PHARMACEUTICAL ABSTRACTS

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ABSTRACTORS

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PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

THERAPEUTICS (*Continued*)

Anemias and Their Treatment. A survey of the present knowledge concerning the anemias and their treatment has been discussed. The classical means of defining anemias under the general headings of "macrocytic" and "microcytic" is still being used. The author discusses both types of anemia and also the mode of action of the iron.—R. F. CORRAN. *Chemist and Druggist*, 128 (1938), 99. (A. C. DeD.)

Anesthetics and Analgesics—Local, Chemical Composition and Preparation for Medical Use. A review. The anesthetics described include benzocaine, chlorobutanol, procaine hydrochloride. The general analgesics discussed include: acetanilide, acetophenetidin, antipyrine (phenazone), aminopyrine and acetylsalicylic acid.—LOUIS M. ROEG. *Can. Chem. Process Inds.*, 22 (1938), 36, 40; through *Chem. Abstr.*, 32 (1938), 2685. (F. J. S.)

Ascorbic Acid—Synthetic, Antiscorbutic Limitations of. The authors have investigated the reaction to a daily dosage of 300 mg. of ascorbic acid in twenty-nine patients showing a hemorrhagic diathesis (revealed by Göthlin's capillary test) and a low ascorbic acid content of the serum (Lund and Lieck test). After ten days of this treatment the hemorrhagic reaction of Göthlin was no longer demonstrable, and the ascorbic acid content of the serum was restored to normal in twenty-six cases. In the remaining three cases no such improvement was observed, even when the oral administration of ascorbic acid was followed by the intravenous injection of 300 mg. of ascorbic acid daily for ten successive days. But when the three patients were given the juice of ten lemons daily for ten days the response was rapid. A characteristic feature of all three cases was intestinal disease which had lasted for several years. After giving details of these three cases the authors conclude that the absorption and retention of ascorbic acid require the presence in the body of a substance, a co-vitamin, which is evidently present in lemons and perhaps in small quantities in other articles of food, but is absorbed with difficulty by patients suffering from certain intestinal diseases. The authors are now investigating the possibility of this substance being identical with the vitamin P found by Szent-Györgyi.—A. ELMBY and E. WARBURG. *Ugeskr. Laeg.* (Oct. 28, 1937), 1141; through *Brit. Med. J.*, 4020 (1938), 214D. (W. H. H.)

Ascorbic Acid—Synthetic, Inadequacy of, as an Antiscorbutic Agent. The three cases described had the following characteristics in common: (1) a history of intestinal trouble extending over many years; (2) inability to absorb ascorbic acid, or to retain it after intravenous injection; and (3) cure of both humoral and clinical abnormalities following the administration of lemons. The explanation the authors suggest is that for the absorption and retention of ascorbic acid some unknown substance (a co-vitamin) is required. This substance is present in lemons. This unknown factor may either be part of some other foodstuff (in which case its absorption may be inhibited by certain intestinal diseases), or else it may be produced in the intestine under normal conditions. The hypothesis that this factor is the same as the P vitamin found by Szent-Györgyi is being investigated at present by one of the authors.—A. ELMBY and E. WARBURG. *Lancet* 233 (1937), 1363. (W. H. H.)

Asperin—Gastric Ulceration Produced in Rats by Oral and Subcutaneous. Gastric ulceration was produced in sixty-six out of sixty-nine rats by the oral administration of asperin in daily dosage of 300 mg. per Kg. for ten days. Dilution and the addition of sodium bicarbonate diminished the severity of the ulceration, whereas calcium gluconate, calcium carbonate and magnesium oxide were without beneficial effects. Apparently there is some seasonal variation in asperin ulcers. Sodium asperin given subcutaneously also caused gastric ulceration and, in larger doses, severe gastric hemorrhage. By what mechanism parenterally given aspirin produces such lesions cannot yet be stated.—H. G. BARBOUR and V. C. DICKERSON. *Arch. intern. pharmacodynamie*, 58 (1938), 78. (W. H. H.)

Atropine or Novatropine—Mental Disturbance from, in Subjects under Influence of Insulin. High doses of atropine or novatropine produce no mental symptoms except in persons sensitive to atropine; no serious symptoms from high doses of insulin, alone. Six students used as test cases. Hypoglycemia produced by insulin, then atropine or novatropine given subcutaneously, and hypoglycemic symptoms disappeared, but later amnesia and speech disturbances developed. Drugs antagonistic at first, but synergistic action develops subsequently. Prove warning against use of atropine in hypoglycemic patients.—J. P. QUIGLEY. *J. Am. Med. Assoc.*, 109 (1937), 1363. (G. S. G.)

Benzedrine in Sea-Sickness. The clinical effects of benzedrine (beta-phenylisopropylamine) sulfate on twenty adults in normal health have been studied, with special reference to changes in pulse rate, blood pressure and subjective sensations. One hundred cases of sea-sickness treated with benzedrine, alone or combined, are classified according to results. Benzedrine has great possibilities of usefulness in certain cases of sea-sickness in which there are signs of excessive vagus activity.—J. HILL. *Brit. Med. J.*, 4013 (1937), 1109. (W. H. H.)

Benzyl Benzoate Treatment of Scabies. The author reviews the treatment of scabies with benzyl benzoate. Patients are soaped well, bathed and the anti-itch lotion applied to the skin with a stiff brush, particularly at the usual sites of infection. The lotion is allowed to dry on for two or three minutes, and the application is then repeated. This usually kills all parasites, and it is best not to repeat the treatment for at least a week. Out of 112 cases dealt with in this way, 103 were permanently cured in twenty-four hours. As a result of the investigation he considers that benzyl benzoate is the ideal acaricide. Its penetrative powers are increased by soap and alcohol; it has a more rapid action than even balsam of Peru. The application by means of a brush is much less unpleasant and messy than those techniques which involve inunction. The alcoholic mixture does not appear to irritate the skin or produce any toxic effects, even on cases with a moderate degree of secondary infection.—A. VELLIN. *Rev. franç. Derm. Venereol.* (July–August 1937), 351; through *Brit. Med. J.*, 4023 (1938), 370B. (W. H. H.)

