 554. (E. V. S.)

Cremor Alkalinus is the name given to a series of preparations for the intensive alkaline treatment of gastric and duodenal ulcer. Creams having six different formulæ, lozenges and a powder are supplied. The standard cream A contains sodium bicarbonate 2 parts, magnesium carbonate 4 parts, calcium carbonate 4 parts, bismuth carbonate 1 part. Formula B contains sodium bicarbonate 2 parts, magnesium carbonate 3 parts, calcium carbonate 4 parts and bismuth carbonate 2 parts. This formula is for use when the standard formula is too laxative. Formula C is a bismuth-free preparation containing sodium bicarbonate 3 parts, magnesium carbonate 8 parts, calcium carbonate 12 parts. Formula F contains only calcium and magnesium carbonates in the proportions 4 to 1. In Formula D the sodium bicarbonate of the standard formula is omitted and replaced by more calcium carbonate. In Formula K 2 parts of kaolin replace the bismuth carbonate and 1 part of magnesium carbonate. A dessertspoonful of the cream is equal to 30 grains of alkaline powder, which is the average dose recommended. The lozenges contain 15 grains of the alkaline powder either A or C. Pulvis Alkalinus is prepared according to formula A. Cremor Alkalinus is supplied in 8-oz. and 80-fl. oz. bottles. The lozenges are supplied in small boxes, 8-oz. and 2-lb. bottles. The powder is issued in 4-oz. and 8-oz. bottles.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 158. (S. W. G.)

Desitinolan Solution. This product was erroneously described (Pharmaceutical Abstracts, 2 (1936), 334) as a 3% isotonic solution of trimethylethoxypropenylammonium bromide. There is no Desitinolan Solution. Desitinolan is an ointment manufactured by the Desitinwerk, Karl Klinke, Hamburg, containing cod liver oil, 0.03% organically combined chlorine, Adeps Lanæ and petrolatum. It is used for burns, ulcers, etc.—*Pharm. Weekblad*, 72 (1935), 568.

Dr. Arends Beinsalbe (G. Arends, Fabrik pharm. Präparate, Chemnitz), a remedy for leg ulcers, is a white, thick fluid ointment containing ethyl *p*-aminobenzoate, colloidal and precipitated sulfur, zinc oxide and plant oils.—*Pharm. Zentralh.*, 77 (1936), 271. (E. V. S.)

Duodentrat ampuls (Nordmark-Werke G. m. b. H., Hamburg) contain 5 cc. of a mixture of histidine, typtophane and other heterocyclic amino acids of the stomach and duodenum and

equivalent to 100 international vitamin C units. The preparation is used to allay the pain of stomach and intestinal ulcers.—*Pharm. Zentralh.*, 77 (1936), 305. (E. V. S.)

Ederma Skin Cream (Merz & Co., Frankfurt a. M.) is put up in packages of 30 and 70 Gm. and contains albumin and borax in a suitable base.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Elder Pith-Caustic Paste (Pharmadenta, Teplitz-Schönau) contains elder pith, arsenious acid, creosote, glycerin and anesthesin. It is marketed in packages of 6.5 Gm.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

Ensoletts (Dr. H. Remmlee A.-G., Fabrik pharm. Präparate, Berlin N) are specially coated tablets soluble in the small intestine where they exert their action. They contain either acetylsalicylic acid 0.5 Gm., phenylquinoline carbonic acid 0.5 Gm. or ammonium chlorate 0.5 Gm.—*Pharm. Zentralh.*, 77 (1936), 243. (E. V. S.)

Erbefan Tablets (Kusy and Berger, Vienna, 8th dist.) are put up in packages of 20 tablets which contain phenylcinchonic acid and glycocoll.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Erythoid is an active preparation of stomach tissue for the treatment of pernicious anemia, which can be used as an alternative to liver extract when that has become distasteful to the patient. It is supplied in boxes of 10 vials each containing 15 Gm. of desiccated material.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 158. (S. W. G.)

Esmodil (Bayer I. G.) is a 3% isotonic solution of trimethylethoxypropenylammonium bromide in water. The material itself is a white crystalline powder having a melting point of 169°. It is soluble in water and in alcohol. The ampuls (1 cc.) are employed intramuscularly or subcutaneously as intestinal tonics. These injections are used to obtain intestinal tonicity after stomach or intestinal operations or prostate operations. Within 15–30 minutes they show influence on intestinal peristalsis, which function is increased. If one ampul does not seem sufficient the contents of a half to one ampul may be injected additionally after three hours.—*Pharm. Weekblad.*, 72 (1935), 568. (E. H. W.)

Euphyllin-Dragees (Byk-Guldwerke, Berlin) are put up in packages of 15, each containing 0.15 Gm. of euphyllin.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

Gallertin Rieswerke (Chem.-pharm. Werke des Landes Steiermark, Graz) contains tannic acid and pectin in aqueous solution and is marketed in packages of 50 Gm.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Genovax is a sterile detoxicated antipyorrhœa vaccine which is prepared from bacteria isolated from recent cases. It contains in each cc. streptococci (many varieties) 15,000 million; staphylococci, 2,000 million; *micrococcus catarrhalis* 2,000 million; *bacillus proteus* 1,000 million. Genovax is supplied in courses of ten ampuls each containing 0.5 cc. The injections are made into the reflection of the mucous membrane, above and below the apices of the bicuspids. The first dose should not exceed 1 minim increasing up to a maximum of 6 minims, given at intervals of not less than 48 hours.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 159. (S. W. G.)

Gudron Guyot Capsules (E. Vaillant & Co., Paris) are put up in packages of 60 capsules. Each capsule contains 0.12 Gm. of Norwegian tar.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Guralgin (Walther H. Müller, chem. Präparate, Magdeburg) is a mixture of guarana, quinine bisulfate, phenylquinoline carbonic acid, acetylsalicylic acid, phenacetin, dimapyrine and caffeine. It is marketed in wafer form and used to relieve the pains of headaches, toothaches, painful menstruation, gall-stone, colic and childbirth.—*Pharm. Zentralh.*, 77 (1936), 305. (E. V. S.)

Gynichthol Globules (Œsterr. Ichthyol. Ges. Reith bei Seefeld, Tirol) contain leukichthol, antipyrine, potassium iodate, lactic acid, glycerinated gelatin, etc., and are marketed in packages of 10.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Haimo-Salbe (G. Arends, Fabrik pharm. Präparate, Chemnitz) is a hemorrhoidal ointment containing ethyl *p*-aminobenzoate, boric acid, tannic acid and extract of witch hazel in lanolin and vaseline.—*Pharm. Zentralh.*, 77 (1936), 256. (E. V. S)

Hedovalit forte (Asepiawerke Bayer and Kitz, Frankfurt a. M.) is a solution of œcoform 3 Gm. (combination of diethylbarbituric acid, phenylethylbarbituric acid and phenyldimethylpyrazolone), potassium bromate 5 Gm. and sodium phosphate 0.1 Gm. in 15 cc. of water. The

dose is 12 to 15 drops for sleeplessness, epilepsy and nervous disorders.—*Pharm. Zentralh.*, 77 (1936), 305. (E. V. S.)

Iocapral Tablets (Bayer, I. G. Farben A. G., Leverkusen) contain 0.06 Gm. prominal, 0.50 Gm. theobromine and 0.18 Gm. iodocalciumtriethanolamine and are put up in packages of 20.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

I-so-gel granules are a product of certain mucilaginous tropical seeds, in the form of fine, crisp, pink, almost tasteless granules. It is recommended as a purely mechanical laxative useful in many gastro-intestinal disorders and in diabetes. Doses up to 2 tablespoonfuls can be taken if necessary. It should be taken dry, or in a little water, followed by a tumblerful of water or other liquid.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 159. (S. W. G.)

Kaldrox is a pleasant tasting emulsoid of activated kaolin with aluminum hydroxide gel. It is an adsorbent compound for the treatment of gastro-intestinal disorders. It is claimed that it adsorbs products of putrefaction or infection and excess of acid. The usual dose is 1 teaspoonful to 1 tablespoonful, one and a half hours before meals. Kaldrox is supplied in 6-oz. and 12-oz. bottles.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 159. (S. W. G.)

Lobesym (C. H. Boehringer Sohn A.-G., Nieder-Ingelheim a. Rh.) occurs in 1-cc. ampuls containing in each 0.015 Gm. of lobeline hydrochloride and 0.1 Gm. of sympatol. It is used for collapse, pneumonia and in poisoning.—*Pharm. Zentralh.*, 77 (1936), 305. (E. V. S.)

Mascufemin Tablets (Gg. A. Reinecke, pharm. Präparate, Hannover), an aphrodisiac, contain yohimbine.—*Pharm. Zentralh.*, 77 (1936), 305. (E. V. S.)

Minomallon Tablets (Goda A. G., Breslau) is a combination product of dimethylaminophenazone and diethylbarbituric acid.—*Pharm. Monatsh.*, 17 (1936), 117 (H. M. B.)

Monsola nasal compound contains oleum picis (Mond) redistilled 0.25; eucalyptol, 1.0; camphor, 1.0; menthol, 0.25; liquid paraffin, 97.5. It is recommended as a safe, harmless germicide which kills all bacteria with which it comes into contact, besides soothing the membranes and increasing the flow of mucus. Owing to its colloidal nature it has high penetrative powers.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 159. (S. W. G.)

Neospiran (Chem. Fabrik Grünau Landshoff and Meyer A.-G., Berlin-Grünau), a restorative, is *o*-phthalic-bis-diethylamide. It is marketed in 2-cc. ampuls containing 0.1 Gm. in physiological salt solution, in 20-cc. ampuls containing 0.1 Gm. in 20% glucose solution, in suppositories containing 0.4 Gm. and in sugar-coated pills containing 0.2 Gm.—*Pharm. Zentralh.*, 77 (1936), 272. (E. V. S.)

New Remedies. Preparations that have recently made their appearance are as follows: **Ammoket,** for the mandelic acid treatment of urinary infections; **Benzedrine Tablets,** which contain β-phenylisopropylamine sulfate; **Oleum Percomorphum,** composed of refined liver oils of fishes of the percomorphi order; and **Scuroform Dental Solution,** a 10% butoform in glyceroalcoholic solution.—ANON. *Pharm. J.*, 137 (1936), 98. (W. B. B.)

New Remedies. The following remedies have recently made their appearance on the market: **Fortamin,** indicated in conditions of bodily weakness; **Magnocarbon,** a tablet preparation for gastric hyperacidity; **Paracascar,** a laxative petroleum emulsion with aromatic cascara sagrada; **Sebrex,** tablets of meat and vegetable extracts with sodium bromide.—ANON. *Pharm. J.*, 136 (1936), 676. (W. B. B.)

Nordalin A consists of a sulfoguaiacolic precipitate from the plasma of specially prepared animals together with Koch's tuberculin. Each tablet contains 0.0025 Gm. of active substance together with 0.00004 Gm. of tuberculin. **Nordalin B** consists of the plasma precipitate only, each tablet containing 0.035 Gm. of active substance. These two preparations with Recytel are recommended for the treatment of all forms of tuberculosis. A dosage of 6 to 9 tablets every other day of Nordalin B, with Recytel on the alternate days, is recommended for the first fortnight. In the following weeks one tablet of Nordalin A is given every third day. Nordalin A is supplied in phials of 12 and 100 tablets. Nordalin B is issued in bottles of 36 and 100 tablets.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 159. (S. W. G.)

Pheninox Tablets (Laboratorium Fromme, Halle-Saale), a remedy for sleeplessness, contain a combination of bromisovalerianylurea, phenylmalonylcarbamide, dimethylaminophenazone, sodium nucleinate, sodium and calcium inosithexaphosphate, calcium glycerophosphate and soluble chlorophyll.—*Pharm. Zentralh.*, 77 (1936), 272. (E. V. S.)

Phospho-Soda is a highly concentrated aqueous solution of mono-sodium phosphate, and

contains no syrup, glycerin or oil. It is recommended for use as an aperient, increasing peristaltic action and promoting the general functions of the liver, markedly increasing the biliary flow. The average dose as a laxative and liver stimulant is 1 teaspoonful before meals; as a purgative, 3 to 4 teaspoonfuls before breakfast; for hyperacidity, due to temporary constipation, 1 teaspoonful an hour after meals. The dose should be diluted with one-third of a glass of water, and followed by a full glass of water. Phospho-Soda is supplied in $2^1/_2$-fl. oz. and 16-fl. oz. bottles.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 160. (S. W. G.)

Piper-Iodine Ampuls (Intramuscular) (A. Löw, Vienna, 3rd dist.) contain in each 2-cc. ampul 0.0168 Gm. of monoiodohydrate of piperazine.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

Piper-Iodine Ampuls (Intravenous) (A. Löw, Vienna, 3rd dist.) contain in each 5-cc. ampul 0.0842 Gm. of monoiodohydrate of piperazine.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

Pricodin-Hustentropfen (Goda A.-G., Breslau) contains a new codeine salt (5%), namely, codeine in combination with the glycyrrhizinic acid of licorice, in combination with 0.5% of ephedrine and an extract of primrose, chestnut and thyme.—*Pharm. Zentralh.*, 77 (1936), 555. (E. V. S.)

Proskleran Tablets (Dr. H. Reiss and Ronge, Berlin NW), for arteriosclerosis and hypertonia, contain in each 0.0038 Gm. of iodine, 0.015 Gm. of theobromine sodio-salicylate, calcium lactate, monobromisovalerylurea and peppermint.—*Pharm. Zentralh.*, 77 (1936), 306. (E. V. S.)

Recytel is described as a lipoidogenous organic extract of the subcutaneous tissues, in combination with iron, phosphoric acid, magnesium and albumoses. It is used in conjunction with Nordalin in the treatment of tuberculosis.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 160. (S. W. G.)

Renodorm Tablets (G. Arends, Fabrik pharm. Präparate, Chemnitz), for sleeplessness, contain phenacetin, aminophenazone and phenylallylbarbituric acid.—*Pharm. Zentralh.*, 77 (1936), 257. (E. V. S.)

Rheumitren Ointment (Chem. Fabrik Promonts, Hamburg) contains dioxyquinoline, mustard oil, fenchyl salicylate and ointment base. It is marketed in packages of 20 and 35 Gm.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

Risinettes are pastilles containing althea root, menthol, eucalyptol, anise and fennel oils in a base of gum. They are recommended for the treatment of catarrh of the respiratory tract. They are claimed to be disinfectant and astringent, and to alleviate an irritating cough. One or two risinettes should be allowed to dissolve slowly in the mouth every hour.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 160. (S. W. G.)

Salepsi is supplied as pills or as a solution. One pill (or 25 drops of solution) contains phenylethylbarbituric acid 0.05 Gm.; cascara 0.10 Gm.; with antispasmodic vegetable extracts (datura, scopola, valerian). It is recommended for the treatment of epilepsy, and it is claimed that a much smaller dose of phenylethylbarbituric acid in this combination is effective. The dose is 1 to 6 pills per day, between meals, and is best taken in two doses, night and morning. The liquid form is convenient for administering to children.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 160. (S. W. G.)

Serocalcin is a sulfoguaiacolic precipitate from the plasma of immunized animals, with magnesium phosphate and calcium phosphate (dibasic) and glycerophosphate. Each tablet contains 0.035 Gm. of precipitate. Serocalcin is suggested for the prevention and treatment of colds and other respiratory affections. The prophylactic dose is two tablets daily for 30 days. In the treatment of colds the usual dose is 2 to 3 tablets three times a day, other infections are treated with 3 tablets increasing up to 6 tablets daily. Serocalcin is supplied in bottles of 20, 60, 100 and 250 tablets.—*Quart. J. Pharm. Pharmacol.*, 9 (1936) 160. (S. W. G.)

Silver Preparation for Therapeutic, Disinfectant and Sterilizing Purposes. An ionizable silver salt such as silver nitrate is treated in an alkaline medium with a manganese compound containing lower-valence manganese, such as manganous nitrate, to produce a composition containing finely divided silver and manganese dioxide in the respective molecular proportions of 2 to 1.—FRITZ FEIGL. U. S. pat. 2,040,806, May 12, 1936. (A. P.-C.)

Strophadenyl ampuls (Dr. Gg. Henning, chem.-pharm. Werk G. m. b. H., Berlin-Tempel-

hof) contain in each 1-cc. ampul 0.3 mg. of strophanthin and 10 mg. of muscle adenylphosphoric acid. It is indicated for use in angina pectoris and insufficient blood circulation.—*Pharm. Zentralh.*, 77 (1936), 306. (E. V. S.)

Thiopinol-Matzka-Einreibung (Chem. Fabrik "Vecheide," G. m. b. H., Braunschweig), a pine needle brandy rub, contains 0.056% of thiopinol sulfur and 2.699% of conifer ethereal oil It is used for rheumatism, gout and ischias.—*Pharm. Zentralh.*, 77 (1936), 257. (E. V. S.)

Urginin is a mixture in approximately equal proportions of two of the active glycosides of squill (*Urginea maritima*). This product was originally known under the name of Scillonin. The potency is estimated biologically to be 0.2 mg. per Kg. of cat weight (1 cat unit). It is recommended in cardiac decomposition, myocardial insufficiency and cardiovascular-renal disorders. Urginin is supplied in tablets containing 0.0005 Gm. ($^1/_{120}$ grain) and in a solution containing 1 mg. per cc.—*Quart. J. Pharm. Pharmacol.*, 9 (1936), 160. (S. W. G.)

Vasocor Ampuls (Eggochemia, Vienna, 19th dist.) contain in each 10-cc. ampul 0.0002 Gm. strophanthin, 0.20 Gm. theophylline and 0.15 Gm. hexahydro-*p*-diazine in 20% glucose solution.—*Pharm. Presse*, 41 (1936), 323. (M. F. W. D.)

Vestin Dragees (Wander G. m. b. H., Vienna, 21st dist.) contain in each 0.10 Gm. of diaminophenylazopyridine chloride. It is marketed in packages of 20 and 50.—*Pharm. Presse*, 41 (1936), 259. (M. F. W. D.)

BACTERIOLOGY

Alcohol—Germicidal Effect of, with Special Reference to Its Action on Bacterial Spores. Investigation by the authors confirms that of others indicating the potent germicidal effect of methyl, ethyl and iso-propyl alcohols in suitable concentration for vegetative bacteria and also their impotence against bacterial spores. It also shows how the lethal efficiency of alcohol for spores can be very considerably enhanced. With the addition of 1% of sodium or potassium hydroxide or of hydrochloric, nitric, sulfuric or phosphoric acids or of 10% amyl-*m*-cresol, either 70% ethyl alcohol or a suitable concentration of methyl or iso-propyl alcohol is capable of destroying numbers of bacterial spores in a few hours. A 10% solution of amyl-*m*-cresol in alcohol is obviously a very powerful lethal agent for bacterial spores which may have applications in sterilization, more particularly in cases where the use of acid or alkali is undesirable. The investigation was confined to the study of the possibility of devising solutions capable of sterilizing syringes, etc.; in the face of any contamination within the period usually elapsing between consecutive injections of a medication such as insulin, but where it is possible to employ periods of contact and perhaps raised temperatures a lower concentration of amyl-*m*-cresol would prove effective.—C. E. Coulthard and G. Sykes. *Pharm. J.*, 137 (1936), 79. (W. B. B.)

Anthrax Vaccination—New Procedure of. Sheep, inoculated subcutaneously with anthrax vaccine containing 0.2% gelose and 1.0% alum, were rendered immune after 6–8 days by a single injection.—Gaston Ramon and Andre Staub. *Compt. rend.*, 203 (1936), 132. (G. W. H.)

Bacteriophage and Bacterial Proteolytic Enzymes—Comparison of Precipitating Action of Basic Dyes on. Azin and thiazin dyes completely precipitate proteolytic enzymes as well as bacteriophage. This is considered as an evidence against the living nature of the bacteriophage.—Arthur W. Walker. *Proc. Soc. Exptl. Biol. and Med.*, 34 (1936), 726. (A. E. M.)

Diphtheria among the Immunized. The author states that among 360 children admitted to the Na Karlove fever hospital at Prague for diphtheria forty (11%) had been inoculated with anatoxin. One of these died, as compared with thirteen deaths among those who had not been inoculated. Of the forty immunized, twenty-seven had been given three injections; six had two injections, five had one injection and two had been inoculated by the nasal route ten months before the attack. The author concludes that in spite of three injections of anatoxin a child may contract a severe and even fatal attack of diphtheria. One-fifth of a unit of antitoxin per cc. of blood, however, is to a great extent a protection against diphtheria. If the antitoxin content of the blood is less, the disease may occur and the serious complications may develop. A negative Schick reaction merely indicates that the individual has at least $^1/_{10}$ unit of antitoxin per cc. of blood.—J. Prochazka. *Rev. d'Hyg.* (March 1936), 201; through *Brit. Med. J.*, 3940 (1936), 108A. (W. H. H.)

Diphtheroid Bacilli—Pathogenic Properties of. The author is satisfied that the test of virulence by subcutaneous injection of emulsions from pure cultures by the Ramon, Debre

and Thiroloix technic is of considerable epidemiological importance, although too slow for purposes of immediate diagnosis. Thus many tested strains of bacilli which from microscopical and cultural characters are indistinguishable from *B. diphteriæ* prove to be avirulent. Against the view that a non-pathogenic diphtheroid bacillus may become pathogenic, the author sets his findings: (1) that repeated subcultures give invariable findings on inoculation; and (2) that he has never been able to detect pathogenic bacilli in carriers or convalescents in whom the primary bacteriological examinations of the nasopharnyx had demonstrated the presence of a diphtheroid organism not virulent in injected guinea pigs.—C. AJO. *C. R. Soc. de Biol.*, 13 (1936), 1292; through *Brit. Med. J.*, 3942 (1936), 210D. (W. H. H.)

Filter—Bacteria-Proof, All-Glass. The advantages claimed for a new type all-glass, bacteria-proof filter are: (1) Avoidance of danger of metallic contamination. (2) Ready control of pressure employed, which should not exceed 160 mm. of mercury. (3) Compact nature of filter, which can be sterilized in a small autoclave. On the other hand, the volume of solution which can be passed through the filter is limited only by the size of the receiver. (4) Low cost—less than half that of the usual metal pattern.—F. WOKES. *Pharm. J.*, 136 (1936), 724. (W. B. B.)

Influenza Infection of Man from the Ferret. A case of influenza is described and the evidence that the infection was contracted from the ferret is presented. The immunological response of the patient to the virus infection has been studied. The practical significance of the results is discussed.—W. SMITH. *Lancet*, 231 (1936), 121. (W. H. H.)

Mercury—Bactericidal Action of. Having previously proved the intense bactericidal action of metallic mercury on certain microbes in suspension in water, the authors describe further experiments which prove that this metal possesses the same action on microörganisms, especially *B. coli*, present in continuously running water. Though not specially tested, the authors believe that a similar action would occur with such organisms as *B. typhosus*, the vibrio of cholera, *Brucella melitensis* and others. Since certain microbe strains normally present in water are less sensitive to the action of mercury, a strictly pure water cannot be obtained by this method. The bactericidal action of mercury is doubtless explained by the fact that the mercurialized water becomes endowed with an antiseptic property greater even than that of mercury itself.—M. LISBONNE and R. SEIGNEURIN. *C. R. Soc. de Biol.*, 122 (1936), 18; through *Brit. Med. J.*, 3939 (1936), 56B. (W. H. H.)

Mouth Washes and Tooth-Pastes—Antiseptic Action of, in Vivo. Report is made of experiments using *in vivo* observations, in an effort to evaluate mouth washes, tooth-pastes and tobacco smoke in inhibiting the growth of nasal and mouth flora of pathogenic microörganisms directly in the mouth. Mouth washings of several hundred students were examined bacteriologically over a period of four years. Methods are given and procedure discussed. Numerous conclusions were reached. The study supported clinical and dental evidence of the practical bactericidal value of the regular use of tooth-pastes and mouth washes in keeping down the usual mouth flora of pathogenic microörganisms.—ARTHUR H. BRYAN. *J. Am. Pharm. Assoc.*, 25 (1936), 621. (Z. M. C.)

Ointments and Related Products—Comparative Antiseptic Action of. Report is made of a study of the bactericidal activity of 80 well-known U. S. P., N. F., N. N. R., proprietary ointments, face and dental creams. Modified Reddish and United States Public Health "Cup and Smear" methods were used and details of procedure are given. Clinical observations were made where practicable. It is suggested that a tentative germicidal coefficient standard be adopted for testing antiseptic strength of ointments and related products. A table of Mercury Ointment Coefficients is given for 40 ointments. Conclusions are numerous. Some of the important ones are: lanolin and benzoinated lard are satisfactory bases for maximum antiseptic and diffusion activity; largest and most consistent inhibition zones were formed by various iodine and mercurial ointments; mercurial ointments did not deteriorate over a period of ten years; U. S. P., N. F. and proprietary iodine, phenol and salicylic acid ointments gradually lost antiseptic action; most commercial face creams showed no bactericidal activity, only two dental creams showed indication of antiseptic activity. The study indicated the necessity for having ointments freshly prepared excepting the mercurial ointments.—ARTHUR H. BRYAN. *J. Am. Pharm. Assoc.*, 25 (1936), 606. (Z. M. C.)

Quaternary Heterocyclic Urea Compounds Suitable for Combating Blood Parasites. Urea and thiourea derivatives, which contain the residue of a heterocyclic or aromatic-heterocyclic

compound containing a quaternary nitrogen atom in the nucleus, are prepared by standard processes. Numerous examples of the preparation of such compounds are given in the specifications.—FRITZ SCHÖNHÖFER and HANS HENECKA, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,042,023, May 26, 1936. (A. P.-C.)

Scarlet Fever—Active Immunization against. The authors during the recrudescence of an epidemic of scarlet fever in September and October 1934, vaccinated 8,748 children in the primary and infant schools in a district of Bucharest. The Dick test was performed before immunization in 7,868 children with the following results: 29% were positive, 4% doubtful and 67% negative. There were forty-one cases of scarlet fever, but only two among the Dick-negative and thirty-nine among the Dick-positive; only 5% of the Dick-negative patients contracted scarlet fever, and the test is therefore of considerable value as a measure of the degree of susceptibility to scarlet fever if the strict technic is used. A series of 6,870 children was inoculated with scarlitinal anatoxin in doses of 2.75 cc. for three injections or of 3 cc. for four injections. In the course of ten months, 13 cases of scarlet fever with one death occurred among those who had been inoculated. The antigenic properties of scarlitinal anatoxin do not therefore appear satisfactory, and the authors suggest that a trial should be made with other scarlitinal vaccines. V. I. Albesco (*Ibid.*, 293) investigated the incidence of scarlet fever in children with positive and negative Dick reactions, whether immunized or not, with the following results. Nineteen cases of scarlet fever occurred among 4,038 Dick-positive cases, which were grouped as follows. Eleven cases were found among 1,638 Dick-positive patients who had been immunized, eight among 2,400 children who had been immunized, three by a single injection, three by three injections and two by four injections. In a further group of 4,343 Dick-negative children two cases of scarlet fever occurred.—I. D. HORTOPAN and V. CIULIN. *Rev. d' Hyg.* (April 1936), 273; through *Brit. Med. J.*, 3942 (1936), 210A. (W. H. H.)

Staphylococcus—On a Dissociation of. In cultivating golden staphylococcus in bouillon T (Truche, Cramer and Cotoni), cultures were obtained which were sowed on gelose and after 24 hours' incubation colonies of two types were obtained: 1. Small ones, opaque and more or less dark yellow or gold (type A), 2. Larger and very white (type B). Although microscopically they appeared the same, the two types showed a number of different properties. Type A has an antigenic value superior to type B. This should be taken advantage of in the preparation of antistaphylococcic vaccines.—ANTHELME ROCHAIX and PIERRE RIVOLLIER. *Compt. rend.*, 203 (1936), 213. (G. W. H.)

Streptococcal Vaccine in Treatment of Arthritis. The author has treated in a Danish rheumatism clinic forty-four cases of subacute, subchronic and chronic arthritis of presumably infectious origin with a proprietary specific vaccine preparation. In every case the temperature was above normal both morning and evening. The dosage was gradually raised, the intramuscular injections being given at intervals of at least four days. The treatment made the patients very restless, and in many cases increased the pain in the joints involved, notably when large doses were given. Some patients show no response to this treatment. Its effect in many cases, perhaps the majority, on the local condition were non-existent. This lack of local objectively demonstrable improvement would have discredited this treatment but for its remarkable effect in another direction. In thirty-five of the forty-four cases the temperature fell to normal during or just after the completion of the injections; thirty-four of these thirty-five patients remained afebrile so long as they were kept under an observation, the average duration of which was over three months. The author has hitherto failed to discover why nine of his patients remained febrile while all the others promptly became afebrile in response to his treatment, but he is inclined to think that differences in the etiology of the arthritis may account for this lack of uniformity in reaction. At all events this treatment solved what is one of the greatest therapeutic problems in connection with arthritis of infectious origin. After the patient is febrile for months, and, although rest in bed until the temperature becomes normal seems as rational for arthritis as for tuberculosis, it is most difficult to persuade the patient to practice the necessary patience.—E. BRUUN. *Ugeskrift. for laeger* (April 2, 1936), 259; through *Brit. Med. J.*, 3940 (1396), 108B. (W. H. H.)

Surgical Dressings—Penetration of Heat into. In a vacuum autoclave, steam penetrates packages of surgical dressings almost instantly and it is quite unnecessary to leave the packages open or to arrange them loosely. The size of a package has a small influence on the rate at which it becomes heated at the center; numerous small packages tightly wedged together, however, do

not behave as a large unit, but heat almost as readily as if they were separated. The temperatures and pressures attained within the packages indicate that some superheating of the steam occurs, but reasons are adduced for considering that the material itself remains moist until the end of the sterilizing period. When packages of cotton are heated in an oven without added water, heating of the interior portions is partially effected by the condensation of steam generated from the hygroscopic water in the outer layers. Heating is therefore accelerated by wrapping the package and confining the steam, but later retarded by the re-evaporation of the condensed water. The atmosphere of wrapped packages of cotton which are heated in an oven consist not of air, but largely of superheated steam. Dry sterilization of cotton is a possible procedure. Bacteriological experiments confirm the physical conclusions.—R. M. SAVAGE. *Pharm. J.*, 136 (1936), 710. (W. B. B.)

Tetanus—Value and Duration of the Immunity Conferred by Tetanus Antitoxin in the Vaccination against. Figures are given to demonstrate the value of tetanus prophylaxis as administered to cavalry horses.—G. RAMON and E. LEMETAYER. *Compt. rend.*, 202 (1936), 1465. (G. W. H.)

Trichloroacetic Acid—Comparative Behavior of Endotoxins and Exotoxins with Respect to. Precipitation by trichloracetic acid appears to be more advantageous for the purification of diphtheria antitoxin than the use of hydrochloric or acetic acids. It appears to permit the separation of true exotoxins from the glucido-lipidic endotoxins which can be liberated in the culture medium as a result of autolysis of the bacteria.—ANDRE BOIVIN. *Compt. rend.*, 203 (1936), 284. (G. W. H.)

Typhus—Active Immunization against. The author records observations on 8,234 persons who had been immunized against typhus at Petitjean (Morocco) with a vaccine prepared from an emulsion of the organs (tunica vaginalis, spleen and left suprarenal) of male guinea pigs inoculated with murine typhus. Twelve Europeans who had been inoculated showed no vaccinal reaction and did not subsequently develop typhus. Among the Moroccans who had escaped inoculation three cases of typhus developed during the next fortnight. In the course of a month after inoculation twenty-four Moroccans classified as follows developed more or less severe febrile reactions: (1) persons who were in the incubation stage of typhus at the time of inoculation (three cases); (2) persons with a vaccinal reaction of a mild character (twelve cases); (3) persons who contracted typhus after inoculation before immunity was established (nine cases). Three weeks after the inoculation, which was completed in a single day, the epidemic of typhus was brought to an end.—G. BLANC. *Rev. d'Hyg.* (April 1936), 252; through *Brit. Med. J.*, 3943 (1936), 268B. (W. H. H.)

Yellow Fever—New Demonstration of the Efficacy of the Vaccination against. A subject who had not previously had the disease was vaccinated and seven months later voluntarily submitted to the bites of yellow fever mosquitoes. Two monkeys, unvaccinated, bitten by the same mosquitoes, died of yellow fever. The vaccinated subject resisted.—ANDREW WATSON SELLARDS and JEAN LAIGRET. *Compt. rend.*, 202 (1936), 1467. (G. W. H.)

BOTANY

Drugs—Cultivation of. An address by the Chairman of the British Pharmaceutical Conference 1936 on drug cultivation, modern agriculture, peasant farming and changes due to cultivation.—H. DEANE. *Pharm. J.*, 136 (1936), 703. (W. B. B.)

Ocimum Gracile—Experiments on Its Cultivation in Belgian Congo. An account of experiments carried out during 1930 at the Botanical Gardens at Eala on the cultivation of different species of Ocimum. The best yield of oil (0.286% on the green material) is obtained from the flowering heads that have been dried in the sun before extraction. The acidity, saponification and acetyl values and the aldehyde and phenol contents increase considerably when the material is allowed to dry before distillation. It would seem that acids, esters, alcohols, aldehydes and phenols are formed during desiccation at the expense of the terpenes, which are present in larger amounts in oil obtained by distillation of the fresh plant.—H. CASTAGNE. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 210-215. (A. P.-C.)

Santonin in English and Welsh Artemisias. Santonin was found to be present in all of the 27 British populations of *A. maritima* and *A. gallica* examined. One sample yielded 1.24%. *A. maritima* would appear to produce a slightly higher proportion of santonin than does *A. gallica*

at the same stage of growth and growing in the same locality. A seasonal variation in santonin content, similar to that reported of the Scottish plant, was found to exist in the 2 English populations examined for this purpose. Evidence that the soil, alone, or in conjunction with other factors, affects the production of santonin, is incomplete, but it has been suggested that salinity of the soil may, and it is probable that it does, have a more or less marked effect.—J. COUTTS. *Pharm. J.*, 136 (1936), 709. (W. B. B.)

CHEMISTRY

GENERAL AND PHYSICAL

Distillation—Theory of, Some Aspects of. A theoretical discussion of the aspects of distillation intended to supplement an article published in a special number of the *Perfumery Essent. Oil Record*, June 1920.—A. LESLIE BLOOMFIELD. *Perfumery Essent. Oil Record*, 27 (1936), 131, 177, 294. (A. C. DeD.)

INORGANIC

Arsine—Evolution of. The theoretical conditions of formation of arsine, its physical and chemical properties, stability, conditions of formation in industry, detection and determination are reviewed. Some of the various factors affecting the rate of evolution (acidity of the solution, arsenic content, temperature, order of mixing of the ingredients, presence of various metals such as cadmium or copper) were studied experimentally under various conditions. It is concluded that the evolution of arsine in any industry should be determined under the conditions actually prevailing in that particular industry and appropriate precautions should be taken to safeguard life.—G. BATTA, EDM. LECLERC, R. HAUX and M. BREVERS. *Ind. Chim. Belg.*, 7 (1936), 225–238. (A. P.-C.)

Drug Ash—Composition of. I. The Ash of Spanish Bearberry Leaves. The authors have run a rather complete analysis of 135 Gm. of ash obtained from 4.5 Kg. of bearberry leaves. They have included an outline of their procedure and indicated the confirmatory tests applied. They found the following in the ash of bearberry leaves: cations—lead, mercury, antimony, tin, copper, nickel, iron, manganese, chromium, titanium, aluminum, zinc, calcium, barium, magnesium, potassium, sodium and ammonium; anions—chloride, fluoride, sulfate, nitrite, phosphate, borate, silicate and carbonate; in unknown linking—arsenic, molybdenum and vanadium; and traces of unknown compounds of—lead, mercury, antimony, tin, arsenic, zinc, chromium, fluoride, molybdenum and vanadium.—L. ROSENTHALER and G. BECK. *Pharm. Acta Helv.*, 11 (1936), 186. (M. F. W. D.)

ORGANIC

Alkaloids

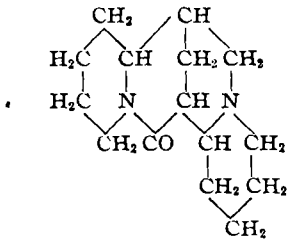
Alkaloidal Iodoaurates—Microchemistry of. The technic of the preparation of alkaloidal iodoaurates for microscopical examination is described. In alcoholic solution aconitine salts give highly refractive lemon-yellow rectangular prisms. Atropine gives a brown precipitate consisting of rhombohedral crystals. Brucine gives twinned crystals and strychnine acicular crystals. Characteristic crystals are also obtained with other alkaloids (narceine, papaverine, etc.). Ptomaines and leucomaines (digitalin, etc.) do not form precipitates. The method is of considerable interest from the toxicological standpoint, especially for aconitine which has but few characteristic reactions.—N. CARRERO NINE and V. PESET LLORCA. *Cron. Med.* (*Valencia*), 34 (1935), 907–917; through *Chimie & Industrie*, 35 (1936), 1134–1135. (A. P.-C.)

Camphosulfonic Salts of Some Alkaloids. One molecule of ethylhydrocupreine or optochin combines with two molecules of camphosulfonic acid to give an anhydrous crystalline compound. Quinine reacts in molecular proportions with camphosulfonic acid to give a crystalline salt with nine molecules of water. Quinine camphosulfonate has remarkable pharmacodynamic properties; to the tonic properties of camphor it associates the antithermic and chemotherapic properties of quinine.—D. FUSCO. *Boll. Chim. Farm.*, 76 (1935), 585–587; through *Chimie & Industrie*, 35 (1936), 1134. (A. P.-C.)

Lupine Alkaloids. The synthesis of 5:5′-dimethyldi(1:2)pyrrolidine, one of the structures for norlupinane, is reported. Ethyl 2-methylpyrrole-5-acetate was prepared by adding diazoacetic ester to 2-methylpyrrole and copper bronze. The ester was catalytically hydrogenated and condensed with ethyl α-bromopropionate to form ethyl 2-methylpyrrolidine-5-acetate-1-α-propionate. The Dieckmann ring closure of this resulted in 4-keto-5:5′dimethyldi(1:2)-pyrrolidine ($C_9H_{17}N$, b. p. 25°/1 mm., picrate m. p. 249°).—G. R. CLEMO and T. P. METCALFE. *J. Chem. Soc.* (1936), 606–607. (G. W. F.)

Opium and Its Alkaloids. A description of the methods used in Asia Minor for extracting opium from *Papaver somniferum*, of the subsequent treatments of the drug and of the manufacture of the alkaloids obtained from it.—M. LAPINE. *15me Congrès de Chimie Industrielle* (*Bruxelles, 1935*), (1936), 111–118. (A. P.-C.)

Oxysparteine—Synthesis of. Ethyl pyridyl-2-acetate was condensed with ethyl orthoformate in the presence of acetic anhydride to produce 1-carbethoxy-4-keto-3-(2′-pyridyl)-pyridocoline (m. p. 126°, $C_{17}H_{14}O_3N_2$). This was catalytically hydrogenated to yield a gum which on distillation gave an oil, b. p. 200–210°/1 mm., $C_{17}H_{28}O_3N_2$: 1-carbethoxy-4-keto-3-(2′-piperidyl)-octahydropyridocoline. Treatment of the gum with sodium and alcohol followed by water and acid yielded, upon basification and extraction with alcohol, a lighter colored gum. This was treated with phosphorus pentabromide and the product heated in a sealed tube with anhydrous potassium carbonate. Crystallization of this product yielded *dl*-oxysparteine (m. p. 110–111°) which was identical to the product of alkaline ferricyanide oxidation of *dl*-sparteine. Thus, oxysparteine was proved to have the following structure:



—G. R. CLEMO, W. McG. MORGAN and R. RAPER. *J. Chem. Soc.* (1936), 1025–1028. (G. W. F.)

Papaverine—Phenylethylbarbiturate of, Pavemal. Papaverine phenylethylbarbiturate (pavemal), produced by combination of one molecule of phenylethylbarbituric acid with one molecule of papaverine, is obtained by mixing equimolecular solutions or suspensions of the two constituents and heating gently on the water-bath, and then allowing to crystallize. The two ingredients can also be fused together, but the product obtained is not so pure and is colored yellow. Pavemal crystallizes in small, brilliant white needles, melting at 145° to 146° C., is practically insoluble in cold water, and more soluble in hot water, but with hydrolysis. The melting curve of the luminal-papaverine system proves that pavemal is a true molecular combination of the two constituents. Aqueous solutions of pavemal, when treated with hydrochloric acid, give a white precipitate of luminal and the papaverine remaining in solution can be recovered after addition of ammonia.—A. MOSSINI and G. RECORDATI. *Boll. Chim. Farm.*, 74 (1935), 638–639; through *Chimie & Industrie*, 35 (1936), 1139. (A. P.-C.)

Senecio—Alkaloids of. Purification should be checked by optical activity; melting point is no criterion of purity. Pure senecionine is more readily obtained in April or September; summer alkaloids consist of senecionine with another base. The alkaloid senecionine was obtained from *Senecio viscosus*, *S. vulgaris* and *S. squalidus*. The alkaloid was obtained by extracting the drug, previously mixed with 5% calcium hydroxide, with 90% alcohol, concentrated, mixed with dilute hydrochloric acid, filtered, washed with ether, basified with ammonia and extracted with chloroform. After purification, the pure alkaloid had the following constants: m. p. 232°, $[\alpha]_D$ −54.6°, −55.6° (c = 1.63 and 4.60, respectively, in chloroform), soluble 340 parts alcohol (15°), very slightly in water and ether, readily in chloroform, sublimes slowly at 130–140°/0.2 mm., rapidly at 190°. Hydrolyses: $C_{18}H_{25}O_6N + H_2O = C_8H_{13}O_2N + C_{10}H_{14}O_4$. The basic product is retrorsine (m. p. 118°, $[\alpha]_D$ +52.1 — +52.2°); the acid portion, named senecic acid, (m. p. 153°) is an unsaturated lactonic acid; it is reduced to dihydrosenecic acid ($C_{10}H_{16}O_4$),

m. p. 106°. Upon oxidation with nitric acid, an acid, $C_6H_8O_4$ (m. p. 142°), was produced. *S. viscosus* yielded no subsidiary alkaloid. *S. vulgaris* contained one not yet separated. *S. squalidus* yielded a minute quantity of a new alkaloid, squalidine (m. p. 169°), $[\alpha]_D^{16}$ −26.9° (c = 1.45 in chloroform), $C_{18}H_{25}O_5N$. It yielded in addition to retrorsine, squalinecic acid (m. p. 129°) which was also unsaturated and acyclic.—G. BARGER and J. J. BLACKIE. *J. Chem. Soc.* (1936), 743-745. (G. W. F.)