Bicarbonate of Soda—Therapeutic Action of, in Mercuric Chloride Poisoning. The minimum lethal dose of mercuric chloride, injected intravenously, was found to be 0.008 millimolecule-gram per Kilo body weight for rabbits and cats. This dose was injected into the marginal vein of the ear, and was followed 10 minutes later by sodium bicarbonate treatment (10 cc. of normal solution intravenously, or 10 cc. of fifth-normal solution hypodermically). The treatment was repeated once or twice a day. In rabbits, the poisoned animals could not be saved by hypodermic injection; a large number of the animals were saved by intravenous injection (7 out of 9 in one case, 3 out of 10 in another). In the treated animals the intoxication follows its course, but with attenuated manifestations. A single injection per day seems to give better results than 2 injections daily. In cats, 2 intravenous injections per day resulted in the survival of 50% of the animals. It should be noted that the results were better in summer than in winter; during the latter season the treated animals died at the same time as the control animals.—I. CAPIZZI. *Arch Ital. Sci. Farmacol.*, 6 (1937), 51–69; through *Chimie & Industrie*, 38 (1937), 734. (A. P.-C.)

Calcium—Use of, and Choice of Calcium Salt. Treatment of calcium abnormalities by calcium therapy. To increase calcium stores in bones, give milk plus calcium gluconate or lactate, and adequate amounts of vitamin D. To lower abnormally high blood calcium, surgery of excess parathyroid and irradiation necessary. To elevate low blood calcium, calcium chloride given intravenously, or calcium gluconate intramuscularly. Calcium by mouth useful only in chronic cases. Vitamin C necessary. Thyroid useful. Especially necessary in pregnancy and lactation.—JOSEPH C. AUB. *J. Am. Med. Assoc.*, 109 (1937), 1276. (G. S. G.)

Calcium Mandelate. Calcium mandelate has been tried in a series of thirty-three cases of urinary infection. It is an efficient urinary acidifier, pleasanter to take and less irritant than other preparations of mandelic acid.—G. MELTON and M. L. ROSENHEIM. *Lancet*, 234 (1938), 494. (W. H. H.)

Carex Arenaria A.—Therapeutic Utilization of. This coastal plant finds extensive application among native Brazilians in the form of macerations and decoctions of the rhizome, young leaves and fresh flower stalks, in cases of diabetes, cirrhosis, stomach and intestinal catarrh, etc. Analytical data on the essential constituents of plants from the north (from calcareous alkaline ground) and south (from gneissic acid ground), respectively, of the rhizome give: volatile oil 0.22 and 0.88, sugar 2.50 and 1.85, resin 1.35 and 1.45, tannins 8.00 and 10.00, glucoside trace and 0.50, saponin 0.20 and 0.15%; young leaves: volatile oil traces in both, wax-like substances 0.50 in both, salicylic acid 0.65 and 0.50%; fresh flower stocks volatile oil 0.08 and 0.12, wax 1.50 and 0.50%. The volatile oil from the rhizome had d_0^4 0.9785–0.9835, $[\alpha]_D^{20}$ − 11.4° to − 15.75°, n_D^{20} 1.4995–1.5115, acid number 3.5–5.5, soluble in 4.5% alcohol, color bright orange, odor hay-like with coumarin tone, taste burning, scratchy, with bitter after-taste; the oil consists of at least 80% sesquiterpenes and sesquiterpene alcohols, together with methyl salicylate and cineol. Whether the two essential oils from the rhizome and flower stock are identical is still uncertain. The glucoside is faintly acid, has yellowish white crystals, intensely bitter, readily soluble in water

and alcohol, scarcely so in ether and chloroform, is split by dilute hydrochloric acid into a crystalline acid substance, galactose and a methyl pentose. The non-sugar constituent is highly toxic. The saponin effects complete hemolysis in a dilution of 1:32,000.—FRIEDRICH W. FREISE. *Pharm. Zentr.*, 79 (1938), 49; through *Chem. Abstr.*, 32 (1938), 2688. (F. J. S.)

Chemotherapy—Antiendotoxic. 4-Nitro-4'-aminodiphenylsulfoxide administered orally protects rats against the intoxication provoked by the gonococcic endotoxin. The therapeutic action *in vivo* of certain sulfureted benzene derivatives is thus, at the same time, antimicrobic and antitoxic. It is the first time that the possibility of an antitoxic chemotherapy was demonstrated which opens some new perspectives on the plan of chemotherapeutic treatment of toxigenic microbic infections. On the other hand, the studies showed that the rats having survived an intraperitoneal injection of the gonococcic endotoxin will acquire antigonococcic immunity which is not the case of the rats cured by the above-sulfureted product. It appears that the sulfureted benzene derivatives in neutralizing the endotoxin, at the same time, destroy its atigenic vaccinating power.—CONSTANTIN LEVADITE and ARON VAISMAN. *Compt. rend.*, 205 (1937), 1108. (G. W. H.)

Cobra Venom—Assay and Dosage of, in the Treatment of Pain in Cancer and in Arterial Hypertension. The venom of *Naja tripudians* and *Cobra capelo* vary considerably in strength and must be assayed biologically. The toxic unit is the smallest dose that kills a rat of 20–25 Gm. within seven hours. It corresponds to approximately 0.01–0.02 mg. The physiologic or hypotensor unit is the third part of the dose that causes a drop of three-cm. mercury pressure in the carotid artery of a rabbit of 3 Kg. weight. The aqueous solution is used beginning with small doses of 0.5 to 1 unit and increasing quickly to 10 or 20 units. The interval between injection should be from 4 to 7 days. Secondary reactions are rubor, sensation of heat, edema and muscular weakness. The treatment is incompatible with iodine, salts of silver and gold and radioactive substances. Relief in cancer is observed in 70% of the cases. Hypertension should be treated with small doses.—FRANCISCO BAGNASCO, PEDRO J. AGUILAR and ALBERTO GARZOLI. *Semana méd. (Buenos Aires)*, 45 (1938), 33. (A. E. M.)

Cod Liver Oil in Ulcerative Colitis. The author, in a preliminary report, describes eleven cases of chronic ulcerative colitis which were treated by the rectal instillation of cod liver oil emulsion by means of a Murphy drip or a partly clamped enema bag with satisfactory results. For the most part a 40% emulsion of cod liver oil, acacia and water was used. In patients whose lesions had healed, leaving only a slight residual ulceration in the anal part of the rectum, suppositories containing 68% cod liver oil were given. The treatment began with the administration of two to four ounces of the emulsion two to four times a day, the dose being gradually increased until eight ounces could be retained. The duration of the disease was from ten months to nine years, and in all cases other forms of treatment had been ineffective. The progress of the cases was observed sigmoidoscopically, and nine of the eleven patients improved. At the end of the third month of treatment the sigmoid appeared normal except for very fine granulations, and abdominal cramps and rectal urgency had diminished or were absent. In the later part of the treatment instillations were given less often.—R. SPIEGEL. *J. Mt. Sinai Hosp., N. Y.* (July–August 1937), 94; through *Brit. Med. J.*, 4005 (1937), 730B. (W. H. H.)

Endocrine Therapy in Chronic Cystic Mastitis. Difficulty in distinguishing between three clinical varieties of cystic mastitis, (1) painful breast or mastodynia, (2) adenosis and (3) cystic disease. Cases of mastodynia treated with intramuscular injections of estrogen twice a week for several months. After 3 years no recurrence. Painful breasts may develop into adenosis multiple nodules. Patients with adenosis treated with injections of estrogen from 2 to 7 months; after 3 years two recurrences treated and no further developments. Cystic disease, development of one or more large cysts, of sudden growth. Endocrine therapy, estrogen, prolactin, progesterone, less successful and greater danger of overdosage. History of these cases is benign and without relation to cancer. Course is self-limited and tends ultimately to regress.—DEAN LEWIS and C. F. GESCHICHTER. *J. Am. Med. Assoc.*, 109 (1937), 1894. (G. S. G.)

Epinephrine Preparation—Slowly Absorbed. Purified olive oil was sterilized and placed in sterile vials. Powdered epinephrine base, 2 mg./cc., was weighed and added to the vials under conditions as sterile as possible. After twenty-four hours the suspensions settled out but the particles were readily resuspended by shaking. Supersonic radiation appears to increase the stability of the suspensions, although these suspensions had no greater clinical effectiveness than unradiated

preparations. Preliminary tests were made on patients, suffering from chronic asthma, who used epinephrine hydrochloride. These tests indicate that the new compound has a more prolonged effectiveness. For example, a morning and evening injection kept three patients free from symptoms for twenty-four hours, while in doses of 1 cc. to 2 cc., they were kept free 8–16 hours. Previously 5–10 injections of the epinephrine hydrochloride over twenty-four hours were necessary to keep the patients entirely free from asthma. Additional tests on patients suffering from acute attacks of asthma showed similar longer acting effectiveness. More recently, suspensions of epinephrine base are being made in peanut oil since it is generally considered, although without experimental evidence, that peanut oil is less irritating than olive oil.—E. L. KEENEY. *Bull. Johns Hopkins Hosp.*, 62 (1938), 227; through *Am. J. Pharm.*, 110 (1938), 166. (A. C. DeD.)

Ergotamine Tartrate for Migraine. The author has found in his hospital practice that attacks of migraine invariably yield to subcutaneous or intravenous injections of from 0.25 to 1 mg. of ergotamine tartrate. This drug was isolated in 1918 by Stoll, and for several years, since it is more soluble and stable than the alkaloid itself, was employed as "gynergen" almost exclusively by gynecologists. The subsequent discovery that the drug had a marked effect on the sympathetic system in experimental animals led to its employment in other conditions. Its failure when first given in cases of migraine must be traced to its administration by the mouth, and it is due to American observers that the merits of this drug when given by injection in migraine have been demonstrated. When the most suitable dosage has been found for any patient there is no need to change it, as it remains equally effective. Even when it has been taken for more than a year and more than one hundred injections have been given no ill effects have been observed. But the action of the drug is only symptomatic. As the injections (most of the author's patients received subcutaneous injections) raise the blood pressure, this treatment is contraindicated by the co-existence of arteriosclerosis or hyperpiesis. If the migraine does not cease in two to three hours after the injection of 0.5 or 0.25 mg. the injection can be repeated with one or the other of these doses. The patient should go to bed after treatment as an injection is apt to be followed by lassitude and drowsiness.—A. GULDAGER. *Ugeskr. Laeg.* (Sept. 23, 1937), 999; through *Brit. Med. J.*, 4013 (1937), 1152C. (W. H. H.)