Trichodemia Incanum—Alkaloids of. The plant *Trichodema incanum* DC., which grows in Central Asia, was dried, macerated and exhausted with 1% ammoniacal alcohol, the percolate mixed with 3% hydrochloric acid and this followed with 25% hydrogen chloride in chloroform. After the chloroform was distilled off a brownish oil was obtained which represented about 0.1% of the plant used; when the same yield was recrystallized from petroleum ether and acetone, only 0.075% of a crystalline alkaloid was obtained. The alkaloid was named trichodesmin (I) $C_{18}H_{27}O_6N$: separated in prisms from acetone m. p. 160–161°; slowly soluble in benzene and ether, soluble in water, very readily soluble in alcohol and chloroform; the water solution of the alkaloid when tested with litmus was strongly alkaline; $[\alpha]_D$ = +38. The iodomethylate, $C_{18}H_{27}O_6N.CH_3I$, separates in needles, m. p. 202°; when decomposed it contains two hydroxyl groups and a tertiary N-atom. When heated with 10% NaOH it forms trichodesmin (II) $C_8H_{23}O_2N$; crystallizes from acetone solution, m. p. 117–118°; $[\alpha]_D$ = +50° (in 10% methanol); slowly soluble in water and alcohol, almost insoluble in ether and benzene; decolorizes potassium permanganate instantly; the picrate separates out in yellow needles m. p. 142–143°. Further, a racemic form of lactic acid was also obtained as quinine and methylisobutylketone salts; a semicarbazone $C_7H_{15}ON_3$, m. p. 133–134°. The last named compound can only be formed following a ketonic decomposition of a corresponding β-ketonic acid; as such to be taken in consideration also is the formation of α-isopropyl acetic acid (**III**) or the isovaleryl acetic acid (**IV**). (**I**) is also a complicated ester of the 2 hydroxyl groups obtained from (**II**) and its two acids, of which one is a racemic lactic acid, while the other is a derivative of either (**III**) or (**IV**). Oxychodesmidan, $C_8H_{15}ON$, is obtained from (II) on reduction only; separates out from petroleum ether in crystalline form; m. p. 92–94°; soluble in water and organic solvents. The picrate, $C_8H_{15}ON.C_6H_2(NO_2)_3OH$, forms yellowish needles; m. p. 211–212°. It loses one molecule of water when reacted with sulfuric acid and becomes an unsaturated base; m. p. 164–167°; when this compound is further reduced it yielded heliotridan, identified as picrate and iodomethylate. Thus it is assumed that (II) and heliotridin have the same C-atom structure and differ only in the position of the hydroxyl groups and double bonds.—G. MENSCHIKOW and W. RUBINSTEIN. *Chem.-Zentralb.*, 107 (1936), 558. (G. B.)

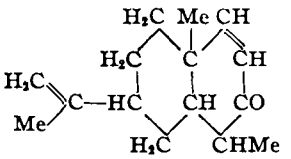
Essential Oils and Related Products

Azulenes. Within recent years it has been possible to prepare azulenes and their derivatives in a state of purity, and show that they have the empirical formula $C_{15}H_{18}$. Azulenes are hydrocarbon compounds which impart a blue or similar color to certain essential oils, notably German chamomile, or can be produced from sesquiterpenic fractions of others. They are related to certain sesquiterpenes and sesquiterpenic compounds from which they can be obtained. Azulenogenic sesquiterpenes have been shown to be present in very many essential oils, where they can be detected by the color produced by a chloroform solution of bromine or other reagent. Guajazulene has been prepared by dehydrogenation of the sesquiterpene fractions of six different oils and found to be identical with "eucazulene" from eucalyptus oil, and with "gurjunazulene" from gurjun balsam oil. Most of the sesquiterpene compounds which yield an azulene on dehydrogenation appear also to have a structure of guajazulene type. "Vetivazulene" has been obtained from oil of vetiver and its constitution established. The azulenes and the related sesquiterpene compounds were shown to contain a cycloheptane skeleton. The dicyclic parent hydrocarbon was obtained only in solution.—ANON. *Perfumery Essent. Oil Record*, 27 (1936), 283. (A. C. DeD.)

Bixa Orellana—Oil of, New Alcohol from. Bixol. Extraction with acetone of the seed of *Bixa orellana* yields a mixture of oil and of a compound that crystallizes to a large extent on cooling. This compound, called "bixine," is a monomethyl ester of a dicarboxylic acid of the carotinoid series and has the following formula: $CH_3OOC.CH:CH.C(CH_3):CH.CH:CH.C(CH_3):CH.CH:CH.C(CH_3):CH.CH:CH.CO_2H$. Saponification of the oil after

evaporation of the acetone yielded 2.5% of unsaponifiable matter which was fractionated by absorption on activated alumina. The unabsorbed portions, after distillation in vacuum, represented about 0.58% of the seed, and consisted of a greenish, oily substance with characteristic odor and taste, and having a composition corresponding to the empirical formula $C_{18}H_{30}O$. The physical and chemical properties of the product, designated as "bixol," show that it is a sesquiterpenic olefinic alcohol with four double bonds. The following constitutional formula shows that it is related to bixine, to terpenes and to camphor: $(CH_3)_2C{:}CH.CH_2.C(CH_3){:}CH.CH_2.C(CH_3){:}CH.CH_2.C(CH_3){:}CH.CH_2CH_2OH$.—M. BACHSTEZ and G. CAVALLINI. *Chimica e Industria (Milan)*, 17 (1935), 650–651; through *Chimie & Industrie*, 35 (1936), 1384. (A. P.-C.)

Cyperus Rotundus—α-Cyperone from Oil of. The main constituent of the higher boiling fractions of the oil from the tubers of *Cyperus rotundus* was found to be α-cyperone. This substance was purified through its semicarbazone (m. p. 216°). The ketone had the following characteristics: b. p. 177°/20 mm., d_{25}^{25} 0.9946, n_D^{25} 1.5283, $[\alpha]_{5461}$ +138°, $[\alpha]_{5780}$ +118.6°, $[R_L]_D$ 67.53. After lengthy investigation, the structure was proved to be:



—A. E. BRADFIELD, B. H. HEDGE, B. SANJIVA RAO, J. L. SIMONSEN and A. E. GILLAM. *J. Chem. Soc.* (1936), 667–677. (G. W. F.)

Essential Oils—Catalytic Hydrogenation of. Hydrogenation of essential oils is easily effected under pressure at temperatures of 100° to 200° C., the optimum temperature and amount of hydrogen absorbed varying with different oils. It is accompanied by various secondary reactions which completely change the chemical composition and olfactive properties of the oils. From an olfactive standpoint, catalytic hydrogenation under pressure and heat is to be rejected. Only selective hydrogenation at atmospheric temperature, with partially poisoned catalysts, is likely to produce interesting transformations while at the same time respecting the valuable properties of citrus oils.—LÉON PALFRAY and SÉBASTIEN SABETAY. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 762–770. (A. P.-C.)

Violet Plant and Its Odoriferous Products. A review of the chemistry of the odoriferous constituents of the various parts of the violet plant.—G. IGOLEN. *Parfums de France*, 14 (1936), 121–126 (in French and English). (A. P.-C.)

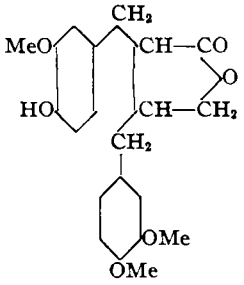
Glycosides, Ferments and Carbohydrates

Strophanthus Enemi—Glucosides of. The "strophanthin" of Lamb and Smith was found to be a complex mixture of water-soluble glucosides containing 3–5% acetyl group. The chloroform-soluble glucosides yielded cymarin (m. p. 142–150°, $[\alpha]_{5461}^{20°}$ +45°, $[\alpha]_D^{15°}$ +38° (c = 1.14 in 95% alcohol)) identical with that obtained from *S. kombe*. Enzyme hydrolysis of the amorphous glucosides resulted in a crystalline water-soluble glucoside not yet obtained pure, appearing to be a mixture of a bioside formed from emicymarin and glucose and its acetate. The chloroform-soluble glucosides, crystallized from methyl alcohol, yielded easily hydrolyzed monosides which could not be obtained pure, but hydrolyzed to form periplogenin ($[\alpha]_{5461}^{23°}$ +37.9°, $[\alpha]_D^{23°}$ +31.4° (c = 1.32 in alcohol), benzoate m. p. 227–233°), strophanthidin (oxime—m. p. 260–270°, $[\alpha]_{5461}^{24°}$ +82.5°, $[\alpha]_D^{24°}$ +69.8° (c = 1.00 in pyridine) and cymarose (m. p. 82–84°, $[\alpha]_{5461}^{24°}$ +61.4°, $[\alpha]_D^{24°}$ +52.4° (c = 2 in water), $C_7H_{14}O_7$). The mother liquor yielded emicymarin ($C_{30}H_{46}O_9$, sintered 160°, m. p. about 207°, $[\alpha]_{5461}^{20°}$ +15.8°, $[\alpha]_D^{20°}$ +12.8° (c = 2.5 in absolute alcohol). It is a lactone, gives Legal reaction for Δ^β-unsaturated lactones and does not form an oxime. When the double bond is saturated by reduction or isomerization, the products no longer give the Legal reaction. It forms a diacetate. It is unchanged by gentle hydrolysis, but more drastic conditions yield a trianhydrogenin ($C_{23}H_{28}O_2$, m. p. 190–192°) identical with trianhydroperiplogenin, a monoanhydrogenin ($C_{23}H_{32}O_4$, m. p. 269–277°) and a crystalline sugar, digitalose, which was converted into digitalonolactone ($C_7H_{12}O_6$). Allomerization by treatment of seeds with water and a little toluene for 14 days followed by alcoholic extraction yielded a mixture of monosides including alloemicy-

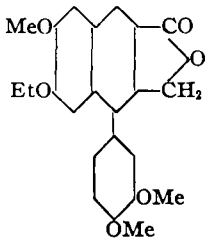
marin (anhydrous, sinters 240°, m. p. 248°, crystalline, sinters at 170°, m. p. 263°, $[\alpha]^{23°}_{5461}$ +29.7, $[\alpha]^{23°}_{D}$ +22° (c = 0.995 in 95% alcohol). The glucoside hydrolyzed to form a trianhydrogenin ($C_{23}H_{28}O_2$, m. p. 153–156°), a monoanhydrogenin ($C_{23}H_{32}O_4$, m. p. 208–209°), and digitalose.—I. D. LAMB and S. SMITH. *J. Chem. Soc.* (1936), 442–447. (G. W. F.)

Other Plant Principles

Arctigenin. This substance is produced as the aglucon of the glucoside, arctiin, obtained from the seeds of *Arctium Lappa* L. It was found impossible to obtain *l*-arctigenin ethyl ether in crystalline form, although crystalline dinitro- (m. p. 166–167°) and dibromo- (m. p. 128–129°) compounds were obtained. The crystalline racemic lactone was synthesized (m. p. 105–106°) and formed dinitro- (m. p. 159°) and dibromo- (m. p. 88–89°) compounds. The ultraviolet absorption spectra of the two ethers was identical. Cyclodehydrogenation with lead tetra-acetate yielded two isomeric lactones, $C_{23}H_{22}O_6$ (m. p. 224° and 248°) which were identified by comparison with synthetic specimens as **II** and **III**. The structure of arctigenin was proved to be **I**.



I



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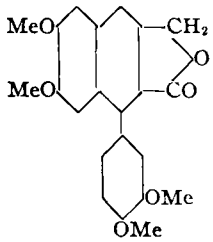
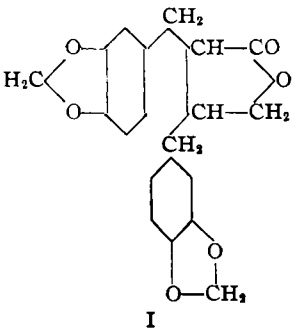


III

—ROBERT D. HAWORTH and WILLIAM KELLY. *J. Chem. Soc.* (1936), 998–1003. (G. W. F.)

Cucumis—Isolation of a New Bitter Principle from. From a species of Cucumis collected in South-West Africa and not yet identified, a bitter principle has been isolated similar to but differing from both cucumin and leptodermin. It has the formula $C_{28}H_{42}O_8$. Some of its properties are described.—C. RIMINGTON and D. G. STEYN. *S. Afr. J. Sci.*, 32 (1935), 137; through *Physiol. Abstr.*, 21 (1936), 365. (E. V. S.)

Natural Phenolic Resins—Constituents of. Cubebinolide (hinokinin) (**I**) should yield the lactones **II** and **III** when treated with lead tetra-acetate. The appropriate method was not discovered. The lactones, however, were synthesized by a lengthy method. **II** (lactone of 6:7-methylenedioxy-1-(3′:4′-methylenedioxyphenyl)-2-hydroxymethylnaphthalene-3-carboxylic acid) m. p. 264°, sublimes at 0.5 mm., oxidizes to the 2:3 dicarboxylic acid. **III** (lactone of same—3-hydroxy-2-carboxylic acid), m. p. 273–275°, sublimes.



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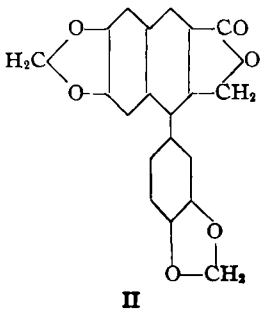

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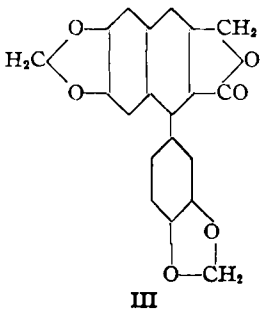


III

—ROBERT D. HAWORTH and WILLIAM KELLY. *J. Chem. Soc.* (1936), 745–747. (G. W. F.)

Fixed Oils, Fats and Waxes

Castor Seeds of the Belgian Congo and Their Oils. Analyses of 11 samples of seed and of the oils obtained therefrom are tabulated and discussed. On the whole, the oils have a low iodine

value and fairly high specific gravity, optical rotation, saponification and acetyl values.—L. ADRIAENS and G. VAN DROOGENBROECK. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 172–176. (A. P.-C.)

Chaulmoogra Oils. *Hydnocarpus Wightiana* seed from Nigeria contained a normal percentage of oil. The cold-drawn oil conformed to the requirements of the B. P., except that it did not possess the prescribed alcohol solubility, probably due to the unusually low free acidity of the extracted oil. The acids consist of hydnocarpic and chaulmoogric, and a small quantity of an optically active liquid oil (possibly gorlic). Oil extracted by cold pressing from *H. Wightiana* seed from Ceylon complied with the requirements of the B. P. Cold-pressed oil of *H. Wightiana* seeds from Malaya conformed to B. P. requirements, except that the saponification value was slightly high (205.1 instead of 198 to 204). *H. anthelmintica* seeds from Malaya had an oil content comparing favorably with recorded figures; the oil is not recognized in the B. P. and was therefore not examined.—ANON. *Bull. Imp. Inst.*, 34 (1936), 145. (A. P.-C.)

Chaulmoogra Oils. The chaulmoogra oil used in the treatment of leprosy is obtained from the seeds of various species of Hydnocarpus-*H. Wightiana* Blume, *H. anthelmintica* Pierre and *H. Kurzii* Warb. (*Taraktogenos Kurzii* King). It is understood that the oil of *H. anthelmintica* is employed with satisfactory results in Siam, but it has been found that the most effective oil is that derived from *H. Wightiana*, an Indian specie.—ANON. *Pharm. J.*, 137 (1936), 83. (W. B. B.)

Fats—Hydrolysis of. Fats are hydrolyzed by treating them in an autoclave at 150–200 pounds in the presence of water, acetone and mineral acid, *e. g.*, fat 100, acetone 400, water 15, 98% sulfuric acid 1/2. The percentages vary with the type of fat. Five advantages are claimed: (1) pre-treatment of fat is unncessary, (2) time is shortened, (3) glycerol is more concentrated, (4) fatty acids may be separated into solid acid and red oil by proper concentration of acetone, (5) the relative amounts of acetone and water may be varied to yield a high grade solid acid or a high grade of red oil.—E. K. WALLACE and J. R. MOORE. *Am. Perfumer*, 33 (1936), No. 2, 47. (G. W. F.)

Laurel Oil. Oil of laurel is the fatty material obtained by expression from the finely chopped and warmed fruit of *Laurus nobilis* L. The resulting product is a solid at room temperature. As a result of their studies the authors were able to determine some of the constituents of the oil. Laurel oil was found to contain 2 and 3.5% of volatile oil in 2 samples and about 30% trilaurin. Using various methods, they were able to approximate that it contains 25–28% and 15–16% lauric acid. It was shown that only about 1/20 of the lauric acid distilled over using the method of Polenske. For the first time, the presence of caprylic acid was proven and quantitatively determined to be 0.8 and 1.8% for the two samples. It is responsible for the proportionately high Reichert-Meisel number found. Butyric and caproic acids were found to be absent. The non-volatile fatty acids cannot be quantitatively estimated at present. Laurel oil is not a drying oil.—J. PRITZKER and R. JUNGKUNZ. *Pharm. Acta Helv.*, 11 (1936), 177. (M. F. W. D.)

Peanut Oil—Presence of Hydrocarbons in the Product Removed in the Refining of. From the unsaponifiable portion of the fatty product removed in the refining of peanut oil two hydrocarbons were isolated; $C_{15}H_{30}$ was designated as hypogene and $C_{11}H_{33}$ as arichidene from the corresponding fatty acids in peanut oil. These products have never been described before.—HENRI MARCELET. *Compt. rend.*, 202 (1936), 1809. (G. W. H.)

Poke Root—Fixed Oil of, Chemical Study of. For the first time since the root of *Phytolacca americana (decandra)* became official in 1820, report is made on the constituents of the fatty oil contained in it. Experimental work is reported in some detail. Constants are given. Chemical investigation showed it to be a complex mixture containing free fatty acids, esters of, fatty acids with glycerol and wax-like esters of fatty acids with a sterol. A sterol-like compound $C_{23}H_{40}O$, and a sterol, $C_{33}H_{50}O.H_2O$, were isolated. A hydrocarbon, hentriacontane, $C_{31}H_{64}$, was isolated and identified. The following fatty acids were isolated, arachidic, palmitic, marganic and oxymyristic. Oleic acid, acids of low molecular weight and glycerol were present also.—SAMUEL W. GOLDSTEIN and GLENN L. JENKINS. *J. Am. Pharm. Assoc.*, 25 (1936), 636. (A. M. C.)

Sardine Oil. A general discussion of the great variability in the composition and characteristics of sardine oil, which may render extremely difficult, or even impossible, the identification of oils into which it has diffused.—CHARLES LEPIERRE. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 647–662. (A. P.-C.)

Unclassified

Albumin—Compounds of, with Sulfonated Hydrocarbon Sulfur Compounds. Compounds which are water-soluble and suitable for therapeutic and cosmetic uses are prepared by treating with an alkali such as sodium bicarbonate the water-insoluble reaction products of albumin and sulfonated hydrocarbon sulfur compounds of the thiophene series.—ERIC T. HESSLE. U. S. pat. 2,040,809, May 12, 1936. (A. P.-C.)

Aminophenols—Preparation of N-Monomethyl Derivatives of. Aminophenol is treated with cyanogen chloride in presence of a very weak base such as sodium bicarbonate, or preferably sodium acetate, giving an almost quantitative yield (about 97.5%) of hydroxyphenylcyanamide; the latter, after filtration and washing with water, is dissolved in caustic soda in presence of an inert gas and methylated with dimethyl sulphate to hydroxyphenylmethyl cyanamide; hydrolysis of the latter by boiling with 20% sulphuric acid gives N-methylaminophenol in 70 to 80% yield, based on the aminophenol originally taken.—M. MORREN. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 383–386. (A. P.-C.)

Androstendione—Preparation of. An androstendione having a composition corresponding to the formula $C_{19}H_{26}O_2$ is obtained by subjecting androstenolone corresponding to the formula $C_{19}H_{28}O_2$ to the action of oxidizing agents.—SCHERING-KAHLBAUM A.-G. Belg. pat. 411,579, Dec. 31, 1935. (A. P.-C.)

Barbituric Acid Derivatives—Chemistry of. This article is a lengthy review discussing the synthesis of some of the barbituric acid derivatives and their analysis. The qualitative identification by ordinary and by microchemical means is discussed. The quantitative determination of veronal, luminal and dial is covered and several analytical results are given. A review of the methods outlined in many pharmacopœias is given. Sterilization of the solutions of the barbiturates is discussed and finally a list of twenty-seven of the more commonly used barbituric acid derivatives together with their chemical names is given. Thirty-nine references from the literature are cited.—F. J. VAN LEENT. *Pharm. Weekblad*, 73 (1936), 873–885, 898–914. (E. H. W.)