Evipan in Cocaine Poisoning. The author reports a case which illustrates the antagonism to cocaine and its substitutes, commonly attributed to the barbiturates. A man of nearly seventy was accidentally given a hypodermic injection of three grains of cocaine hydrochloride, and soon showed pallor, rapid pulse and generalized muscular twitchings, particularly of the extremities. As his condition was deteriorating in spite of oxygen and carbon dioxide inhalations and the injection of $^1/_{30}$ grain of strychnine, 3 cc. of evipan solution were given intravenously forty-five minutes after the cocaine was injected. The convulsions ceased, the pulse rate dropped and the patient slept for about fifteen minutes. Forty minutes later, as severe spasms with pain and dyspnoea had returned, a further 3 cc. of evipan was given, resulting in ten minutes sleep and improvement on awakening. Half an hour later, as breathing had again become difficult, a further 2 cc. was given, and a short sleep was again followed by improvement and a slower pulse. Four hours after the injection of cocaine he had apparently recovered completely; he slept well after a hypodermic injection of morphine, and showed no ill effects next day.—H. J. DALY. *Anesth. and Analges.* (Sept.-Oct. 1937), 293; *Brit. Med. J.*, 4013 (1937), 1152C. (W. H. H.)

Follicular Hormone in Urinary Incontinence. The author has successfully used follicular hormone in the treatment of six cases of incontinence of urine in women about the menopause; some were patients with minor degrees of prolapse, but the incontinence was regarded as chiefly functional. From 20,000 to 50,000 units were given during the week, usually in two injections. Somewhat larger doses cured the diurnal and improved the nocturnal incontinence in a girl aged 12, who had been operated on, unsuccessfully, for epispadias. The good results are attributed to an increase by folliculin of the neuro-hormonically regulated tonus of the bladder musculature—evidence of such an action is afforded in recent animal experiments by several workers. The treatment, it is concluded, is worthy of consideration in cases in which mechanical causes for incontinence, cystocele, etc., cannot be found.—HOFFMANN. *Zbl. Gynäk.* (Oct. 30, 1937), 2545; through *Brit. Med. J.*, 4017 (1938), 54D. (W. H. H.)

Glycerol—Treatment of Infected Wounds with. Infected wounds are said to respond well to thorough cleansing with alcohol followed by packing with sterile gauze saturated in glycerol.

The packing is changed daily. Three case reports are given.—O. A. CANNON and H. T. EWART. *Can. Med. Assoc. J.*, 38 (1938), 176; through *Squibb Abstr. Bull.*, 11 (1938), A-387. (F. J. S.)

Gold Salts, More Particularly Strontium Aurothiopropanolsulfonate. Owing to its low solubility in water (4.80 Gm. per liter at 19° C.), strontium aurothiopropanolsulfonate is less toxic than other more soluble gold compounds. The dose of this salt tolerated by the guinea pig is close to 45 mg. of gold per kilo body weight. Its diffusion and elimination are slower than with more soluble gold salts, the discharge of gold in the first 24 hours being about one-tenth of that injected. Like all the gold salts experimented with, the strontium compound causes the irregular appearance of albumin and *d*-glucose in the urines of rabbit and guinea pig; these phenomena are not observed with 99% of human subjects having received injections of therapeutic doses (50 to 100 mg.). The duration of discharge of gold in man seems prolonged, on account of the large fixation of gold in the kidneys, spleen and liver. In tuberculous patients the amount of gold deposited in the affected lung is greater than in the unaffected one. All organs are subject to fixation of gold except the central nervous system which never fixes more than very small traces.—A. LEULIER, G. BERCARD and P. LOISY. *J. pharm. chim.*, 25 (1937), 193–216; through *Chimie & Industrie*, 38 (1937), 737. (A. P.-C.)

Gonadotropic Extracts—Serum of Man Injected with. No serious amount of anti-gonadotropic activity was demonstrable in the serum of patients receiving gonadotropic extracts of either human urine of pregnancy or pig pituitary for varying periods up to seven months. From this the authors conclude that in the treatment of undescended testes and other disabilities the administration of gonadotropic hormones may be continued for a considerable period without fear of inducing a phase of insensitivity and damage to the gonads by anti-gonadotropic substances.—A. W. SPENCE, E. F. SCOWEN and I. W. ROWLANDS. *Brit. Med. J.*, 4018 (1938), 66. (W. H. H.)

Gonococcic Arthritis—Pathogenesis, Mechanism of Recovery, and Treatment of. Diagnosis of gonococcic arthritis on, (1) history of recent attack of gonorrhea, (2) localized infection of genital tract, (3) positive reaction to gonococcus complement fixation test in blood or synovial fluid, and (4) demonstration of gonococci in synovial fluid. Clinical features include involvement of joints, chiefly in the long bones, conjunctivitis, glomerulonephritis, etc. Small percentage of positive gonococcic cultures in synovial fluid, and about 60% positive complement fixation test, as against 85%, on blood. Treatment includes: (1) Specific serum therapy. (2) Fever therapy. (3) Chemotherapy. Serum therapy not very successful; fever therapy very effective, but chiefly in acute cases. Chemotherapy, especially with sulfanilamide quite satisfactory so far. In convalescence, efforts made to reëstablish muscle tone, and to instruct patient regarding prophylaxis against venereal disease.—CHESTER S. KEEFER and WESLEY W. SPINK.—*J. Am. Med. Assoc.*, 109 (1937), 1448. (G. S. G.)

Granulocytopenia—Yellow Bone Marrow Extracts in. Preliminary report on clinical experience. Experimental granulocytopenia in animals not yet produced satisfactory. Extract for oral administration equivalent to 2 Gm. of marrow per drop. Of twenty patients treated, 13 responded with rise in granulocytes, usually with return to normal figures. Study is being continued.—C. MARBERG and H. O. WILES. *J. Am. Med. Assoc.*, 109 (1937), 1965. (G. S. G.)

Guanidine—Blood, after Repeated Intoxication with Arsphenamine and Neoarsphenamine. Blood analyses and pathological examinations of five rabbits treated with a total dose of 0.25 Gm. per Kg. of arsphenamine within two weeks, and five animals treated with 0.375 Gm. per Kg. of neoarsphenamine within the same period, indicate that no significant hyperguanidinemia occurs in the absence of severe renal damage. The content of guanidine-like substances in blood of normal rabbits as obtained from seventeen determinations on fifteen animals, lies between 0.37 and 0.77 mg., with an average of 0.56 mg. per 100 cc. Rabbit blood appears to contain about twice the amount of guanidine found in human blood. Differences between the present findings and those reported in the literature for the effects of arsphenamine jaundice in man, are discussed. No apparent difference was found between the effects of arsphenamine and neoarsphenamine, in the dosages employed.—J. E. ANDES, F. L. HAWK and G. E. EMERSON. *Arch. intern. pharmacodynamie*, 58 (1938), 165. (W. H. H.)

Harmaline—Anthelmintic Action of. Harmaline is much weaker in action than harmine on *Taenia* and on the earth worm. Others have shown that harmaline is more toxic than harmine for the frog, rabbit, guinea pig and rat. The authors conclude that harmine is superior to harma-

line as an anthelmintic agent.—G. DA COSTA and RAYMOND-HAMET. *Arch. intern. pharmacodynamie*, 56 (1937), 314. (W. H. H.)

Insulin—New. Protamine-zinc-insulin simplified the treatment of severe diabetes. Its action on the glycemia is prolonged, and retarded and also avoids the alteration of hypo- and hyperglycemia that one observes in the severe forms of diabetes in the course of habitual insulin treatment. This new treatment renders a great service to the early diabetics and to the sympathecotonic diabetics, notably to those who are impossible to render aglycosuric, because increasing the insulin dose infallibly produces hypoglycemia. In the treatment of mild forms the average acts in a manner so durable that one is able to space very large injections. The regulation of the glucidic metabolism in the course of the treatment permits one to suspect a diminution, in the future, of the number of injections and likewise the disappearance of the vascular, nervous and ocular complications.—R. BOULIN. *Presse Medicale* (Jan. 26, 1938), 137. (W. H. H.)

Iodine—Oral Administration of, in Treating Gynecological Disorders. The thyroid is an important factor in regulating the reproductive system. As shown by many workers, iodine administration helps to regulate thyroid dysfunction. One hundred gynecological cases are reported, in which an underlying endocrine imbalance was manifested. Iodine was used in these cases as a supplement to other indicated therapy. A 5% solution of iodine was used. It is concluded that iodine is a justifiable adjuvant in the treatment of many gynecological disorders.—D. W. TOVEY. *Med. Record*, 147 (1938), 31. (W. H. H.)

Iodobismitol in the Treatment of Syphilis. Iodobismitol, 6% sodium iodibismuthite, 12% sodium iodide in propylene glycol, with 4% saligenin as local anesthetic, is supplanting other bismuth compounds in treatment of syphilis. 827 patients chosen for study, received average of 62 injections per patient. Male and female, white, negro and oriental in group, and various forms of late syphilis represented. Iodobismitol given 2 or 3 cc. intramuscularly, one to three times weekly in series of twenty or more, alternated with courses of arsenicals. Average period of observation 2.1 years. Effectiveness of treatment determined by rate of disappearance of lesions, clinical improvement and changes in reaction to serologic tests. In only 3 of 827 cases was it necessary to discontinue because of tolerance. Iodobismitol found effective and satisfactory preparation of bismuth for use in treatment of syphilis.—CHARLES W. BARNETT and GEORGE V. KULCHER. *J. Am. Med. Assoc.*, 109 (1937), 1715. (G. S. G.)

Lactic Acid in Joint Lesions. Normal synovial secretion has the same hydrogen-ion content as blood. Effusions into joints show acidity for three days changing to alkalinity by the seventh day. Injection of a solution of lactic acid with novocain restored functional activity in cases of traumatic arthritis. The synovial fluid in rheumatoid arthritis shows abnormal alkalinity. In this disease the possibility of restoring function by acid injection deserves further investigation. At present this method should be reserved for cases showing severe disorganization of joints.—W. G. WAUGH. *Lancet*, 234 (1938), 487. (W. H. H.)

Local Vaccine Treatment of Nasal Suppuration. The author has treated infants and children successfully for suppurative rhinitis and ethmoiditis by the intranasal application of a combination of Besredka antivirus (culture-broth) and Herelle bacteriophage filtrate. A stock preparation was used, and applied on gauze in infants or by retrograde insufflation in children. Such treatment was either effective by itself or found to be of use before and after surgical treatment—for example, removal of adenoids. In maxillary sinus suppuration in adults, when combined with lavages after antral puncture, it occasionally rendered major operative measures unnecessary.—F. BLOTTA. *Rev. med. lat.-amer.* (August 1937), 1240; through *Brit. Med. J.*, 4022 (1938), 320C. (W. H. H.)

Male Sex Hormone—Inhibitory Effects of, on Human Menstruation and Their Evaluation by Vaginal Smears. Testosterone propionate interrupted regular menstrual cycles. Menstruation was resumed after cessation of treatment. The smear picture during the amenorrhea was identical with that found in menopause.—GEORGE N. PAPANICOLAOU, HERBERT S. RIPLEY and EPHRAIM SHORR. *Proc. Soc. Exptl. Biol. Med.*, 37 (1938), 689. (A. E. M.)

Nicotinic Acid—Cure of Canine Blacktongue with. The finding that nicotinic acid corrects the deficiency of the Godberger blacktongue-producing diet is confirmed.—HAROLD R. STREET and GEORGE R. COWGILL. *Proc. Soc. Exptl. Biol. Med.*, 37 (1937), 547. (A. E. M.)