Barbituric Acids—Production of, Having a Disubstituted Carbon Atom. R_1 and R_2 radicals, in which R_1 is a furfuromethyl or methylfurfurylic radical, which may or may not be substituted, and R_2 is the same or any other radical, are introduced by known processes in barbituric acid or its nitrogen-substituted derivatives.—CHEMISCHE FABRIKEN DR. JOACHIM WIERNICK & Co. A.G. Belg. pat. 412,077, Dec. 31, 1935. (A. P.-C.)

Benzyl Alcohol—Preparation of 3-Nitro-4-Methoxy, and Some of Its Ethers. 3-Nitro-4-methoxy-benzyl alcohol is obtained in a good yield from *o*-nitroanisole by formation of the benzyl chloride by means of formalin and hydrogen chloride gas in the presence of zinc chloride; conversion into the acetate by boiling with sodium acetate and hydrolysis to the alcohol with potassium hydroxide. The methyl, ethyl and propyl ethers are formed by treating the 3-nitro-4-methoxybenzyl chloride with the corresponding sodium alcoholate.—RAYMOND QUELET and YVETTE GERMAIN. *Compt. rend.*, 202 (1936), 1442. (G. W. H.)

3-Benzylsalicylic acid. This compound, melting at about 133.5° C., a therapeutic and dye intermediate, is formed by carbonating an ortho-benzylphenolate. It forms an acid chloride by reaction with thionyl chloride or phosphorus trichloride which reacts with aniline or a derivative such as chloro-aniline to form anilides of 3-benzylsalicylic acid.—LUCAS P. KYRIDES, assignor to MONSANTO CHEMICAL CO. U. S. pat. 2,042,343, May 26, 1936. (A. P.-C.)

Berberine as a Microchemical Reagent. Berberine may be used to advantage as a microchemical reagent in several instances among which might be mentioned: the identification of uric acid; the identification of luminal and other barbiturates; the identification of salicylic acid and its differentiation from acetylsalicylic acid. The method consists of placing the substance in a drop of water to which crystals of berberine sulfate have been added. This drop is then suspended (hanging drop) in a closed chamber over ammonia. The author describes the results of microchemical reactions with 24 substances (9 negative and 15 positive). Both the reactions and the resulting crystals are described.—C. VAN ZIJP. *Pharm. Weekblad*, 73 (1936), 764. (E. H. W.)

6-Butoxy-2-Methylaminobenzothiazole. This compound, melting at about 117° C., and other local anæsthetics of the general formula of alkoxy-2-alkylaminobenzothiazoles, are obtained by a method of the general type described in U. S. pat. 1,910,489. 6-Ethoxy-2-hydroxyethylaminobenzothiazole melts at 125° C.; 6-ethoxy-2-butylaminobenzothiazole melts at 101° C.; 6-isoamoxy-2-ethylaminobenzothiazole melts at 90° C.; and the hydrochloride of 6-isopropoxy-2-

methylaminobenzothiazole melts at 192° C. General mention is made of salts such as hydrochlorides, hydrobromides, nitrates, chloroacetates, formates, oxalates, disulfates and diphosphates of these compounds.—MAX ENGELMANN, assignor to E. I. DU PONT DE NEMOURS AND CO. U. S. pat. 2,040,928, May 19, 1936. (A. P.-C.)

Caffeine—Microchemical Reaction for, with Iodine-Potassium Iodide. According to the literature the microchemical reaction between caffeine and iodine-potassium iodide does not give satisfactory results. The author states that this assumption is incorrect and suggests the following method which gives excellent results. A small quantity of caffeine is stirred into a fairly large drop of water and a small drop of 10% iodine-potassium iodide (1 Gm. I_2; 2 Gm. KI; 9 Gm. H_2O) added. After evaporation, which may be hastened with careful warming (40° to 50° C.), dark brown droplets result. After cooling the preparation is scratched, which results in the formation of reddish brown crystals among which many diamond-shaped crystals with a sharp angle of 86° may be found. They are right extinguished. After the crystals have formed the preparation should be covered with a cover glass (which may be paraffin sealed, if desired) to prevent crystallization of the potassium iodide. Iodine-sodium iodide gives dark brown crystals which refuse to crystallize upon scratching.—C. VAN ZIJP. *Pharm. Weekblad*, 73 (1936), 767. (E. H. W.)

Canavalia Obtusifolia—Chemical Composition of. The flour obtained by grinding the nuts has the following composition: moisture 10.42%, ash 2.50%, fat 0.65%, nitrogen 4.25%, crude protein 26.5%, proteins soluble in a hydrochloric acid solution of pepsin 24.8%, assimilable albumin (as % of total) 93.5%, starch 53.77%, lecithin phosphoric acid (as P_2O_5) 0.106%. The flour contains a strongly active urease, but no alkaloids.—M. BACHSTEZ AND G. CAVALLINI. *Chimie e Industri (Milan)*, 17 (1935), 652; through *Chimie & Industrie*, 35 (1936), 1383–1384. (A. P.-C.)

Caryophyllenes. Trans-*d*-caryophyllenic acid (m. p. 80–81°) heated under pressure with acetic anhydride yields a liquid anhydride (b. p. 157–158°/12 mm.) of the cis- acid. The cis-acid, m. p. 77–78°, $[\alpha]_{5461}$ −7.4° (c = 3.645 in chloroform), is more soluble than the trans- acid. They can readily be differentiated through their dianilides: cis-, m. p. 190°, trans-, m. p. 282°. The keto-acid ($C_{11}H_{18}O_3$) previously reported (*J. Chem. Soc.* (1935), 1581) was found to oxidize with sodium hypobromite to produce homocaryophyllenic acid (dianilide m. p. 179–180°).—G. R. RAMAGE and J. L. SIMONSEN. *J. Chem. Soc.* (1936), 741–742. (G. W. F.)

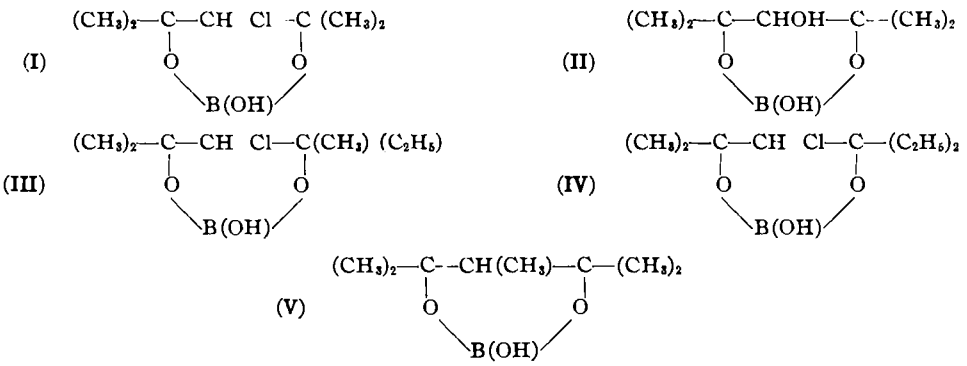
Diethyl Ether—Production and Purification of. Ethyl sulfates are hydrolyzed. The diethyl ether fraction is separated from the hydrolysis products and is treated successively with: (1) an oxidizing agent of the group consisting of sulfuric acid and chlorine; (2) an aldehyde-removing agent of the group consisting of soluble inorganic bisulfites and mercury oxide; and (3) a solution of a strong alkali.—HENRY L. COX and PAUL S. GREER, assignors to UNION CARBIDE AND CARBON CORP. U. S. pat. 2,050,600, Aug. 11, 1936. (A. P.-C.)

Ethylether—Investigation of Purity of. Polarographic Studies by Means of a Mercury-Drop Cathode. A 5 to 10-cc. portion of the ether to be tested is shaken with an equal volume of hundredth-normal aqueous lithia solution, and the mixture is poured into a beaker containing a layer of mercury that acts as anode, while near the top of the beaker is immersed a capillary cathode at such a height that the drops of mercury are in contact with the aqueous layer. A study of the polarigrams shows that there are marked differences when passing from pure ether to ether containing peroxides or aldehyde. The peroxides require a reduction e. m. f. of 1.3 volts. The amounts of the impurities can be estimated from the maxima of the curves. The formation of aldehydes is dependent on the decomposition of oxidation products derived from peroxides.—B. A. COSMAN. *Coll. Trav. Chim. Tchécoslov.*, 7 (1935), 467–475; through *Chimie & Industrie*, 36 (1936), 117. (A. P.-C.)

Follicle-Hormone-Quinoline Addition Product—Manufacture of. Well-crystallized, water-insoluble molecular addition compounds of the follicle hormones with quinoline are claimed as new.—ADOLF BUTENANDT, assignor to SCHERING-KAHLBAUM A.-G. U. S. pat. 2,047,307, July 14, 1936. (A. P.-C.)

Glycerin—Some Boric Esters of Tetrasubstituted. On mixing an aqueous solution of tetramethylglycerin chlorhydrin with an aqueous solution of boric acid, the boric ester (I) is precipitated. Recrystallized from benzene, it melts at 132°. On mixing aqueous solutions of boric acid and tetramethylglycerin and extracting with ether, (II) is obtained, m. p. 118°. From the chlorhydrin of ethyltrimethylglycerin, (III) is obtained, m. p. 58°. From the chlorhydrin of di-

methyldiethylglycerin (**IV**), m. p. 55°; and from trimethylpentane-diol (**V**), m. p. 72° are obtained.



Glycerins or glycols substituted with one or several phenyl groups do not give boric esters under the same conditions.—PIERRE PASTUREAU and MARGUERITE VEILER. *Compt. rend.*, 202 (1936), 1683. (G. W. H.)

Hormone Compounds—Production of. Dihydrofollicle hormone is produced by subjecting a follicle hormone product containing a free carbonyl group and at least three double bonds to the action of hydrogen in a non-acid medium in the presence of a catalyst containing platinum under substantially normal hydrogen pressure.—WILHELM DIRSCHERL. U. S. pat. 2,045,702, June 30, 1936. (A. P.-C.)

Hormone Preparations of High Purity—Production of. A crude preparation containing germinal gland hormones having a hydroxyl group in the 3-position is heated with a benzene compound capable of condensing with the hormone with elimination of water to produce an alkali-soluble ester; the ester thus produced is extracted with dilute alkali and then hydrolyzed, and the liberated hormone is recovered.—ERWIN SCHWENK and FRIEDRICH HILDEBRANDT, assignors to SCHERING-KAHLBAUM A.-G. U. S. pat. 2,046,656, July 7, 1936. (A. P.-C.)

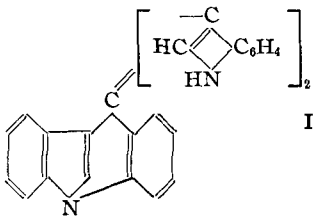
Alpha- and Beta-Hydroxylaudanosines—Preparation of, from Papaverinol. Papaverinol is the alcohol produced by oxidation of papaverine. Catalytic hydrogenation of papaverinol methochloride yielded α-hydroxylaudanosine (m. p. 138°), crystallized from alcohol and β-hydroxylaudanosine (m. p. 108–109°) obtained by addition of hydrogen chloride to the alcoholic mother liquor and subsequent basification with alkali.—F. E. KING, P. L'ECUYER and F. L. PYMAN. *J. Chem. Soc.* (1936), 731–733. (G. W. F.)

Hydroxyquinoline—Properties of Some Antimony Compounds of. A brief comparison of the properties of antimonial esters of aromatic mono- or poly-phenols and of the corresponding hydroxyquinoline derivatives, showing the existence of a residual valency of antimony.—M. DENAYER. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 387–391. (A. P.-C.)

Isothiocyanate Sulfonic Acids. Isothiocyanate sulfonic acids are prepared from initial materials such as an aminobenzenesulfonic acid, an aminoazobenzenesulfonic acid, an aminocarbazolesulfonic acid, an aminopyridinesulfonic acid or a halogen, alkyl, alkoxy, hydroxy or nitro substitution product, by reaction with thiophosgene in an aqueous inorganic acid medium, and preferably at a temperature of about 20° to 30° C., intermediates being obtained that are suitable for use in the manufacture of dyes and pharmaceutical products.—JOSEF HILGER, ANTON OSSENBECK and ERNST TIETZE, assignors to GENERAL ANILINE WORKS. U. S. pat. 2,042,600, June 2, 1936. (A. P.-C.)

Magnesyl-Indol—Action of Acetylsalicylic Acid Chloride on. The author claims that if acetylsalicylic acid chloride is reacted on magnesyl derivatives of indols and skatols, the following results are obtained: One molecule of acetylsalicylic acid chloride is attached to two molecules of magnesyl-indol in ether. The substance obtained was oily in nature, and when heated for about four hours on a water-bath, cooled and acidified with diluted sulfuric acid, it was found to be 2-oxyphenyl-indolyl-3-ketone, $C_{15}H_{11}O_2N$, which crystallized out in yellow needles, m. p. 171°. The compound is soluble in ether, acetone, slowly soluble in petroleum ether, insoluble in water and

diluted or concentrated hydrochloric acid; soluble in concentrated sulfuric acid and alkali hydroxides; is precipitated when a bicarbonate is added. The derivatives obtained had the following properties: *Hydrochloride,* $C_{15}H_{11}O_2N.HCl$, appears as yellowish crystals and are easily hydrolized in water, m. p. 170°. *Diacetyl derivative,* $C_{19}H_{15}O_4N$ is obtained by boiling the water containing the active ingredient and is not obtained in a crystalline form, m. p. 60°. It is hydrolized by concentrated alkalis. *Dibenzoyl derivative,* $C_{29}H_{19}O_4N$, is found in a crystalline form, m. p. 152°, and are saponified with alkalis. *Phenylhydrazone,* $C_{21}H_{17}O_3N$, crystals, m. p. 166°. Besides the above-named compounds there are a number of isomers formed: *2-oxyphenyl-indolyl-2-ketone,* $C_{15}H_{11}O_2N$, a yellowish crystalline powder, m. p. 142°. Next an isomer forms of yellow crystals, m. p. 148°, probably 2-oxyphenyl-N-acetyl-indolyl-2-ketone, $C_{17}H_{13}O_3N$, which is converted to a red liquid during melting; the color change is perhaps limited to the migration of the acetyl group from the N atom in the 3 position of the indol group. Finally another compound is obtained anhydrotriindolyl(2-oxyphenyl)methane, $C_{31}H_{21}N_3$ (I)



I

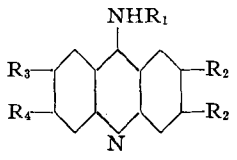
which occurs as a brown powder, m. p. 145–150°. *Picrate,* $C_{31}H_{21}N.C_6H_3O_7N_3$ occurs as a red brownish powder, m. p. 150–155°. In reacting acetylsalicylic acid chloride on magnesyl skatol, *N-(2-oxybenzoyl)-skatol,* $C_{16}H_{13}O_2N$, is the result. These occur as needles, m. p. 151°. *Benzoyl derivative,* $C_{23}H_{17}O_3N$, is a crystalline powder, m. p. 89°. Small quantities of N-acetylskatol in needles, m. p. 67–68° and 2-(2-oxybenzoyl)-skatol, $C_{16}H_{13}O_2N$, m. p. 124° were obtained.—CESCO TOFFOLI. *Chem. Zentr.*, 107 (1936), 335. (G. B.)

***b*-Methylcholine Derivatives.** *b*-Methylcholine chloride substantially free from the alpha-isomer is obtained by a process in which trimethylacetonylammonium chloride is subjected to catalytic reduction by hydrogen. It melts at 165° C. Derivatives such as acetyl-*b*-methylcholine chloride (melting at 172° to 173° C.) and propionyl-*b*-methylcholine chloride are produced by the reaction upon *b*-methylcholine chloride with an excess of acetic or propionic anhydride for 3 to 6 hours at 100° C. and separating the reaction product by the addition of dry ether.—RANDOLPH T. MAJOR and JOSEPH K. CLINE, assignors to MERCK AND CO. U. S. pats. 2,040,145 and 2,040,146, May 12, 1936. (A. P.-C.)

Monarda Pectinata, Nutt—Phytochemical Study of. The scope of this report on the herb itself is shown by the sub-titles: weight of the parts of the plant, determination of moisture, extraction with selective solvents, ash data and inorganic constituents of the ash. Details of extraction procedure are given and results tabulated. Ash data is given separately for flower, leaf, stem and root.—JOSEPH B. BURT. *J. Am. Pharm. Assoc.*, 25 (1936), 602. (Z. M. C.)

Organic Acids—Color Reactions of. The color reaction given by pyridine-acetic anhydride is applied to various organic acids and their esters.—R. CASARES-LOPEZ. *Biochem. Z.*, 284 (1936), 365; through *Physiol. Abstr.*, 21 (1936), 289. (E. V. S.)

Organic Arsonic Acids—Salts with Acridine Compounds. Numerous examples are given of the production of compounds of the general formula



where R_1 stands for a substituent of the following general formula $RN(alkyl)_2$, R being a radical of the group consisting of ethyl, *b*-hydroxypropyl, ethylaminophenyl, *b*-hydroxypropylaminophenyl, γ-ethylamino-*b*-hydroxypropylaminophenyl, ethoxyphenyl and acetylethylamide. One of the

R_2's stands for the nitro group, the other being H; R_3 stands for H, alkoxy, dialkylaminoalkoxy or dialkylaminoalkyl; R_4 stands for H, alkoxy or the nitro group, being therapeutically effective and having a yellow-brown color.—MAX BOCKMÜHL and ALFRED FEHRLE, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,040,070, May 12, 1936. (A. P.-C.)

Polyalcohols—Boric Esters of. Using a special apparatus (*Compt. rend.*, 195 (1932), 14), anhydrous copper sulfate as dehydrating agent and toluene as reaction medium, several esters of the type $B(OR)_3$ were prepared in almost quantitative yields from boric acid and the following alcohols: glycerol, ethane-diol, propane-diol-1,2, chloro-1-propane-diol-2,3 and butane-diol,-1,3. The first two are solids while the others are viscous liquids.—ANDRE DUPIRE. *Compt. rend.*, 202 (1936), 2086. (G. W. H.)

Pyramidon—Manufacture of. Pyramidon is recovered from the formic acid solution of pyramidon formate by evaporating the solution of free formic acid and subjecting the residue to an elevated temperature to liberate the formic acid which is chemically combined with the pyramidon, while avoiding thermal decomposition of the residual pyramidon.—MICHAEL N. DVORNIKOFF, assignor to MONSANTO CHEMICAL CO. U. S. pat. 2,045,588, June 30, 1936. (A. P.-C.)

Substituted Acridines—Synthesis of. Compounds of 1-amino-acridine were prepared as possible antimalarials. 1-(β-Diethylaminoethylamine)acridine ($C_{19}H_{23}N_3$, b. p. 180°/1 mm., dipicrate m. p. 192°, monopicrate m. p. 151°, dihydrochloride m. p. 104°) was prepared by direct condensation of 1-aminoacridine and β-chloroethyldiethylamine and also by condensation of the latter with the *p*-toluenesulphonamide of 1-amino-5:10-dihydroacridine and subsequent hydrolysis. 1-(δ-Diethylamino-α-methylbutylamino)acridine could not be synthesized in a similar manner, although the methiodide ($C_{10}HH_{23}NCII$, m. p. 116°) was obtained. Likewise attempted condensation of 1-chloroacridine with δ-amino-α-diethylaminopentane failed to produce the substance. 1-(*p*-Nitrobenzyl)aminoacridine ($C_{20}H_{15}O_2N_3$, m. p. 170°) was obtained by condensation of 1-aminoacridine with *p*-nitrobenzyl bromide. This product was reduced to form a water-soluble dihydrochloride ($C_{20}H_{17}N_3.2HCl.H_2O$, m. p. 168°).—G. R. CLEMO and W. HOOK. *J. Chem. Soc.* (1936), 608-609. (G. W. F.)

Tartaric, Citric and Aconitic Acids—Color Reactions of. Tartaric, citric and aconitic acid on warming with pyridine and acetic anhydride gave respectively characteristic emerald-green, carmine-red and violet-red colors. The reaction is very sensitive, and all other dicarboxylic acids tested gave only a brown or no color. The pigments responsible were isolated, but not obtained in crystalline form. On the basis of analyses empirical formulas are suggested. The pigment formation is considered to take place in two stages: the acid first reacts with acetic anhydride to give a pigment precursor, which in the case of citric and aconitic acids has been crystallized and analyzed and this precursor then combines with pyridine to give the pigment.—O. FÜRTH and H. HERMANN. *Biochem. Z.*, 280 (1935), 448; through *Physiol. Abstr.*, 21 (1936), 288. (E. V. S.)

BIOCHEMISTRY

Biochemistry—Synthesis in. The Fifth Pedler Lecture. A lengthy account of numerous methods utilized in synthesis of natural substances.—ROBERT ROBINSON. *J. Chem. Soc.* (1936), 1079-1090. (G. W. F.)