Para-Benzylaminobenzenesulfonamide in the Treatment of Scarlet Fever. In a series of strictly controlled cases of scarlet fever during the period July 1936, to May 1937, the administra-

tion of para-benzylaminobenzenesulfonamide was found to have no significant effect upon the duration of the initial pyrexia, the initial toxæmia or the incidence of complications. Various reasons for this finding are advanced. The author is personally inclined to the belief that a combination of three factors is responsible—namely, the mildness of the disease; the fact that a hemolytic streptococcus which is not affected by the sulfonamides or only slightly affected, was the causative organism; and that while it is less toxic the para-benzylaminobenzenesulfonamide is also less active than its companion reduction products.—J. C. HOGARTH. *Brit. Med. J.*, 4014 (1937), 1160. (W. H. H.)

Pentothal Sodium—Some Observations on. In skin-grafting operations, Na 5-ethyl-5-α-methylbutylbarbiturate (Pentothal Sodium, I) appeared as safe as Na 5-cyclohexenyl-1,5-dimethylbarbiturate (Evipan Sodium, II). I gave a greater degree of anesthesia than II, as shown by the lack of muscle stimulation, and led to slightly better after-effects. One unpleasant but apparently not serious disadvantage of I was the irritation it caused if given subcutaneously.—C. P. DIXON. *Brit. J. Anaesthesia*, 15 (1938), 60; through *Squibb. Abstr. Bull.*, 11 (1938), A-412. (F. J. S.)

Pregnancy—Skin Tests for. The use of anterior pituitary-like hormone injected intradermally in the manner suggested by Gilfillen and Gregg, and scientifically controlled, in a series of 198 cases, did not provide an accurate or reliable skin test for pregnancy.—CHARLES W. FRANK and PHILIP B. WAHRSINGER. *Am. J. Obstet. Gynecol.*, 35 (1938), 303; through *Squibb Abstr. Bull.*, 11 (1938), A-418. (F. J. S.)

Prostigmin—Oral Administration of, in the Treatment of Myasthenia Gravis. Prostigin orally as effective as parenterally. Report of 18 cases of myasthenia gravis treated with 15-mg. tablets of prostigmine, 4 to 12 times a day continuously for from 1 to 14 months. Belladonna or atropine sulfate given to control disagreeable symptoms. Potassium chloride, ephedrine and benzedrine used as adjuvants. When doses are carefully spaced patients maintain reasonable degree of muscular efficiency.—HENRY R. VIETS, *et al.* *J. Am. Med. Assoc.*, 109 (1937), 1956. (G. S. G.)

Rheumatic Fever—Case of, Treated with Vitamin C. A case of acute multiple arthritis with cardiac involvement is described, which has been successfully treated with vitamin C in the form of red-fruit juice. It is concluded that vitamin C deficiency may be a casual factor in some cases of rheumatic fever and that such cases may respond to vitamin C therapy.—F. H. MOSSE. *Chinese Med. J.*, 53 (1938), 72; through *Squibb Abstr. Bull.*, 11 (1938), A-422. (F. J. S.)

Rocky Mountain Spotted Fever—Recognition, Prevention and Treatment of. Neoarsphenamine (Neosalvarsan, I) dissolved in 1:1000 5-hydroxy-mercuri-4-nitro-*o*-cresol (Metaphen, II) solution, administered intravenously, appeared to have definite value in the treatment of many cases of Rocky Mountain spotted fever, when used together with general symptomatic and supportive care. Cases treated with I in II showed less toxemia, a more discrete eruption and fewer myocardial and renal complications. The duration of the disease process and the convalescence were shortened. There was no mortality among the cases treated by this method, despite the fact that most of the cases were moderately severe. The solution used contained 0.3 Gm. I in 10 cc. of 1:1000 II. It was light yellow and cloudy. The injections were given at 3–5-day intervals only during the acute stages, in 10-cc. doses. The solution of I in II is not claimed to be a specific. A careful search of the literature revealed no mention of the combined use of I and II in the treatment of Rocky Mountain spotted fever. The literature on diagnosis, prevention and treatment of this disease is reviewed, with a bibliography of twenty-seven references. Two illustrative case histories are given.—GEORGE E. BAKER. *Rocky Mountain M. J.*, 35 (1938), 36; through *Squibb Abstr. Bull.*, 11 (1938), A-247. (F. J. S.)

Schizophrenia—Hypoglycemic Treatment of. Report of treatment of seven patients, six ill from 10 days to 3 months, seventh 5 years. All but two showed excellent results; chronic case included in this. Results to date highly encouraging, though more time is necessary for definite opinion.—CHARLES A. RYMER, *et al.* *J. Am. Med. Assoc.*, 109 (1937), 1249. (G. S. G.)

Scilla Treatment—Intravenous. The author records satisfactory results from intravenous treatment by scillaren (a combination of the pure glucosides of squill, scillaren A and B) in one hundred and four cases of cardiac decompensation, including seventeen of valvular disease, eighteen after coronary thrombosis, and forty-three in patients with vascular hypertonia. The following classes were excluded as unlikely to respond well to any cardiac glucoside: patients with

Graves' disease, rheumatic pancarditis, mitral disease with symptomless lung emboli, mitral stenosis with lung oedema (here the right heart is good and the circulation time only slightly slowed), or emphysema—as well as the class, first distinguished since the introduction of the mercurial diuretics, which responds to these but shows little or no improvement from rest and fluid restriction. The results were assessed by measurement of the venous pressure, circulation time and vital capacity, as well as by clinical, radiological and electrocardiographic signs: the action was found to be predominantly systolic (circulation time being diminished in certain cases without alteration of pulse frequency) and extremely rapid. The dosage was moderate, no single amount exceeding 0.5 mg., the average doses being 0.35 mg. twice or thrice daily, diminished as soon as the desired effect had been obtained. Extrasystoles after intravenous medication call for much care, especially if taking a continuously bigeminal form. Scilla glucosides are probably broken down quicker than all others, and are thus specially applicable when there is danger of intoxication (as after myocardial infarction). In several cases scillaren medication was continued, with in the end satisfactory slowing of the heart, in spite of temporary induction of auricular fibrillation.—L. ZWILLINGER. *Wien. Arch. inn. Med.* (Oct. 31, 1937), 201; through *Brit. Med. J.*, 4016 (1937), 1310B. (W. H. H.)