Blood Determinations—Use of Centrifuging in. The centrifugal method for the determination of blood groups is valuable on account of its speed and convenience, and gives results in agreement with those of standard methods.—E. BALGAIRIES and H. SPRIET. *Ann. Méd. Légale Criminol. Police Sci.*, 15 (1935), 955-957. (A. P.-C.)

Hunan Lachiao, Capsicum Annuum L. var. Longum—Vitamin A Content of. After five to six weeks on Sherman and Smith's vitamin A deficient ration, some rats were given carotene and other quantities of dried lachiao from 0.1 to 0.2 Gm. daily. Weight curves showed that 0.3 Gm. corresponds to 0.006 mg. of carotene. Extraction with boiling alcohol only removed half the vitamin.—H. C. HOU. *Chin. J. Physiol.*, 10 (1936), 171; through *Physiol. Abstr.*, 21 (1936), 433. (E. V. S.)

Hunan Lachiao, Capsicum Annuum L. var. Longum—Vitamin C Content of. When studied on guinea pigs by Key and Elphick's modification of Höjer's tooth method and by Sherman's 90-day prophylactic test, the dried lachiao up to 12 Gm. daily had almost no antiscorbutic effect. By Höjer's method, 1 Gm. of fresh lachiao afforded good protection.—H. C. HOU. *Chin. J. Physiol.*, 10 (1936), 179; through *Physiol. Abstr.*, 21 (1936), 433. (E. V. S.)

Hypoglycemic Principle—Isolation of, from the Jejunal Mucous Membrane. A white water-soluble powder was extracted from the jejunal mucous membrane of cows by treatment with alcohol and purification of the crude product by precipitation with picric acid, taking up in ammonia and reprecipitation by means of acetone. This product represents 30 to 40 international units per Kg. of jejunal pulp. It causes in the normal rabbit a fall of the glycemia which can reach 75% and causes some convulsions.—FRANCIS RATHERY, ANDRE CHOAY and PIERRE DE TRAVERSE. *Compt. rend.*, 202 (1936), 1949. (G. W. H.)

Indole—Determination of, in Blood and Organic Excretions. To 5 cc. of blood serum add 0.5 cc. of very pure methanol, extract with 25 cc. of petroleum ether boiling at 30° to 50° C., extract the petroleum ether layer with 4 cc. of concentrated alkali and wash 3 or 4 times with distilled water, to a 20-cc. aliquot of the petroleum ether add 1 cc. of freshly prepared reagent made by mixing 0.05 cc. of 0.1% alcoholic solution of *p*-dimethylaminobenzaldehyde, 0.2 cc. of a 20% aqueous solution of sulfosalicylic acid and 0.75 cc. of glacial acetic acid, evaporate the solvent at 60° to 70° C. on the water-bath, transfer the residue to a graduated tube, add acetic acid and determine indole colorimetrically. The method can detect as little as 0.001 mg. of indole per cc.—D. E. MACCHIA. *Diagnost. Tecnica Labor.*, 6 (1935), 628–636; through *Chimie & Industrie*, 36 (1936), 33–34. (A. P.-C.)

Indole—New Method for Determination of, in Bacterial Cultures. The culture in liquid medium is extracted with petroleum ether (boiling between 30° and 50° C.). The extract is washed successively with alkali and with water and a 10-cc. aliquot is treated with 1 cc. of glacial acetic acid and 1 cc. of a reagent consisting of 0.05 part of 1% alcoholic solution of *p*-dimethylaminobenzaldehyde, 0.20 part of 20% sulphosalicylic acid and 0.75 part of glacial acetic acid. The solvent is evaporated on the water-bath at 70° C. and the liquid residue is transferred to a graduated tube. A violet-red coloration indicates indole; blue indicates skatole. The liquid is cooled, diluted to 2 cc. with glacial acetic acid and compared colorimetrically with similarly treated standard solutions of indole. The method gives 96 to 98% recoveries, and is applicable when the medium consists of bile. Indole can be determined in presence of skatole by the use of appropriate color filters.—D. E. MACCHIA. *Diagnost. Tecnica Labor.*, 6 (1935), 752–757; through *Chimie & Industrie*, 36 (1936), 35. (A. P.-C.)

Medicinal Yeast—Biochemical Analysis of. Examination of commercial pharmaceutical yeasts showed that the fermentative power is nil for cultures in ampuls and very small for the others. Some of the samples consisted entirely of dead cells. The catalasic activity also was greatly diminished. The philothion reaction was nearly always negative. Microscopical examination showed a large number of normal cells and no bacteria in fresh yeast, and only a few normal cells and numerous bacteria in dried yeast. It is suggested that regulatory standards be set so that medicinal yeasts be required: (1) to possess a fermentative power of at least 80%; (2) to possess a catalasic activity such that a quantity of yeast equivalent to 1 Gm. of fresh yeast liberates at least 40 cc. of oxygen from 5 cc. of 3% hydrogen peroxide in 1 hour at 18° C.; (3) to give a decided philothion reaction one hour after having been mixed with 10 cc. of water; and (4) to show under the microscope not more than 10% of dead cells and no bacteria.—A. J. J. VANDEVELDE. *Rev. Microbiol. Appl.*, 1 (1935), 509–517; through *Chimie & Industrie*, 35 (1936), 1135. (A. P.-C.)

Physiologically Active and Organic Residual Substances in Rocks. A review with particular reference to hormone substances.—G. HRADIL. *Pharm. Monatsh.*, 17 (1936), 115–116. (H. M. B.)

Sugar—Defecation of Albumins in the Determination of, in Blood, by the Bauduin and Lewin Method. The following defecating solution is used: treat 145 Gm. of red mercuric oxide with 105 cc. of concentrated nitric acid, heat to boiling to complete solution, dilute with water, add 35 cc. of normal sodium hydroxide and make to 1,000 cc. Defecation is carried out as follows: dilute 1 cc. of fluorinated blood with 4 cc. of water, add successively 1 cc. of defecating solution and 1 cc. of normal sodium hydroxide, dilute to 30 cc. and filter; if the filtrate remains opalescent add 1 drop of acid. Defecation is complete only within a certain p_H range, which must not rise above 7.7, so that the solution in which defecation is effected must be practically acid.—G. VAN BENEDEN. *Congr. Pharm. (Liège 1934)*, (1935), 167–168; through *Chimie & Industrie*, 35 (1936), 1301. (A. P.-C.)

Vitamin A—Chemistry and Physiology of. A review.—R. SCHULER. *Drug and Cosmetic Ind.*, 39 (1936), 57–59. (H. M. B.)

Vitamin C—Antiscorbutic Value of, and Its Administration. With guinea pigs the best time to begin the scurvy-cure test is on about the 22nd day of the feeding of the basal ration, when the animals are in the middle degree of scurvy. After 30 days of feeding, when the animals were heavily afflicted, they required a large amount of vitamin C and the cure was not effective. Subcutaneous injection of vitamin C extract prepared from radish juice did not cure scurvy. The same preparation given by mouth cured scurvy. Intravenous injection was more effective than subcutaneous injection, but not as effective as oral administration. The amount of vitamin C necessary to prevent scurvy apparently is related to the amount the animals have been taking before the test. When they had been fed green grass alone, the administration of 30 Gm. of green grass did not prevent scurvy; those fed 20 Gm. of grass per day with the basal diet for 3 generations needed only 15 Gm. of grass per day with the basal diet to prevent scurvy.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 71–80; through *Chimie & Industrie*, 35 (1936), 1382-1383. (A. P.-C.)

Vitamin C—Change of Content of, in Barley. As judged by scurvy-prevention experiments with guinea pigs, vitamin C in the seeds of barley increases markedly on about the third day of germination, and gradually increases in the plant until the blooming period. From the blooming period to ripening there is a decrease in vitamin C content, caused by lack of production of the vitamin and by its transformation into other substances. Juice obtained from the barley plants in the blooming period and preserved in an atmosphere of carbon dioxide after removal of impurities, retained its vitamin C content. Vitamin C is produced in barley grown in the dark but the content is greatly increased when it is grown in the light. Using Kögl's method for the study of growth production it was found that vitamin C has no auxin-like properties.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, No. 35 (1935), 93–108; through *Chimie & Industrie*, 35 (1936), 1383. (A. P.-C.)

Vitamin C—Efficacy of. A comparative study of the antiscorbutic value of vitamin C administered in the form of cereal germs, of cabbage, of cabbage juice, of liver and of suprarenal cortex showed that the dose of vitamin must be greater to make the symptoms of scurvy recede than to prevent their appearance. The antiscorbutic potency of suprarenal extracts is comparable to that of other sources of vitamin C.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 39–47; through *Chimie & Industrie*, 35 (1936), 1382. (A. P.-C.)

Vitamin C—Extract of, and Solvents. Vitamin C is completely insoluble in anhydrous ether and in petroleum ether. It is slightly soluble in water and this solubility persists in water-ether and in water-petroleum ether mixtures. It is soluble in alcohol and in acetone.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 57–64; through *Chimie & Industrie*, 35 (1936), 1382. (A. P.-C.)

Vitamin C—Extraction of, and p_H of the Solution. The vitamin C in cabbage juice was extracted with the solvents at various p_H values; the p_H of the solution had no effect on the solubility in alcohol and acetone, but there was considerably greater destruction of the vitamin in alkaline solution. Vitamin C is insoluble in petroleum ether irrespective of the reaction.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 65–70; through *Chimie & Industrie*, 35 (1936), 1382. (A. P.-C.)

Vitamin C in the Liver and Suprarenal Glands of Cattle. Vitamin C was extracted from the liver and the adrenal glands of cattle with alcohol and acetone. The extract of the adrenal glands was richer in vitamin C than that of the liver and was extracted again with acetone. Lead acetate was added to the extract and then ammonia to bring the p_H of the solution to 7 to 8. A yellowish white precipitate was obtained and was decomposed by hydrogen sulfide. From the filtrate a crystalline substance, melting at 174° to 178° C., was isolated. It showed the chemical reactions of hexuronic acid and the activity of vitamin C.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 49–56; through *Chimie & Industrie*, 35 (1936), 1382. (A. P.-C.)

Vitamin C—Separation of, from Cabbage Juice. Alcohol is added to filtered raw cabbage juice to a total alcohol content of 60%; the yellow precipitate is separated by filtration and the filtrate is evaporated at 35° C. under reduced pressure in presence of carbon dioxide; the brown gelatinous material is treated with absolute alcohol and filtered; the alcoholic solution is evaporated under reduced pressure below 30° C. The residue is taken up in water, treated with neutral

lead acetate, and after removal of the precipitate the solution is brought to p_H 7 by addition of lead subacetate. The precipitate, which contains the vitamin C, is filtered off and dissolved in a small quantity of water containing hydrogen sulfide to remove lead. The colorless filtrate is concentrated in vacuum and brought to its original volume by addition of water.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 11–23; through *Chimie & Industrie*, 35 (1936), 1381–1382. (A. P.-C.)

Vitamin C and Enzymes. Vitamin C extract from Japanese orange juice activated diastase to a slight extent. The orange juice itself had a greater diastase-activating power which seems to be due to impurities containing a coenzyme and inorganic salts. The digestion of casein with pepsin was inhibited by orange juice and by vitamin C. The digestion of olive oil with pancreatic lipase was not influenced by orange juice or by vitamin C.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 81–92; through *Chimie & Industrie*, 35 (1936), 1383. (A. P.-C.)

Vitamin C and Ether. Alcohol of 84% strength is added to cabbage juice to a total alcohol content of 50%; the solution is filtered and concentrated under reduced pressure at 35° C. in presence of carbon dioxide; the sirupy solution is treated with absolute alcohol and again evaporated. The residue is diluted with water, filtered and extracted with ether. Biological tests showed that about 40% of the vitamin C was extracted by the ether and about 40% remained in the aqueous solution.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 25–30; through *Chimie & Industrie*, 35 (1936), 1382. (A. P.-C.)

Vitamin C and Narcotine. Narcotine was heated with 10% hydrochloric acid at 100° C. for 8 days, and methylnornarcotine was prepared. Though it was given to guinea pigs as the source of vitamin C, it did not prevent scurvy. The antiscorbutic action observed by Rygh must have been due to the presence of vitamin C in the radish juice used.—T. MATSUOKA. *Mem. Coll. Agric. Kyoto Imp. Univ.*, 35 (1935), 31–38; through *Chimie & Industrie*, 35 (1936), 1382. (A. P.-C.)

ANALYTICAL

Alkalis—Rapid and Accurate Determination of Total, in Water. A method is described in detail based on the elimination of alkaline-earth bases by potassium palmitate. It is essentially as follows: evaporate 100 cc. of water to dryness on the water-bath, add a few drops of concentrated sulfuric acid, warm gently to complete evolution of sulfur trioxide, add a little finely ground ammonium carbonate and 2 to 3 cc. of ethanol, ignite the ethanol and allow to burn without further heating, repeat twice, drive off ammonium sulfate below red heat, weigh the sulfated residue; digest a few minutes on the water-bath with 20 cc. of water, filter into a 100-cc. flask, wash to about 80 cc., titrate to a decided red in presence of phenolphthalein with potassium palmitate solution, warm on the water-bath for about 15 minutes, cool, make to volume, disintegrate some ashless filter paper in presence of a small quantity of the solution, spread the pulp over a coarse (No. 11E-1) Schott filter plate and filter the solution under slight vacuum, pass the liquid 2 or 3 times through the same filter, compressing the mat before each filtration, disintegrate a fresh portion of ashless filter paper in a small quantity of the opalescent filtrate and repeat the filtering operation, filter through paper to eliminate the last traces of fibre, and evaporate to dryness on the water-bath; impregnate with concentrated sulfuric acid, drive off sulfur trioxide at low temperature, incinerate at low temperature over an alcohol lamp to destroy the slight amount of palmitic acid due to the excess used in the titration, take up once more in concentrated sulfuric acid and proceed as described above for the determination of the sulfated residue. The method gives results in excellent agreement with the standard method, and is particularly applicable when the alkaline earths are determined by the palmitate method.—ROGER DUROUDIER. *Ann. fals.*, 29 (1936), 283–287. (A. P.-C.)

Amylases—Pharmaceutical, Determination of Activity of. As a result of investigation the following method for the determination of pharmaceutical diastases is recommended: (1) Weigh a quantity of soluble starch (Schering-Kahlbaum) equivalent to 37.5 Gm. of dry product (dried at 110° C.); add 50 cc. of cold water, and then about 400 cc. of boiling water; boil for one minute. Allow to cool and pour the suspension into a 1-liter flask and add water to volume. (2) Measure 100 cc. (with a pipette) of the starch solution into a 250-cc. conical flask. Place it in a thermostat regulated at 37° C. (3) Add 10 cc. of buffer solution (99 cc. 1.5 M/KH_2PO_4 + 1 cc. 1.5M/Na_2HPO_4). (4) When the temperature of the mixture has reached 37° C., add 5 cc. of amylase solu-

tion (0.75 Gm. diastase dissolved in 25 cc. water). (5) Mix thoroughly. (6) Allow the reaction to go on for two hours. (7) Pipette 10 cc. and place it in 50 cc. boiling Fehling's solution; allow the mixture to boil for three minutes. (8) Filter immediately into weighed Gooch crucibles. (9) Oxidize the cuprous oxide to cupric oxide by heating in a muffle furnace. (10) Weigh the Gooch crucibles. (11) Express the results obtained as milligrams of cupric oxide.—M. VAN HAUWAERT. *Pharm. J.*, 136 (1936), 621. (W. B. B.)

Bismuth—New Reaction for Detection of. In presence of potassium iodide in nitric acid solution, quinoleine gives a voluminous deep red precipitate with bismuth salts. The sensitiveness of the reaction corresponds to a concentration of 1:50,000. The reagent is prepared by dissolving 1 Gm. of quinoleine in 100 cc. of alcohol and adding 20 cc. of 25% solution of potassium iodide. Certain other metals also give precipitates with this reagent: silver, pale yellowish; monovalent mercury, green; divalent mercury, white; lead, yellow; divalent copper, white precipitate with separation of iodine; and tervalent antimony, yellow. Other cations do not interfere with the reaction. Detection of bismuth can be carried out by "spotting;" filter paper is impregnated with the reagent, and a drop of the solution to be analyzed is placed on this paper; an orange-red stain indicates the presence of bismuth.—M. V. GAPTCHENKO and O. G. SCHEINTZIS. *Zav. Lab.*, 4 (1935), 835; through *Chimie & Industrie*, 36 (1936), 30. (A. P.-C.)

Caffeine, Theobromine and Theophylline—Microchemistry of the Methylxanthides. The method given for the identification of the therapeutic methylxanthides is as follows: Place about 1.0 mg. of the sample on a slide and add, by means of a finely drawn-out rod, a droplet of hydrochloric acid (1:2), then mix with the rod until solution occurs. Add gently to the center of the circle of solution a smaller droplet of hypobromite solution than the droplet of acid added above and allow the liquids to mix by diffusion. An orange precipitate forms, which in the case of caffeine has a more reddish tint than theophylline which has a more reddish tint than the precipitate obtained with theobromine. The color disappears after a time. As soon as the precipitate forms, examine without a cover slip under a magnification of 130–150x. Diagrams showing the different crystals are given.—GEORGES DENIGES. *Bull. soc. pharm. Bordeaux*, 74 (1936), 5–11. (S. W. G.)

Carbon—Microanalytical Method for Determination of, in Organic Compounds. Mix 0.2 Gm. of the substance with 0.8 Gm. of potassium permanganate and 0.3 Gm. pumice, both finely ground. Divide into two combustion tubes of 15 cm. length, seal them and heat to 300–400° C. for a few minutes. Collect the carbon dioxide formed in sodium hydroxide solution, by submerging the end-capillaries of the tubes in the solution and shaking in a closed metal container to break the tubes. Connect the container with a distilling apparatus, set the carbon dioxide free with phosphoric acid and distil into 100 cc. 0.1*N* sodium hydroxide containing 3 cc. 10% barium chloride. Filter from the barium carbonate and titrate the alkaline liquid with 0.1*N* acid, using phenolphthalein as indicator.—JUAN A. SÁNCHEZ. *Semana méd.* (Buenos Aires), 43, II, (1936), 360. (A. E. M.)

Carbon Dioxide—Semi-Automatic Determination of, in the Atmosphere and in Combustion Gases. The apparatus effects atomization of a colorimetric reagent (rosaniline decolorized by hydrazine) by means of the gas to be analyzed. If the conditions under which the atomization is effected are perfectly defined and maintained constant, the color acquired by the reagent can furnish an accurate measure of the carbon dioxide content of the sample. The personal factor is eliminated from the evaluation of the color by determining it with an exceptionally simple and reliable photoelectric comparator. The various operations required for carrying out the determination are effected automatically by the manipulation of a single cock. By combining with a suitable combustion furnace (to burn carbon monoxide to carbon dioxide) the apparatus can be used for determining carbon monoxide. By means of specific reagents for other gases, the latter can be determined or detected with the same apparatus.—P. CHOVIN and L. GION. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 276–280. (A. P.-C.)

Carbon Monoxide—Device for Detecting. The device consists esentially of a sheet of *dry* paper impregnated with 2% palladium chloride solution and a sheet of plain paper of the same color held together between two plates of glass. The device is suspended in the suspected atmosphere for a definite time, and in presence of carbon monoxide the sensitized paper uniformly turns gray. Illuminating gas gives approximatey the same reaction, which is advantageous rather than otherwise from a toxicological standpoint. Hydrogen sulfide produces a blackish brown colora-

tion, but only along the edges of the paper. The test can be made roughly quantitative by making the unsensitized paper into a series of panels of colors corresponding to increasing carbon monoxide contents and cutting a circle out of each panel through which the sensitized paper can be observed, so that the color produced on the sensitized paper can be compared directly with those of the various panels.—E. CHAIGNON. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 261–266. (A. P.-C.)

Carrot Umbels (Daucus Carotta L.)—Oil of. Distillation of fresh carrot umbels picked when the flowers begin to seed (first week of August) yielded 1.65% of a mobile, colorless oil of penetrating odor having the following characteristics: specific gravity at 15° C. 0.8804, optical rotation at 15° C. −35°9′, refractive index at 20° C. 1.4727, acid value 0.28, ester value 60.32, ester value after formylation 126.25, carrotol ($C_{10}H_{16}O$) 35.4%, soluble in 1.5 volumes of 90% alcohol with turbidity. Comparison of these results with the constants given by Gildemeister and Hoffmann for carrot seed oil shows that the ripening of the seed considerably increases the refractive index and the solubility of the oil.—ÉTABLISSEMENTS ANTOINE CHIRIS. *Parfums de France*, 14 (1936), 127 (in French and English). (A. P.-C.)

Cations in Organic Substances—Method for the Qualitative Determination of the Principal. After elimination of iron, cyanides, thiocyanates and insoluble matter, the hydrochloric acid solution *A* yields a solution *B* and precipitate *C;* the latter is washed with hot water and contains silver, mercury and lead. Caustic soda is added to *B*, which is boiled and filtered, giving a precipitate *E* and solution *D* containing lead, arsenic, antimony, tin, aluminum, chromium, zinc, lithium and potassium. *E* is dissolved in hydrochloric acid and precipitated with ammonia giving a precipitate *G* and filtrate *F*. Treatment of the latter with hydroxylamine and acetylene gives a copper precipitate and a filtrate containing cadmium, nickel, cobalt, barium, calcium and magnesium. *G* contains mercury, bismuth, iron, chromium, manganese, barium and strontium. The procedure does not require more than 2 hours.—P. SACCARDI and G. GIULIANI. *Chimica*, 11 (1935), 306–309; through *Chimie & Industrie*, 35 (1936), 1055. (A. P.-C.)

Cod Liver Oil—Determination of, in Cod Liver Oil and Malt Extract. An investigation was undertaken in order to discover a simple method of extracting cod liver oil quantitatively, and without loss of vitamin A content, from extract of malt with cod liver oil. The process successfully employed is as follows: Weigh accurately 5 to 10 Gm. in a beaker and mix thoroughly with distilled water (3 cc. for every Gm. taken). Add a quantity of alcohol in the ratio of 8 parts of absolute alcohol to 5 parts of the above dilution and 0.4 Gm. of purified kaolin. Stir thoroughly and allow the precipitate to settle. Filter the clear liquid and add to the precipitate about 50 cc. of alcohol (70%), again stirring and allowing to settle. Filter the clear liquid through ordinary grade filter paper using a "rapid filtering funnel" (S. and G.) and collect the residue in the filter, washing out the beaker with 70% alcohol. When the precipitate has drained, release any liquid from the stem of the funnel and wash the residue with ether from a wash bottle, collecting the ether in a separating funnel. Any precipitate adhering to the paper should be separated with a rounded glass rod. Continue washing with ether until a drop shows no film of oil on evaporation, about 160 cc. being necessary. Wash the ether in the separating funnel with three portions of 30 cc. of distilled water and transfer to a distillation flask. Recover the ether and transfer the contents of the distillation flask to a weighed beaker, washing out the flask with small quantities of ether. Add a few cc. of absolute alcohol and evaporate. Cool and weigh. The oil is then assayed by the B. P. process.—C. GUNN and P. F. R. VENABLES. *Pharm. J.*, 136 (1936), 719. (W. B. B.)

Cuprocyanides of Alkaloids and Organic Bases. New Class of Complexes. The manner of preparation, the composition, the procedure of analysis and photographs of the crystalline precipitates are given for a series of complexes of alkaloids and other organic bases. The compounds were prepared by adding the reagent (5% solution of copper sulfate 100 cc., 6% solution of potassium cyanide 100 cc.) to a neutral solution of a salt of the organic base. The reaction may be applied analytically.—PIERRE MESNARD. *Bull. soc. pharm. Bordeaux*, 74 (1936), 35–36. (S. W. G.)

Digitoxin, Strophanthin K, Ouabain and German Digitalin—New Color Reactions to Differentiate between. The reagents used were (I) 0.3 Gm. vanillin dissolved in 100 cc. of hydrochloric acid. (II) 0.1 Gm. dimethylaminobenzaldehyde dissolved in 20 cc. of alcohol containing 2 drops of 50% sulfuric acid. Traces of digitoxin dissolved in acetic acid and heated with 10 drops

of (I) for 3 minutes to 100° gives a red color which turns into blue. To perform the reaction on pharmaceutical preparations, it is necessary to extract the glucoside with chloroform after addition of borax. Strophanthin K gives with (I) a dark blue color which is not stable. Ouabain evaporated with some drops of (II) gives a violet color after the addition of acetic acid. Preparations of ouabain must be extracted with chloroform after hydrolysis with hydrochloric acid. Digitoxin and ouabain can be separated by extracting the former in presence of borax, the latter after hydrolysis. German digitalin gives with (II) a red color. From preparations it must be extracted with chloroform after hydrolysis with hydrochloric acid. Digitonin gives the same reaction with (II). Both glucosides are distinguished by the reaction with sulfuric acid containing a trace of bromine. Digitalin, only, gives a red color.—JUAN A. SÁNCHEZ. *Semana méd.* (Buenos Aires), 42, II (1936), 151. (A. E. M.)

Easton's Syrup—Determination of Strychnine in. While the B. P. method for the determination of strychnine in Easton's syrup is fairly satisfactory for the assay of freshly made syrups, difficulties arise when the method is applied to the assay of syrups which have stood some time. The author suggests the following method: Carry out the assay for strychnine exactly as described in the B. P. to the stage where the impure alkaloid is obtained. Dissolve this residue in 10 cc. *N* hydrochloric acid and filter through a 9-cm. filter paper into a separator. Wash the flask and filter paper with three further quantities of 5 cc. of acid, then with 25 cc. of a saturated solution of sodium chloride. Repeat the extraction of the filtered liquid by shaking with five successive quantities of 25 cc. of chloroform and continue the B. P. process of separation to the same stage as above and weigh the residue, which should be almost white.—N. EVERS and W. SMITH. *Pharm. J.*, 136 (1936), 715. (W. B. B.)

Ergot—Determination of Alkaloids in. Comparative tests were carried out on the assay of ergot preparations by the Broom-Clark biological method and by the Smith colorimetric method. In the biological assay (which consists in compensating by means of ergot alkaloids the response of a rabbit uterus to adrenaline) it is preferable to use a non-virgin uterus. The latter is placed in 100 cc. of Ringer's solution containing 0.1 cc. of a 0.1% adrenaline solution, and its contractions are inhibited by addition of a solution of ergotamine tartrate or a similar product. Ergoflavine gives a positive reaction with Wasicky's *p*-dimethylaminobenzaldehyde (Smith's colorimetric reaction) and also possesses an anti-adrenaline action. Ergometrine, on the other hand, possess no anti-adrenaline action and cannot be determined by the Broom-Clark method; but it gives a violet coloration with Wasicky's reagent. Fluidextract of ergot prepared according to the Italian Pharm. V is less active than that prepared according to the Italian Pharm. IV.—M. AUSTONI. *Atti Soc. Med. Chir. Padova*, 13 (1935), No. 4, 29–34; through *Chimie & Industrie*, 35 (1936), 1138. (A. P.-C.)

Fagara Lemaerei, de Wildeman—Essential Oil of. The oil obtained by steam distillation of the fruit had the following characteristics: specific gravity at 20° 0.8956, refractive index at 20° 1.4760, optical rotation 14.23°, boiling point about 190°, saponification value 82.65, acidity value 2.01, ester value 80.64, acetyl value (by acetic anhydride in presence of xylene) 81.55, soluble in 6 volumes of 90% alcohol (remaining turbid even in 15 volumes), phenols none. Citral and citronellal were identified.—H. DENIS. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 162–164. (A. P.-C.)

Fat—Refractometric Determination of, in Copra. The author has devised a method for the determination of coconut oil in copra based on the method of Wesson (*Cotton Oil Press*, 4 (1920), No. 3). The latter method uses monochlornaphthalene as the solvent. Monochlornaphthalene has a high refractive index while that of cotton seed oil is much lower, thus, by means of tables the percentage of oil in oil-monochlornaphthalene mixtures may be determined from the refractive index. The author uses benzyl alcohol as a solvent for the coconut oil in copra. Both method and refractometer are described. Tables are given for the various refractive indices, and also the percentages of oil, of several mixtures of coconut oil and benzyl alcohol and finally a table is given for the comparative results between the usual Soxhlet method, and refractive methods using benzyl alcohol, tetralin (tetrahydronaphthalene) and monochlornaphthalene is given. The article is a review of a dissertation from the University of Gröningen. (The identical article published in the *Pharm. Tijdscrift*, 14 (1936), 41, by the author's teacher, Prof. van Os.)—J. P. GROENHOF. *Pharm. Weekblad*, 73 (1936), 1002. (E. H. W.)

Fats—Study of, Work of International Committee for. A brief outline of some of the more

important problems being studied by the International Committee on the unification of methods of fat analysis.—V. VESELY. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 1139–1141. (A. P.-C.)

Formic Acid—Determination of, in Presence of Acetic Acid. In a flask provided with a ground-in reflux condenser place 30 cc. of water, 5 Gm. of potassium periodate and a sample corresponding to an acidity of 3 Gm. (calculated as formic), heat for 2 hours on the water-bath, cool, rinse the condenser with carbon disulfide, transfer the contents of the flask and the washings to a glass-stoppered flask, add 4 to 5 Gm. of calcium carbonate, shake and titrate with decinormal sodium thiosulphate, 1 cc. of which = 11.5 mg. of formic acid. The method, which is derived from that of Béhal, is less expensive, avoids distillation of the iodine and can determine 1% of formic acid in presence of acetic acid.—C. STAINIER and J. MASSART. *Congr. Pharm. (Liège 1934)*, (1935), 186–188; through *Chimie & Industrie*, 35 (1936), 1052. (A. P.-C.)

Furfural—Use of, as an Analytical Reagent. A review of reactions of furfural which could be used in analytical chemistry.—VAN OS. *Congr. Pharm. (Liège 1934)*, (1935), 168–171. (A. P.-C.)

Hog Stomach Preparations—Commercial Desiccated, Analytical Examination of. It would appear desirable to fix as upper limits of hog stomach preparations 5% for moisture, 5% for ash, calculated on a fat- and moisture-free basis and 15% for fat in the case of a non-fat-extracted preparation with a limit of 4% of fat for the fat-extracted preparations. Freedom from organisms producing acid and gas in MacConkey's medium is recommended in preparations which are clinically satisfactory. Reference to Wilkinson's paper (*Brit. Med. J.*, 1 (1932), 325) will show that the establishment of the clinical activity of any sample of material requires at least 2 or 3 patients with a red cell count of less than 1,500,000, suffering from clinical signs and symptoms of pernicious anemia, and who have not received any previous treatment. Manifestly it is impossible to require each batch of a commercial preparation to pass this test. It is urged that analytical data should be obtained which will insure that in the periods between adequate testing the manufacturing conditions have remained constant. Such analytical data would include the peptic activity, the soluble coagulable and non-coagulable nitrogens, together with moisture, fat, ash, insoluble ash, alkalinity of the ash, chloride-content and acidity of the product.—K. BULLOCK. *Pharm. J.*, 136 (1936), 712. (W. B. B.)

Hypophosphites Official in the National Formulary—Assay of Syrups Containing. Reference is made to a study of the official hypophosphite salts and the fact that only two assay methods were found satisfactory. The gravimetric method determines the phosphate formed by oxidation of the hypophosphite and precipitation as magnesium ammonium phosphate and ignition of the precipitate to magnesium pyrophosphate. The bromine method involves oxidation of the hypophosphite ion to the phosphate ion by means of bromine, determination of the bromine consumed and titration of iodine liberated by excess bromine. These methods were applied to four syrups of the National Formulary IV. The Compound Syrup of Hypophosphites offered apparent obstacles to either of the above methods so another method was tried. It was oxidized either with nitric or sulfuric acids and the phosphate determined by the volumetric molybdate method or the gravimetric method. Details of experimental work are reported, including materials and preparation of the syrups, assay procedures and tabulation of results. A method was devised for determination of the calcium in three of the official syrups and results of experimental work are reported. An attempt was made to determine stability of the four syrups. This was done by determining the hypophosphite content before and after standing, using the bromine method. Comparison was made to see whether the hypophosphites underwent chemical change. The assumed oxidation to phosphate or phosphite may not be the only change but these are the most likely and the study was limited to these. The following conclusions were reached: In assaying hypophosphorus acid, the U. S. P. method yields low results. The gravimetric method developed is applicable to the official syrups of ammonium hypophosphite, calcium hypophosphite, calcium and sodium hypophosphites and hypophosphites. This method is simple and yields almost theoretical results. The bromine method developed is also applicable to the four official syrups. This method is rapid, simple, direct and yields excellent results. The official syrups are stable in that the total hypophosphite content remains constant with time. A method has been devised to determine the calcium in official syrups of calcium hypophosphite, calcium and sodium hypophosphites and hypo-

phosphites. The method yields satisfactory results.—GLENN L. JENKINS and CHARLES F. BRUENING. *J. Am. Pharm. Assoc.*, 25 (1936), 491. (Z. M. C.)

Iodine—Determination of Small Quantity of. The method consists of the quantitative oxidizability of hydroxylamine by iodine in presence of sulfanilic acid to the nitrite. The diazo compound formed by coupling with naphthylamine is determined in a Pulfrich photometer. The sensitiveness is 3% and the limit of error is 5 gammas in 10 cc.—ENDRES and KAUFMANN. *Ztschr. f. angew. Chem.*, 49 (1936), 535; through *Pharm. Zentralh.*, 77 (1936), 536. (E. V. S.)

Lead—Determination of Small Quantities of, in Biological Products. The following technic is recommended: organic matter in a 10-Gm. sample is destroyed by wet combustion with sulfuric and nitric acids, after cooling the solution is diluted with 30 cc. of water, 5 cc. of ammonium acetate and 10 cc. of 5% urea solution; the mixture is boiled 5 minutes, cooled and rendered slightly alkaline to litmus with ammonium hydroxide, cooling the flask in water; if the sample contains considerable iron, ferric hydroxide precipitates out and is filtered out. To the filtrate add 5 cc. of 5% potassium cyanide solution, make very slightly alkaline to litmus by suitable addition of acetic acid and ammonium hydroxide (under these conditions lead is the only metal that can give a stable compound with dithizone), shake with successive portions of 0.06% solution of dithizone in carbon tetrachloride till extraction is complete as shown by the color of the dithizone solution, wash the combined extracts successively with distilled water and 1.6% ammonium hydroxide to remove free dithizone; shake the lead-dithizone solution with $2N$ hydrochloric acid which removes the lead and restores the green color of the dithizone solution; dilute to definite volume and compare colorimetrically with a series of standards prepared by treating similarly known quantities of lead. The precautions required in the preparation of the reagents to ensure freedom from lead are described.—RENÉ FABRE and FRANÇOISE LEM. *Ann. Méd. Légale Criminol. Police Sci.*, 16 (1936), 433–436. (A. P.-C.)

Lobelia—Assay of. Because of the wide difference in results given by most methods for the assay of lobelia, the author devised an alternative method, as follows: Lobelia powder, together with an equal weight of ignited sand, is transferred to a long, pear-shaped separating funnel, provided with a plug of cotton-wool in the tube below the stop-cock. A mixture of 4 volumes of ether and 1 volume of 95% alcohol is added. The mixture is shaken and then allowed to stand for fifteen minutes. Dilute ammonia water is added and the separator transferred to a mechanical shaker for one hour. At the expiration of this time the liquid is percolated into a second separator. The percolation is continued, first with ether-alcohol and then with ether until the drug is exhausted, as shown by Mayer's reagent. The alkaloids are extracted from the percolate by shaking out with portions of $N/2$ sulfuric acid, six extractions usually being necessary. The bulked acid solutions are washed with chloroform, followed by washings with $N/2$ sulfuric acid. The acid solutions are bulked, made alkaline with ammonia water and the alkaloids shaken out with successive portions of chloroform. The chloroform solutions are washed with a small amount of water, separated, filtered into a flask and distilled until about 2 cc. remains. To this is added a small amount of absolute alcohol and evaporation is continued on a steam-bath, using a gentle air blast. The process is repeated with two further lots of absolute alcohol to ensure dehydration of the residue. The flask is finally heated in an oven at 80° C. for an hour. Finally the residue is dissolved in $N/50$ sulfuric acid and the excess acid titrated with $N/50$ sodium borate, using methyl red as indicator. Each cc. of $N/50$ acid required represents 0.00674 Gm. of lobelia alkaloids calculated as lobeline.—W. A. N. MARKWELL. *Pharm. J.*, 136 (1936), 617. (W. B. B.)

Luminescence Analysis—Principle and Use of. Certain substances, when observed under ultraviolet light, luminescence and the intensity and color are dependent on the strength of the rays and the composition of the substance. The author describes in detail four lamps suitable for the work and illustrates their use. The German homeopathic pharmacopœia has made use of the method for the identification of substances and some preparations such as tincture of hydrastis. Luminescence analysis may be combined with capillary analysis. The method has a wide-spread application in many industries such as textiles, paper, lacquer, mineralogy, criminal pursuit, etc.—K. SCHULZE. *Scientia Pharm.*, 7 (1936), 77. (M. F. W. D.)

Mercuric Chloride Tablets—Assay of. Addition to mercuric chloride in solution of alkali chromate or bichromate, and then of ammonia to alkaline reaction, precipitates the mercury quantitatively as $(HgN)_2CrO_4.2H_2O$. On dissolving the precipitate in a solution of potassium iodide and sodium thiosulfate 4-Gm.-molecules of alkali hydroxide are liberated for each Hg_2N

radical and can be titrated alkalimetrically. Recommended technic: dissolve one tablet in water to 50 cc., precipitate mercury in an aliquot by an ammoniacal potassium chromate solution (5 cc. of 20% ammonia + 50 cc. of decinormal potassium chromate), centrifuge, wash the precipitate with water, dissolve in a saturated solution of potassium iodide and sodium thiosulfate and titrate with decinormal acid, 1 cc. of which = 0.01318 Gm. mercuric chloride or 0.01003 Gm. mercury. The method is simple, quick and accurate.—S. AUGUSTIN. *Scienz. Farm.*, 3 (1935), 21-26; through *Chimie & Industrie*, 36 (1936), 115. (A. P.-C.)

Morphine—Method for the Determination of, in Body Fluids. A micro-method is described for determination of morphine in body fluids. The method is based on extraction of the alkaloid with ethyl acetate and precipitation of a complex salt of morphine, vanadium and molybdenum as a micro-crystalline cloud which is measured by nephelometry or with the Stuphen photometer. (Ten micrograms of morphine in 1 to 10 cc. of urine may be determined.) *Method for Morphine in Urine*—10 cc. of acid urine, filtered if necessary, is warmed and shaken in a beaker with 0.3 Gm. of sodium bicarbonate until initial boiling begins, then is quickly cooled, transferred to a separatory funnel and the beaker rinsed with 2 cc. of water. Twenty cc. of ethyl acetate are pipetted in and the mixture shaken vigorously for a half minute. After separation the ethyl acetate layer is filtered into a porcelain dish and evaporated on the water-bath. Repeating the extraction 3 times, 90–100% of morphine added to urine may be recovered. On cooling, there is added to the residue from the evaporation 0.25 cc. of water, one drop of nitric acid and one drop of 10% ammonium molybdate solution. The solution is carefully filtered through a plug of about a half cm. length of glass wool pressed into the upper part of the neck of a small funnel. The filtrate is received in a test-tube. The dish is washed with 0.25 cc. of water and filtered, then with two 0.15-cc. portions and filtered. Driving the plug to the lower end of the funnel tube with a probe drives out the fluid remaining in the neck of the funnel. To the filtrate is added about two drops of 2% ammonium vanadate solution. If considerable morphine is present clouding of the clear filtrate begins in a few seconds, if the amount present is small the cloud may not form for several minutes; the maximum of cloudiness occurs within 20 minutes. The solution is then diluted with distilled water to 5 cc. and determined nephelometrically or in the Stuphen photometer. If the unknown is to be compared with a standard, the standard solution is made up when the unknown is filtered, and the vanadate solution is added to unknown and to standard as nearly simultaneously as possible. Three simultaneous determinations can readily be made in an hour. No physiological constituents of the urine interfere, nor do alkaloids except those known as "relatives" of morphine. Interference from dilaudid or dicodid is very slight, however.—W. DECKERT. *Arch. Pharm. u. Pharmakol.*, 180 (1936), 656. (C. S. L.)

Potassium Iodide—Rapid Iodometric Determination of, in Official Tincture of Iodine. *Free Iodine.*—Transfer 5 cc. of tincture of iodine into a tared iodine flask and weigh (p). Add 50 cc. of distilled water and titrate with $N/10$ sodium thiosulfate, using starch indicator, to determine the equivalent number of cc. (n) of free iodine. The hydriodic acid which may be present owing to the decomposition of the tincture is determined by adding potassium iodate to the colorless mixture and any liberated iodine is titrated with $N/10$ thiosulfate, the number of cc. used being represented by (n'). *Total Iodine.*—Transfer and weigh another 5 cc. sample of the tincture, add 50 cc. of distilled water, then add 10 cc. of 2% potassium iodate solution; mix and add 2 cc. of sulfuric acid (1:9). Mix and add 10 cc. of a solution of potassium bicarbonate (1-5). Titrate with $N/10$ thiosulfate using starch indicator. The volume N cc. of thiosulfate solution used corresponds to all the iodine present in the sample. The iodine in 100 Gm. of tincture is $\frac{1.27 \times n}{p}$ Gm. The iodine present as hydriodic acid is $\frac{1.27 \times n'}{p}$ Gm. The KI in 100 Gm. of a tincture free from hydriodic acid is $\frac{0.0166 \times 5 \times (N - n) \times 100}{6 \times p}$ Gm. or $1.3833 \times \frac{(N - n)}{p}$ Gm. If hydriodic acid is present the potassium iodide in 100 Gm. of tincture is $1.3833 \times \frac{(N - n) - \frac{6n'}{5}}{p}$ Gm. Results obtained with tincture of iodine over a period of time are tabulated.—J. GOLSE. *Bull. soc. pharm. Bordeaux*, 74 (1936), 18–22. (S. W. G.)