Sclerosing Drug—New, for Varicose Veins. Monolate (I) consists of monoethanolamine oleate 5% with benzyl alcohol and is closely allied in composition and action to sodium morrhuate. Experimental use of I in vascular clinic has proved efficacious and 550 injections have been given without untoward reactions. I fills the necessary requirements for a "morrhuate-like" drug and its addition to the list of desirable chemicals for the injection treatment of varicose veins is recommended.—S. THOMAS GLASSER. *Am. J. Surg.*, 39 (1938), 120; through *Chem. Abstr.*, 32 (1938), 2683. (F. J. S.)

Serum Therapy—Fundamentals of. The greatest value of serum therapy either for therapeutic use or prophylaxi are diphtheria, scarlet fever, meningococcic meningitis, pneumococcic pneumonia, bacillary dysentery, tetanus and snake bites. The use of human convalescent serum in products used in the diseases previously mentioned is discussed.—W. H. TUCKER. *Illinois M. J.*, 72 (1937), 494; through *Am. J. Pharm.*, 110 (1938), 143. (A. C. DeD.)

Serum Treatment of Typhoid Fever. In the majority of cases so far treated, the Felix serum has been beneficial, sometimes dramatically so. In not less than one-third of the serious cases the results were excellent, in another third they were definitely good, while in the remaining third they were doubtful or negative. The beneficial effects are greater on the toxemic manifestations of the enteric syndrome than on those attributable to local lesions in the intestine. Complications were exceedingly rare in serum-treated cases. The position of the Felix serum as a specific remedy in the management of typhoid fever is, in the author's view, now as firmly established as that of anti-meningococcal serum in the treatment of cerebrospinal fever. Whether its effect is due to its "anti-Vi" or to its "anti-O" concentration, or to both, he cannot say, as all the batches used in his wards contained both antibodies.—C. J. MCSWEENEY. *Brit. Med. J.*, 4013 (1937), 1118. (W. H. H.)

Sex Hormones—Effects of, on Liver. In normal uninjected rats the weight of the liver per unit of body weight decreases with age, which probably indicates an especially active condition of the liver in the young animal. In rats castrated before sexual maturity the weight of the liver (actual and per unit of body weight) at the age of seventy days or more is less than in normal rats, although histologically the only definite changes is a slight decrease in the size of the lobules. Injections of androsterone, androstanediol, transdehydroandrosterone, testosterone and testosterone propionate returned the liver of most castrated rats toward or to normal weight and structure, while testosterone and testosterone propionate had no appreciable effect upon the liver of normal rats. The absence of pathological changes in the small "castration" liver and in this organ enlarged after injections of the above sexual hormones, as well as the nature of the changes observed, suggests a natural stimulating action of these hormones on the liver. This might have a practical significance in therapy of the liver and some metabolic disturbances if the same effect of these hormones be found in the case of human liver. Injections of oestrone or oestradiol into castrated rats in the doses used caused a decrease in weight of the liver to below that of the control rats but no definite histological changes. The changes in weight observed are probably due chiefly to the depressing effect of oestrogens on the appetite, with resulting decrease in gain of body weight and

weight of different organs, including the liver.—K. HALL and V. KORENCHEVSKY. *Brit. Med. J.*, 4025 (1938), 438. (W. H. H.)

Sex Hormones in Response to Vasopressin. It is shown that the sensitivity of the rat to toxic doses of vasopressin can be greatly enhanced by preliminary treatment with oestrogenic hormone. It is recalled that injections of vasopressin cause eclampsia-like lesions in animals, that the eclamptic patient is said to be hypersensitive to vasopressin, and that the period of pregnancy to which eclampsia is peculiar is characterized by a high output of oestrogenic hormone. It is therefore suggested that oestrin-sensitization may in some way be concerned in the genesis of eclampsia.—F. B. BYROM. *Lancet*, 234 (1938), 129. (W. H. H.)

Strophanthin Therapy. The author discusses the intravenous administration of strophanthin and claims that it can now advantageously replace digitalis preparations given by mouth, provided great care is taken in the dosage. He has given about 10,000 injections with complete success, except in one woman, who started vomiting after even small doses of strophanthin, so that the treatment had to be discontinued. One of his patients has, in the course of the last seven years, received over 1200 injections, and has been enabled to carry out her household duties. This patient was suffering from chronic auricular fibrilation. The author lays great stress upon the necessity of adopting a correct technic and using only reliable preparations of strophanthin. Strophanthin should never be injected when the patient is already taking digitalis by mouth. The author has almost given up the use of adjuvants, such as caffeine, calcium, cardiazol, glucose, etc.; moreover, he states that glucose has the disadvantage of damaging the veins, which of course is to be particularly avoided in patients who may have to receive injections over a long period of time. The only drugs he allows are those which act as analgesics. As regards the indications for strophanthin, the author gives it in all forms of cardiac insufficiency or failure, whether they be due to valvular or to myocardial disease, in angina pectoris and coronary thrombosis, and in the presence of actual or threatened heart failure in acute infectious diseases, and particularly in pneumonia. In the latter strophanthin is especially valuable, since, in contrast with digitalis, it acts on non-hypertrophied cardiac muscle.—K. Müller. *Münch. med. Woschr.* (Dec. 24, 1937), 2051; through *Brit. Med. J.*, 4025 (1938), 498B. (W. H. H.)