Rectanol and Tribromoethanol—Rapid Assay of. *Determination of Amyl Alcohol.*—Add 2 drops of the solution of tribromoethanol in amyl alcohol, by means of a drawn-out tube, to 2 cc. of acidified mercuric sulfate (5 Gm. mercuric oxide in a mixture of 20 cc. of sulfuric acid and 100 cc. of water). Shake and heat to boiling. A yellow amorphous precipitate forms and then changes to a white crystalline precipitate. The final color is pale yellow due to some unchanged particles. *Identification of Tribromoethanol.*—Evaporate a droplet of the solution on a cover slip and examine the residue microscopically under a high magnification. The residue may be dissolved in other solvents which on evaporation leave characteristic crystals. Amyl alcohol, chloroform, benzene and carbon disulfide deposit crystals in circular arrangements; while acetic acid, ethyl alcohol and acetone yield rhombic plates.—GEORGES DENIGES. *Bull. soc. pharm. Bordeaux*, 74 (1935), 241–247. (S. W. G.)

Sanatogeen—Analysis of. The author has devised methods for the analysis of Sanatogeen which is a preparation containing 95% casein and 5% of sodium glycerophosphate or a mixture of sodium glycerophosphate and calcium glycerophosphate. The schemes include the content of sodium glycerophosphate, the determination of sodium present as glycerophosphate, the determination of sodium and calcium glycerophosphate and the determination of casein.—H. J. VAN GIFFEN. *Pharm. Weekblad*, 73 (1936), 951. (E. H. W.)

Silver Nitrate—Solubility of, in Alcohol. The published data for the solubility of silver nitrate in alcohol shows considerable variation. There are several difficulties in determining the solubility of silver nitrate in ethyl alcohol, any or all of which may vitiate the result. Dissolution in strong alcoholic solutions is slow and saturation is not attained for several hours. Silver nitrate readily turns brownish black, due chiefly to the effect of organic impurities in the air; this effect seems to be accelerated in ethyl alcoholic solution, particularly at higher temperatures. There is a strong tendency for oxidation of the alcohol to occur at the expense of the nitrate—thus a solution of 90% alcohol after standing at laboratory temperature for fourteen days in an hermetically sealed container in the dark gave an intense magenta color when tested for aldehyde with Schiff's reagent. The method adopted for dissolution was (1) Redistil the alcohol in carefully cleaned apparatus in order to remove dissolved gases. (2) Adjust the alcohol to the required strength by determination of the specific gravity. (3) Recrystallize the silver nitrate and dry. (4) Place silver nitrate and alcohol in a special pipette. Because of results obtained from determinations, it is suggested that the official monograph in the B. P. and other pharmacopœias should read "Soluble in about eleven parts of alcohol (90%) at 15.5° C. and in about six parts at 20° C."—C. L. M. BROWN. *Pharm. J.*, 136 (1936), 618. (W. B. B.)

Succinic Ion—Application of the Sulfo-Resorcin Reaction to. Place 2–4 cg. of succinic acid or succinic anhydride or a succinate in a hard glass tube, add exactly 2 cc. of concentrated sulfuric acid, then add 4 drops of sodium hypobromite solution and heat to boiling. Remove from the flame as soon as the boiling starts, and, by means of a tube, blow out the remaining bromine. Heat again just to boiling, allow to cool for 1 minute, then add 1 drop of a 2% solution of resorcin (acidified with 0.9% sulfuric acid) and shake. The liquid immediately becomes wine red and shows an absorption band in the yellow region of the spectrum. The color may be diluted without destruction with glacial acetic acid.—GEORGES DENIGES. *Bull. soc. pharm. Bordeaux*, 74 (1936), 12–17. (S. W. G.)

Tartaric Acid—Determination of, by Racemate Methods. Determination of tartaric acid by the racemate method using a single precipitation with calcium acetate or sulfate gives unreliable results because the quantity of *l*-ammonium tartrate which must be added depends on the amount of *d*-tartaric acid to be determined. It is therefore essential to use the double precipitation originally described by Kling (*Bull. Soc. Chim.*, 7 (1910), 567). The technic as originally described gives uncertain results, particularly with low tartaric acid contents. Reliable results are obtained by prolonging the period between the first precipitation and filtration to at least 10 hours (conveniently over night), and by effecting the second precipitation by neutralizing with ammonia instead of by addition of sodium acetate.—E. PEYNAUD. *Ann. Fals.*, 29 (1936), 260–273. (A. P.-C.)

Trivalent and Quinvalent Arsenic—Determination of. Dissolve 0.2 Gm. of sample in 50% hydrochloric acid in a stoppered Erlenmeyer flask, dilute with water and titrate trivalent arsenic with decinormal potassium bromate at 50° to 60° C. in presence of methyl orange indicator; make the titrate solution strongly acid with hydrochloric acid, add hydrazine sulfate, dis-

til, titrate total arsenic in the distillate as above and calculate quinvalent arsenic by difference.—I. M. DOUBROVINE. *Zav. Lab.*, 4 (1935), 888-891; through *Chimie & Industrie*, 36 (1936), 31. (A. P.-C.)

Vitamin A—Determination of, by the Hilger Vitameter. Measurement of ultraviolet absorption by an oil at about 328μ is generally recognized as being the best method for the quantitative determination of vitamin A. The Hilger vitameter is designed for carrying out this determination. The vitameter was controlled by carrying out determinations on a large number of samples of cod liver oil and other substances rich in vitamin A, parallel determination being made with the spectrograph. In every case the two instruments gave perfectly agreeing results. Errors in reading the vitameter are sometimes appreciable. Photographic recording is more reliable, and in this case the error cannot exceed $\pm 3\%$, which is of the same order as the error with ordinary spectrographs.—A. NOTEVARP. *Tids. Kjemi Bergvesen*, 15 (1935), 152; through *Chimie & Industrie*, 36 (1936), 39. (A. P.-C.)

Volatile Oil Drugs—Determination of the Quality of. Three methods for the determination of volatile oil in drug material are discussed: that of the German Pharmacopœia VI; the method used in the spice trade and the rapid method of Dr. Kühn (*Pharm. Ztg.*, 79 (1934), 99). The latter method utilizes the apparatus of A. v. d. Werth (*Chem. Ztg.*, 52 (1928), 23) in which the volatile oil (distilled with steam) is caught in a burette, the arrangement being such that the excess water is returned to the distilling flask and the process goes on continually until all of the volatile oil in the drug material is in the burette and may be thus determined volumetrically. The author has devised a modification of this apparatus in which a microburette is employed. This microburette is installed at the lower end of the (reflux) condenser and within the neck of the distilling flask. Numerous advantages of the modification are discussed and drawings are given.—H. THEO. MIJNHARDT. *Pharm. Weekblad*, 73 (1936), 791. (E. H. W.)

TOXICOLOGICAL CHEMISTRY

Arsine—Accidents Caused by, in Industry. The symptoms of arsine intoxication, according to its gravity, are described; the order of magnitude of toxic doses are indicated; methods proposed for the detection of arsine are reviewed; experiments on the evolution of arsine during the recovery of cadmium and during pickling are described, and measures are suggested for preventing this professional hazard. When precipitation of arsenious compounds by zinc powder is effected in solutions containing approximately 5 Gm. of sulfuric acid per liter, there can be evolved arsine in toxic amounts; the presence of sulfates in the solution decreases the evolution of arsine, and cadmium sulfate exerts an inhibiting effect. Increasing the acidity or raising the temperature favors evolution of arsine. Precipitated arsenic sludge, when introduced into fresh acid solution, can be reconverted into arsine on addition of zinc dust. Cadmium seems to act as a retarder on the evolution of arsine when the acidity of the solution is low, but not in strongly acid solution. In the pickling of zinc by acid containing arsenic the evolution of arsine can reach 40 Gm. in 30 min. per sq. m. of zinc attacked.—G. BATTA, J. FIRKET and E. LECLERC. *15me Congrès de Chimie Industrielle (Bruxelles, Sept. 1935)*, (1936), 897-920. (A. P.-C.)

PHARMACOGNOSY

VEGETABLE DRUGS

Agar-Agar—Japanese. Agar-agar is manufactured by dehydrating the jelly made by boiling in water seaweeds consisting of several species of Gelidium, one of the commoner ones being *Gelidium Amansii*. The principal producing centers in Japan are the districts around Osaka, Kyoto, Hyogo and Nagano, all situated in the southern part of Honsii, the largest of the Japanese islands. Agar is now included in the B. P. and is used in many preparations for the treatment of constipation. Karaya or sterculia gum is another substance used in similar preparations and resembles agar in giving a red coloration with solution of ruthenium red, but is distinguished by its failure to respond to the peculiar iodine test given in the Pharmacopœia for agar.—ANON. *Pharm. J.*, 136 (1936), 618. (W. B. B.)

Colombo Root—Constituents of. A review of the various constituents of colombo root showing the structural formula for palmatin and jatrorrhizin. A satisfactory method for the alkaloidal determination has not yet been proposed. The direct precipitation of the iodide out of

an alcoholic or hydroalcoholic extract and subsequent gravimetric determination is not recommended due to the many impurities which separate out. As for the bitter principles, they can hardly be extracted.—W. Awe and R. Brachvogel. *Pharm. Ztg.*, 81 (1936), 488. (J. A. M.)

PHARMACY

Galenical

Aconite—Variation in Toxicity on Storage of Some Galenical Preparations of. The author concludes from his studies, which he describes in detail, that the dry extract of aconite is quite stable, deteriorating only slightly in the course of one year and that it truly represents the activity of the root. The dry extract could easily replace all other extracts more or less completely, particularly those prepared without special precautions as to the use of heat. The dry extract could also serve to prepare the tincture by simple solution in 25% alcohol and adjustment of the p_H to 2.5 to 3. A tincture, just as the dried extract, should never be stored for more than one year without retesting for physiological activity.—R. Freudweiler. *Pharm. Acta Helv.*, 11 (1936), 193. (M. F. W. D.)

Barbiturate Solutions—Decomposition of, by Heat. It was observed that a recently filtered and hitherto bright solution of barbitone-sodium became cloudy on boiling. As this phenomenon had not previously been observed, it was thought advisable to obtain specimens of the compound from several sources, and investigate the effect of heating their solution. It was found that monosodium derivatives of both alkyl and aryl C-substituted malonyl-ureas are decomposed by heating in aqueous solution at temperatures above 100° C. Some are decomposed below this temperature. The main decomposition product is a crystalline precipitate, and is the mono-ureide of the di-substituted acetic acid corresponding to the original di-substituted malonyl urea, *e. g.*, diethyl-malonyl-urea (Soluble Barbitone B. P.) gives diethyl-acetyl-urea. Some batches of a given malonyl-urea decompose more readily than other batches of the same compound. This is possibly due to a slight excess of free alkali and a method is suggested whereby this free alkali would not be present. It is recommended that sterile solutions of monosodium derivatives of all substituted malonyl-ureas are best prepared by suitable filtration under aseptic conditions. Solutions of soluble barbital will withstand tyndallization without decomposition. The statement of the B. P. 1932 that solutions of Soluble Barbital may be sterilized by heating in an autoclave requires revision.—A. E. Bailey. *Pharm. J.*, 136 (1936), 620. (W. B. B.)

Calcium Gluconate—Injectible Solutions of. The recommended stabilization of calcium gluconate solutions with boric acid or borax causes a shift of the p_H to 4.12 or 4.82 after sterilization. Solutions of the pure salt of 10 or 20% can be sterilized for 20 minutes at 120°, are stable and have the more appropriate p_H of 6.12–6.36.—J. Sonol. *Rev. farm.* (Buenos Aires), 78 (1936), 254. (A. E. M.)

Copper Ammonium Sulfate—Stable Solution of, Suitable for Intravenous Use. Dissolve under aseptic conditions 3 Gm. copper ammonium sulfate, 3 Gm. ammonium chloride and 3 Gm. sodium camphosulfate in 100 cc. of water and fill in sterilized 2-cc. ampuls. Doses of 1 to 2 cc. daily are given in streptococcus infections. The solution is stable for over 19 months.—Carlos A. Grau. *Rev. farm.* (Buenos Aires), 78 (1936), 213. (A. E. M.)

Eye Drops—Cocaine Factory. Crystals obtained as a deposit from 0.5% Cocaine Factory Eye Drops were examined. They contain no mercury, cocaine or cocaine hydrochloride, and they do not result therefore from a simple combination of different constituents of the eye drops. After recrystallizing from 95% alcohol and also by washing the original deposit with anhydrous ether, identical samples of crystals were obtained, free from castor oil or fatty matter, and retaining their definite crystalline form. Only a very small proportion of crystals were dissolved during the ether washing. On examination of the purified crystals they were proved to be benzoyl-ecgonine. A first melting point was obtained at 89.8° C.; resolidification on further heating occurred, and a final melting point of the anhydrous substance at 198° C. The crystals obtained from ether, deprived of their water of crystallization by drying at 100° C. gave a single melting point of 197.2° C. A specific rotation of −62° was given by a 0.8% solution in chloroform.—W. Forster. *Pharm. J.*, 137 (1936), 83. (W. B. B.)

Galenical Preparations V—Researches on, Rose Water. The Swiss Pharmacopœia V requires rose water to be prepared by distillation. The pharmacopœial odor test is not met by

some samples prepared by distillation since dry or old petals rather than fresh ones have been used. The author ran a bromine absorption test by allowing 50 cc. rose water to stand with 20 cc. of 0.1 *N* bromide-bromate solution in acid media for 12 hours and determining the excess bromine by titration of the iodine liberated from potassium iodide. He also used a test in which 10 cc. of rose water was allowed to stand with 1 cc. of 5% solution of phenylhydrazine hydrochloride for 10 minutes. He tested 10 samples obtained from drug stores and wholesale drug houses and 3 samples prepared by adding artificial oil of rose, Oleum Palmæ Rosæ and true oil of rose to distilled water. The results show that an abnormally small or large absorption of bromine is given by solutions not meeting the requirements. A good sample should show only a slight turbidity with phenylhydrazine. The author recommends that the Pharmacopœia permit the preparation of rose water using 4 drops of true oil of rose to 1 L. of water.—L. ROSENTHALER. *Pharm. Acta Helv.*, 11 (1936), 183. (M. F. W. D.)

Glycerin from Rice. A new process of manufacturing glycerin from broken rice and rice waste has recently been perfected in Italy. One hundred kilos of broken rice will give a yield of 30.4 kilos of glycerin, 7.8 kilos of ethyl alcohol and 7.1 kilos of vegetable casein. The cost is relatively low and the apparatus required not excessively costly, consisting largely of vats kept at a constant temperature, filtering apparatus, rotary centrifugal machines and apparatus for the preparation of the starch water. The raw materials required are powdered rice, malt, sodium sulfite and brewer's yeast.—ANON. *Perfumery Essent. Oil Record*, 27 (1936), 308. (A. C. DeD.)

Hashish—Standardization and Pharmacology of. The author has examined the published methods of assay, and concludes that the only method for standardizing cannabis is a pharmacological one, although this shows numerous disadvantages which make it inadaptable for general use. While the acetyl value or the iodine number of the resin did not agree with the activity of the drug, the close relationship which seems to exist between the color-producing substance and the activity of the drug suggested the possibility of a colorimetric method for standardization. The pharmacological effect of the drug was found to be extremely variable, even on one and the same person. The main action of the drug was on the central nervous system. It first gave rise to excitement, and then to depression of the highest and controlling centers, producing a complete loss of time and space relations, these being generally over-estimated. The author intends to raise, in relation to the effect of cannabis and its preparations and to the regulations of the League of Nations concerning its use, the following questions: (1) Is it fair to punish any person for the possession of cannabis and its preparations when they prove to be inactive? (2) As long as cannabis and its preparations more or less resemble alcohol in effect, why should its use be prohibited by law while alcohol is left free, especially in Mohammedan countries? (3) Is it possible that the stimulant and sedative action and curious hallucinations relating to perception of time and space may be due to the same active principle or is each of these effects caused by a special compound?—I. R. FAHMY. *J. Egypt. Med. Assoc.*, 19 (1936), 1; through *Pharm. J.*, 136 (1936), 660. (W. B. B.)

Homeopathic Preparations—Contribution to the Knowledge of, XII. Characterization of Tinctures by Means of Flavone and Its Derivatives. Thirty-six tinctures are tested for flavone and the following identified by their reactions for the same: orange peel, Cepa, Cina, digitalis, Erica, Ledum, Petroselinum, *Podophyllum peltatum*, *Prunus spinosa*, *Rhamnus cathartica*, Quercus, *Rhus toxicondendron* and Ruta. The methods of purification of the tinctures for identification and the tests used are fully described. It has been proved that not all of the tinctures prepared from drugs containing flavone contain these bodies.—A. KUHN and G. SCHÄFER. *Apoth. Ztg.*, 51 (1936), 855–858. (H. M. B.)

Injection Medicines—Studies of. VIII. Stability of Solutions of Arecoline on Heat Sterilization. A method for quantitative extraction of arecoline with isopropyl alcohol-chloroform mixture (1–3) and determination of the alkaloid by titration is described. With the aid of this method sterilization losses are studied. Aqueous solution of arecoline hydrobromide in Jena glass ampuls may be sterilized for 1 hour at 100° C. without detectable hydrolysis. Autoclaving at 120° C. for 20 minutes causes 5% decomposition. Buffers do not help and autoclaving at p_H 6 in buffered solution causes 30% decomposition, while at p_H 7.4 the loss may be as great as 80%. Adding a little hydrochloric acid to arecoline solutions stabilizes them. If acid is added until a solution of arecoline hydrobromide reached a normality of 0.001*N* free hydrochloric acid, the solution may be autoclaved without detectable decomposition. However, if stronger acid is used

(0.1*N* free acid), acid hydrolysis begins and 10% of hydrolysis of the alkaloid may occur on autoclaving.—S. A. SCHOU. *Dansk Tids. Farm.*, 10 (1936), 175. (C. S. L.)

Medicinal Products—Manufacture of. Two tables are given to show that Great Britain's output of medicinal products is on the increase. The first table covering these products shows the output of certain specified items, and the total value of them with unspecified products included in a "miscellaneous" heading. The second table gives an insight into production, exports and imports.—ANON. *Pharm. J.*, 137 (1936), 78. (W. B. B.)

Olive Oil, Neutral. It is often desirable to have an olive oil, not only for injection, but also for nose drops, that is free from fatty acids. The method used in Holland consists of shaking the olive oil with one-half its weight of alcohol. An experiment with this method gave the following results:

	Acid Number
Original oil	5.1
After the first shaking out	3.8
After the second shaking out	2.8
After the third shaking out	1.9
After the fourth shaking out	1.4
After the fifth shaking out	1.0

It will thus be seen that a shaking out with a quantity of alcohol equivalent to the $^1/_2$ weight of the oil removes about 25% of the fatty acids. Using an equal weight of alcohol removes about 45% of the fatty acids. Since these results are somewhat indefinite the author prefers an olive oil purified by either the method of the French Codex (1926) or the Swiss Pharmacopœia (Ed. V.). In the latter method the fatty acids are removed with warm concentrated soda solution, the aqueous liquid being removed by filtration and dried over dried sodium sulfate.—T. POTJEWIJD. *Pharm. Tijdschrift*, 4 (1936), 67. (E. H. W.)

Polynesian Preparations. Several preparations are discussed under the following headings: Intoxicating beverage (Kava or Kawa-Kawa from *Piper methysticum* Forst.); Popoi (bread fruit from *Artocarpus incisa* L.); Condiment (from sand crabs); Trépang (aphrodisiac prepared from fish of *Holothuria* or *Actinopygia* species.—R. GIRARD and A. BRANCOURT. *Bull. soc. pharm. Bordeaux*, 73 (1935), 251–254. (S. W. G.)

Stramonium—Dry Extract of. An investigation was carried out for the purpose of providing a suitable method for the production of a satisfactory dry extract of stramonium containing 1% of alkaloids, calculated as hyoscyamine. In all cases extraction was carried to exhaustion by percolation. Extraction was continued in the case of alcoholic menstrua until there was no reaction with Mayer's or Thresh's reagent. With distilled water it was continued until there was no appreciable color in the percolate. The percolate was evaporated to dryness under reduced pressure at a temperature not exceeding 50° C.; the residue being dried at a temperature not exceeding 70° C. A preliminary investigation, the results of which are tabulated, indicated that for the preparation of a suitable extract a strong alcohol would be the best solvent. The chief reasons against the use of powdered drug as a diluent are: (1) In the assay process results are likely to be low, due to difficulty in extracting all the alkaloids from the leaf; (2) at least two alkaloidal assays are necessary during the preparation of the extract; (3) probably the alkaloids are not present in the same state in the leaf as in the extractive, and there is a possibility that the active principles in the leaf are not so readily available for therapeutic purposes. The diluent decided upon was starch, previously dried at 100° C. It is suggested that the following process be adopted for the production of a dry extract of stramonium: Extract 1,000 Gm. of stramonium in moderately coarse powder by percolation with 95% alcohol until 4,000 cc. of percolate have been collected. Determine the total solids present in the percolate. Determine also the proportion of alkaloids in the percolate. From these data calculate the quantity of air-dry starch that must be added to the percolate to produce a dry extract containing 1% of the alkaloids of stramonium. Evaporate the percolate to a syrupy consistency at a temperature not exceeding 50° C. and incorporate the whole diluent. Dry at 70° C., powder and pass through a No. 22 sieve.—A. T. MOORHOUSE. *Pharm. J.*, 136 (1936), 718. (W. B. B.)

Tablets at Short Notice. A description and illustration of a small machine that may be used for making small batches of tablets.—J. K. MORGAN. *Pharm. J.*, 137 (1936), 64. (W. B. B.)

Tablet Manufacture—in Drug Stores in Denmark. The Danish Pharmacopœia VIII appearing in 1933 contained not only a general statement about tablets but also detailed directions for the preparation of 28 different tablets. The dispensing of tablets has become so general that 300 out of 340 Danish pharmacies have their own tablet machines. Study has shown that tablets prepared in the pharmacies differ in no way from those prepared by manufacturers. The general directions on tablet manufacture of the Danish Pharmacopœia are quite detailed and are reprinted. Since the dissemination of accurate information on tablet manufacture, drug stores doing a business of 100,000 Danish crowns average about 500,000 tablets per year and hospital pharmacies about 1,500,000. A list of 51 official tablets is included.—S. A. SCHOU. *Scientia Pharm.*, 7 (1936), 81. (M. F. W. D.)

Tinctures—Aging of. The changes in color, sediment, specific gravity and the amount of dry residue in eleven tinctures official in the German Pharmacopœia VI upon standing for $3^1/_4$ years are reported. The amounts of active constituents and % decrease in the content for five tinctures for the same period is noted; these changes are noticeably great. B. also verifies the statement of Eschenbrenner and Gärtner that tinctures from ground drugs by the method of double maceration show the greatest content of active constituents.—WALTER BIEL. *Apoth. Ztg.*, 51 (1936), 1123–1125. (H. M. B.)

Vegetable Materials—Extraction of. According to the author, the underlying fundamental principles involved in the extraction of the physiologically active principles from vegetable materials have not received sufficient attention in the past. In detailed fashion, the author discusses the influence of vacuum on extraction, circulation of menstruum and a design for large-scale extraction plants. Illustrations are given which show (1) an extraction plant, (2) a circulating percolator, (3) extractors operated by repeated distillation of the solvent and (4) a vacuum agitating extractor.—W. C. PECK. *Pharm. J.*, 136 (1936), 715. (W. B. B.)

PHARMACOPŒIAS AND FORMULARIES

National Formulary—American. Review of the Sixth Edition. The sixth edition of the National Formulary contains a number of formulas that were not included in the previous issue. There is an increase from 7 to 28 in the formulas for ampuls; from 7 to 48 in the number of formulas for tablets; seven glandular preparations are included for the first time, and two new ointments have been added. On the other hand, the number of fluidextracts has decreased from 104 to 71; pills from 23 to 12; syrups from 37 to 25, and tinctures from 55 to 46. The fact that this issue of the N. F. contains 84 fewer monographs of pharmaceutical preparations than the N. F. V is an indication that it is in keeping with the practice set by national pharmacopœias. Among some of the interesting preparations in the N. F. VI are the following: Elixir of Barbital, Elixir of Phenobarbital, Elixir of Sodium Thiocyanate, Jelly of Ephedrine Sulfate, Compound Paste of Acetylsalicylic Acid. The N. F. VI became official in the United States on June 1, 1936. Since publication, a list of fifty-four corrections has been issued, of which copies can be obtained for inserting in the formulary.—ANON. *Pharm. J.*, 136 (1936), 655. (W. B. B.)

Pharmacopœia—Leicester Royal Infirmary. The previous issue of the Leicester Royal Infirmary Pharmacopœia was published in 1920, and the appearance in the meanwhile of a new B. P. and of two issues of the B. P. C. has naturally necessitated substantial changes. Among the many hospital Pharmacopœias that have been reviewed during the last three or four years, this compilation has at least one distinction. It is the first pharmacopœia to adopt one or two preparations from the National Formulary for Health Insurance purposes.—ANON. *Pharm. J.*, 137 (1936), 84. (W. B. B.)

Swiss Pharmacopœia V—Remarks of a Pharmacist on. Nearly the entire article is devoted to comments on the Swiss pharmacopœial requirements for potassium soap (similar to U. S. P. soft soap). The determination of water content, excess alkali and of unsaponifiable matter are discussed and the Swiss requirements compared with those of the German Pharmacopœia VI and the U. S. P. XI. The method of determining the unsaponifiable matter is commented upon in detail. The preparation of solution of lead subacetate has not been changed from edition 4 to 5, but the specific gravity of the solution has been corrected to a more practical figure.—K. SEILER. *Schweiz. Apoth.-Ztg.*, 74 (1936), 465. (M. F. W. D.)

NON-OFFICIAL FORMULAS

Almond Creams and Other Hand Lotions. The disadvantages of the old types are discussed and a good hand lotion is stated to have the following characteristics: (1) should be stable, (2) not sticky, (3) leave no soapy residue on the hands, (4) penetrate the skin with a minimum amount of rubbing and (5) impart to the skin a smooth soft feeling and protect against drying and chapping. The following formulas are presented: (1) *Almond Cream.*—Group I nucleus—Cetyl alcohol 0.08%, stearic acid 1.37, triethanolamine 0.38, lanolin 2.34, propylene glycol 0.53 and water 17.86. Group II.—Water 63.06%, propylene glycol 6.37, alcohol 6.93, sweet almond oil 0.13, perfume oil 0.05. Melt the stearic acid and cetyl alcohol. The required amount of triethanolamine, water and propylene glycol are mixed together, heated to about 70° C., and run slowly into the melted waxes with constant stirring. After the reaction is complete the stirring is stopped and the lanolin is added and permitted to melt, stirring thoroughly into the emulsified waxes. The components of Group II with the exception of the alcohol and perfume are heated to 70° C., then run slowly into the nucleus with constant stirring at about 10 r. p. m., cool to 45° C., add the perfume oil in the alcohol, cool to 25° C. and stir for several hours, then run through a colloid mill and bottle as soon as possible. (2) Cetyl alcohol 2.70%, powdered castile soap 0.63, glycerin 0.18, sweet almond oil 0.67, alcohol 0.90, perfume oil 0.30, water 94.52. Melt together the cetyl alcohol, soap and almond oil, stir rapidly while the water-glycerin solution at about 68° C. is slowly added. Cool to 50° and the perfume dissolved in the alcohol is added slowly, pass through a colloid mill and bottle as needed.—ALFRED N. SHOTT. *Drug and Cosmetic Ind.*, 39 (1936), 185–186. (H. M. B.)

Baby Specialties. Specialties include teething lotions, antiseptic baby oil, powder, suppositories, diaper rinse and baby foods. General items are cough syrups, liquid shampoo soap, milk of magnesia, laxatives, suntan oil, soothing lotions and cod liver oil. These items are discussed and the following formulas offered: *Antiseptic Baby Oil.*—White mineral oil (65–75) 45, refined peanut oil 54.7, oxyquinoline benzoate 0.2, maleic anhydride 0.1. Dissolve the last two ingredients in the peanut oil and add the mineral oil and filter. *Antiseptic Baby Powder.*—Boric acid 60, talc 29, zinc stearate 10, trisodium phosphate 1. *Baby Scalp Oil.*—Staveacre seed oil 30, olive oil 70. Mix, filter and perfume lightly. To make an ointment add benzoinated lard and a suitable amount of white wax.—*Drug and Cosmetic Ind.*, 39 (1936), 42, 48, 64. (H. M. B.)

Beauty Milks. Formulas are given for old and new type beauty milks (Laits Virginals): *Old Types.*—(1) Tr. Benzoin 25, glycerin 25, tragacanth mucilage 25, witch-hazel solution 125, rose water 800. (2) Tragacanth powder 3, almond oil 15, Tr. Benzoin (10%) 4.5, perfume 1, alcohol 15, glycerin 45, distilled water *q. s.* 256. (3) Borax 1, powdered castile soap 4, cold cream 8, rose perfume *q. s.*, rose water 144, alcohol 16 (all parts by weight). *Modern Types.*—(1) Stearic acid 75, beeswax 10, cetyl alcohol 10, glycerin 40, triethanolamine 15, witch-hazel extract 850. (2) Triethanolamine 12, mineral oil 30, perfume 1, fine colloidal clay 8, distilled water 150. (3) Mineral oil 30, stearic acid 2, cetyl alcohol 1, sapamine citrate 16, distilled water 150. Due to the sapamine citrate, this is an "acid" milk in harmony with the acid coating of the skin which rarely exceeds p_H 5.—HENRY LEE-CHARLTON. *Am. Perfumer*, 33 (1936), No. 1, 62–63, 97. (G. W. F.)

Cuticle-Removing Compositions. An amide of a low-molecular aliphatic acid such as formamide is used as a cuticle remover (suitably in a 40 to 60% aqueous solution).—DAGFINN G. THUESEN, assignor to EGYPTIAN LACQUER MANUFACTURING CO. U. S. pat. 2,041,158, May 19, 1936. (A. P.-C.)

Dentifrice. Dimethylcellulose is used as a foam-producing ingredient in a soapless dentifrice which also may contain glycerol, calcium sulfate, glycol stearate, etc.—EARL B. PUTT, assignor to HERMAN THEAMAN. U. S. pat. 2,042,359, May 26, 1936. (A. P.-C.)

Drying and Disinfecting Powder. A drying and disinfecting powder is composed of trioxymethylene, ammonium alum and magnesium sulfate ground and mixed in suitable proportions with suitable setting, hardening and moisture absorbing elements.—ARTHUR J. HETTEL. U. S. pat. 2,047,323, July 14, 1936. (A. P.-C.)

Insecticide and Fungicide. A solution of the oil-soluble principles of common mullein in a petroleum hydrocarbon oil is used as insecticide and fungicide.—THERON PALMER REMY, assignor to THE TEXAS CO. U. S. pat. 2,046,181, June 30, 1936. (A. P.-C.)

Insectifuge Emulsion. An emulsion suitable for use on the skin contains a dialkyl phthalate such as diethyl phthalate in water with a small proportion of soaps as an emulsifying agent to

form a product of about the same consistency as cold cream.—WALTER C. O'KANE. U. S. pat. 2,041,264, May 19, 1936. (A. P.-C.)

Lotions—Emollient and Astringent. Types of lotions are discussed and 19 formulas offered.—A. RICHARD BLISS, JR. *Drug and Cosmetic Ind.*, 39 (1936), 54–56. (H. M. B.)

Preparations for the Hair. The table appearing on page 463 is offered.

Weed-Killers—Some Metallic and Inorganic Compounds Used as. A review dealing with copper sulfate, ferrous sulfate, ammonium sulfate, sulfate mixtures, other copper salts, zinc sulfate, kainit, arsenic compounds, chlorates, calcium cyanamide, ammonium thiocyanate, sulfuric acid and other substances, with bibliography of 65 references.—ANON. *Bull. Imp. Inst.*, 34 (1936), 189–211. (A. P.-C.)

DISPENSING

Belladonna Leaf, Ipecac and Stramonium—Extraction by Percolation of. The yield of total extractive in belladonna increases as the powder size decreases. The alkaloidal yield varies in the same way. The relative proportion of alkaloid to total solids is greatest in the extract from the 22/60 powder and least in that from the 85 powder. The alkaloids are extracted more quickly than are the other soluble constituents of the drug. In ipecac, the yield of total extractive increases as the powder size decreases. A moderately fine powder 44/85 gives a better alkaloidal yield than either a fine powder or a moderately coarse powder. The percentage of alkaloids in the total extractive of ipecac is greatest in that from 44/85 powder. The phenolic alkaloids are extracted by alcohol (90%) more quickly than are the non-phenolic type, and after a time practically all of the alkaloids in the marc are non-phenolic. For stramonium a fine powder, 85, yields more total extractive and total alkaloids than does a moderately coarse powder, 22/60, which in turn gives a greater yield of both than does a moderately fine powder, 44/85. The proportion of alkaloids to total extractive in stramonium is most in the 22/60 powder and least in the 44/85 powder. The alkaloids are extracted more quickly than is the total extractive of stramonium, although in the early stages of percolation the reverse is the case.—A. W. BULL. *Pharm. J.*, 136 (1936), 708. (W. B. B.)

Cinchona Bark and Bearberry Leaves—Preparation of Decoction of, Comparison of Methods for. A comparison is made of various means of preparing decoctions of Cortex Chinæ and of Folium Uvæ Ursi as regards yield of alkaloid from the cinchona bark, and of arbutin and hydroquinone from the bearberry leaves. From Cortex Chinæ the boiling method extracts as much material as does the method of the Norwegian Pharmacopœia (corresponding to method of D. A. B. VI). The method of the Swiss Pharmacopœia gives higher alkaloid yield. Adding citric acid in quantity equal to the alkaloid content of the drug gives richer decoctions. Rapp's method (*Wissenschaftliche Pharmazie* (1929), 10) gives decoctions weaker in content of alkaloid. *Decoctum chide acidum:* Acid decoctions (HCl) as made by the method of the Norwegian Pharmacopœia are richer in alkaloid content by 13–14% than are decoctions made without acid. *Folii Uvæ Ursi:* The boiling method and the methods of the Norwegian and the Swiss Pharmacopœias give equal yield if cut drug is used. Using coarsely powdered drug the content of arbutin and hydroquinone is greater. Rapp's method again gives lower yield of the active principles than do the pharmacopœial methods.—A. JERMSTAD and O. ÖSTBY. *Dansk Tids. Farm.*, 10 (1936), 161. (C. S. L.)

Drop Doses—Measuring of. The author attacks an earlier article of similar nature by J. Thomann (*Pharm. Acta Helv.*, 11 (1936), 114). Using water as an example, the author prepares tables which show that three makes of patent dropping bottles and bottles with lips curved for dropping give drops which are too large. The Normal-Patent Dropping bottle measures drops meeting the pharmacopœial requirements (20 drops = 1.0 Gm. ± 0.05). The normal drop counter meeting the pharmacopœial requirements as to size gives accurate drops. Bottles fitted with dropping rods are satisfactory if the diameter of the rod is 3.2 to 3.3 mm. and if 15 drops or more are counted. For smaller numbers of drops it is inaccurate. The author concludes that the pharmacopœial requirement that potent medicines be dispensed with a normal drop counter is not unreasonable inasmuch as the cheaper devices are not accurate excepting the dropping rods under the conditions set forth.—J. BÜCHI. *Pharm. Acta Helv.*, 11 (1936), 165. (M. F. W. D.)

Iodotannic Syrup—Preparation of. To a solution of 5 Gm. of tannic acid in 245 Gm. of distilled water add at regular intervals a solution of 2 Gm. of iodine in 20 cc. of 95% alcohol, keeping the temperature at 40° to 50° C.—A. GUERRA. *Boll. Chim. Farm.*, 76 (1935), 587–588; through *Chimie & Industrie*, 35 (1936), 1134. (A. P.-C.)

Item	Purpose	Properties	Composition	Formulas			
Permanent Wave Solution	To permit hair to be curled with proper heat treatment	Solution, usually with an ammoniacal odor, often tinted	Weakly alkaline solution, p_H 10, to stretch hair for curling and waving. Volatile alkaline mixtures said to cause less damage. NH_3, borax, K_2CO_3 most often used; also sodium and ammonium sulfites, sodium thiosulfate, etc.	Ammonia 25% Borax Potassium carbonate Disodium phosphate Ammonium chloride Water	5.0 0.7 0.3 94.0	10.0 5.0 1.0 84.0	8.0 2.0 1.0 0.5 88.5
Wave Set	Gum solution to set waves between permanent treatments	Translucent or opaque gum solution with desired properties as an adhesive. Color and perfume usually present	Tragacanth, karaya, Irish moss, quince seed, most popular. Alcohol to accelerate drying, glycerin inhibits flaking on the hair; preservatives essential	Karaya Tragacanth Alcohol Glycerin Borax Water preservative	2.0 5.0 2.0 91.0	 1.0 10.0 2.0 3.0 84.0	1.0 0.5 10.0 1.5 2.0 85.0
Brilliantine	An oily treatment to make the hair lustrous and keep it in place	Tinted and perfumed mixture of oils and waxes, liquid or solid	Mineral oil of medium viscosity to give high lustre; vegetable oil for dry hair and scalp; waxes make a solid mixture; preserve when necessary	Mineral oil Olive oil Spermaceti Petrolatum	90.0 10.0 	 20.0 	50.0 80.0 50.0
Shampoo	To cleanse the hair thoroughly without leaving it harsh	Clear solution, lathering or non-lathering types	Contain 20–30% soluble soap lathering quickly and abundantly; non-lather shampoos are sulfonated vegetable oil mixtures; new lathering ones contain non-alkaline wetting agents of high detergent power	*Lathering* Coconut oil 8 Olive oil 12 KOH 4.4 Alcohol 3 Water 72.6		*Non-Lather* Sulfonated castor oil 62 Sulfonated olive oil 31 Mineral oil 5 Ethylene glycol 2	*Soapless* Wetting Agent 8 Glycerin 5 Sugar 5 Tartaric acid 0.5 Water 81.5
Rinse	To liven the hair, restoring lustre after washing	An acid solution to dissolve lime soaps produced by shampoo and hard water	Citric and tartaric acid in lemon rinses (lemon odor); acetic effective and cheap	4% solution of the acid in water with a little alcohol or glycerin to keep perfume in solution.			

—*Drug and Cosmetic Ind.*, 39 (1936), 46–47. (H. M. B.)

Iodotannic Syrup—Testing of, by Dilution. A relationship was previously established between the color of iodotannic syrup on dilution and the free iodine content. The color is affected by the p_H of the dilution water, and in order not to affect the iodine-tannin complex an absolutely neutral or buffered solvent must be used.—A. BATOLE. *Boll. Chim. Farm.*, 74 (1935), 545–555; through *Chimie & Industrie*, 35 (1936), 1139. (A. P.-C.)

Isotonic Solutions. The following formula for calculating the quantity of a single substance needed to prepare a solution isotonic with blood serum: $\frac{n \times m}{M} = \frac{2 \times 0.9 \times v}{100 \times 58.5}$, where m = the weight of the dissolved substance, M = the molecular weight of the dissolved substance, n = the number of ions yielded by each molecule and v = the volume of the solution. In the case of solutions for ophthalmic use made isotonic with the lachrymal secretion, the factor 1.4 is substituted for 0.9.—ANON. *Pharm. J.*, 136 (1936), 692. (W. B. B.)

Isotonic Solutions for Injection. Most of the substances recommended by the British Pharmacopœial Codex for the preparation of isotonic solutions have an isotonic hemolyzing ratio equal to, if not greater than, that of sodium chloride. These substances can therefore be used without fear of hemolysis for injection into any person. Experiments with boric acid solutions ranging in concentration from 0.5 to 5% showed hemolysis in every instance. The addition of boric acid to sodium chloride solutions actually raised their hemolyzing concentrations, the hemolytic effect of the acid being intensified as more of it was used. In view of these facts, perhaps it would be as well to consider whether boric acid should not be removed from the list of substances recommended in the Codex for the preparation of isotonic solutions.—F. WOKES. *Pharm. J.*, 136 (1936), 723. (W. B. B.)

Liquid Soap Clarification. It is recommended to use only distilled water and to filter the solution after a period of refrigeration at 35° F. The addition of methyl, ethyl or propyl alcohols or glycerin tends to prevent hydrolysis. Sulfated fatty alcohols (particularly lauryl sulfate) partially overcomes the precipitation in hard water. Methyl cyclohexanol reduces precipitation of lime-soaps and retards hydrolysis, but has an objectionable camphor-like odor.—PAUL I. SMITH. *Am. Perfumer*, 33 (1936), No. 1, 79–80. (G. W. F.)

Liquor Cresolis Saponatus B. P. 1932. Experiments were carried out in an attempt to simplify the preparation of lysol using the official formula. Linseed oil is, of course, very suitable because of its low cost, but is comparatively difficult to saponify. In the experiments, the aim of the authors was to expedite the saponification by change of procedure. The results of the adopted procedure are recorded in the following table:

	Volume of KOH Solution	Appearance after Standing	One Drop Added to Water	Time of Heating	B. P. Dilution Test
A	No water added	Solid after half an hour	Oil separated	One hour	Not completed
B	5 cc.	Jelly formed after quarter of an hour	No oil detected	Half hour No oil then detected	Slightly cloudy
C	7.5 cc.	With occasional shaking set to a jelly after 24 hours.	Oil separated	One hour No oil then detected	Slightly cloudy
D	10 cc.	Separated after 48 hours	Oil separated	1½ hours Oil still separated	Not completed
E	15 cc.	As D above	As D above	As D above	As D above

Lysol may be made in the cold from the official formula by using a more concentrated caustic solution than is suggested in the B. P., emulsifying the oil with this solution and allowing the emulsion to stand for 2½ days, when a soap is formed. This is dissolved in the cresol and the product adjusted to volume with water. There seems to be no advantage gained by homogenizing the emulsion. On the contrary, the non-homogenized product yields ultimately a superior lysol.—W. L. SUMMERFIELD and C. GUNN. *Pharm. J.*, 136 (1936), 622. (W. B. B.)