Sulfanilamide in Cerebrospinal Fever. The authors state that sulfanilamide is not only an effective drug in the prevention and treatment of streptococcal infections, but also in various other infections, such as those caused by the meningococcus, pneumococcus, gonococcus, *B. coli* and *B. typhosus*. Intrathecal injection is unnecessary in cerebrospinal fever, and the dosage by the mouth should be some 6 Gm. every twenty-four hours, an initial dose of 3 Gm. being followed twelve hours later by 1.5 Gm., which is then given every 6 hours. When the temperature has fallen, the meningeal signs have disappeared, and the cerebrospinal fluid has become normal the daily dose should be reduced to 3 or 4 Gm. In the infant the daily dose should not exceed 2 Gm. In most cases of cerebrospinal fever administration of sulfanilamide by mouth is sufficient to effect a cure in from one to three days. In severe forms serum treatment is also indicated.—R. TIFFENEAU and J. J. MEYER. *Paris med.* (Sept. 18, 1937), 215; through *Brit. Med. J.*, 4014 (1937), 1206B. (W. H. H.)

Sulfanilamide in Streptococcal Meningitis. Streptococcal meningitis usually spreads from a primary focus in the ear or nose. The method of spread in very acute cases is usually by means of blood-vessels, or by preformed or traumatic spaces. In less acute cases, diseased bone in contact with the meninges will be the cause. An appreciation of these different pathways of infection is an important factor in deciding the correct line of treatment to adopt. The clinical features are described in three stages which follow the cerebro-spinal fluid changes. The speed with which these stages follow one another depends largely upon the route taken by the disease. The importance of early diagnosis by examination of the cerebro-spinal fluid is stressed, and it is shown that this far outweighs the theoretical danger of dissemination of the disease by the cautious withdrawal of a few cc. of cerebro-spinal fluid for examination. Treatment is described under the headings of neutralizing the infection, drainage of excess cerebro-spinal fluid, and eradication, as far as possible, of the primary focus. It is shown that the marked improvement in the recovery rate coincides with the use of sulfanilamide. Although sulfanilamide is undoubtedly the most potent agent available in the treatment of streptococcal meningitis, it is very strongly urged that it should not be used as a substitute for surgery in appropriate cases. The decision whether eradication of the primary focus is required in addition to sulfanilamide and spinal drainage is made

easier by a knowledge of the way in which the disease has spread from the primary focus. Extensive surgical procedures in the very acute fulminating cases may do more harm than good. Whatever treatment is adopted, its chance of success will be increased if it is instituted early, before the disease has had time to overwhelm that most important factor, the natural defences of the body.—T. CAWTHORNE. *Lancet*, 234 (1938), 304. (W. H. H.)

Sulfanilamide and Prontosil in the Treatment of Canine Distemper. No evidence has been found for the effectiveness of sulfanilamide or prontosil in the treatment of naturally occurring distemper.—VIRGINIA C. DICKERSON and LEON F. WHITNEY. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 263. (A. E. M.)

Sulfanilamide in the Treatment of Erysipelas. A series of two hundred and seventy cases of erysipelas was treated under controlled conditions with (*a*) ultra-violet light, (*b*) sulfanilamide. There was an even distribution of the individual cases in the treatment groups in respect of factors known to influence the course of the disease, such as (*a*) the duration of the disease before admission to hospital; (*b*) the age of the patient; (*c*) the severity of the infection; (*d*) associated diseases. The average total case dosage of sulfanilamide was 41.6 Gm., given in 14.4 days. The drug was administered in 1-, 2- or 3-Gm. doses four-hourly until the cessation of primary pyrexia, with an average case dosage of 14.64 Gm.; thereafter 0.75 Gm. was given thrice daily until the case was dismissed. Cyanosis occurred in 29.6% of cases: it was more frequent when the larger doses of sulfanilamide were given. Sulfanilamide is of benefit in securing curtailment of (*a*) the duration of the spread of the lesion; (*b*) the duration of primary pyrexia; (*c*) the duration of toxemia. The administration of sulfanilamide reduced the incidence of complications and diminished the tendency to recurrence. An effective method of treatment is to give 1 of sulfanilamide by mouth at four-hourly intervals until the cessation of primary pyrexia, and thereafter 0.75 Gm. by mouth thrice daily until final cure is determined.—W. R. SNODGRASS and T. ANDERSON. *Brit. Med. J.*, 4014 (1937), 1156. (W. H. H.)

Sulfonamide Compounds—Therapy of Experimental Staphylococcus Infections with. Disulfanilamide and dimethyl-disulfanilamide were investigated. The results were essentially negative.—RALPH R. MELLON, LAWRENCE E. SHINN and JOSEPHINE MCBROOM. *Proc. Soc. Expt. Biol. Med.*, 37 (1937), 563. (A. E. M.)

Testosterone Propionate—Action of, on the Uterus and Breast. Suitable doses of testosterone propionate can be used to induce atrophy of a normally functioning endometrium in a pathological state resulting from stimulation by too much oestrin. This action could be explained by supposing that it prevents the ovarian follicle from ripening—perhaps by inhibiting the effective secretion of gonadotropic hormone by the anterior lobe of the pituitary gland. The results recorded suggest that it may be possible to direct and regulate ripening of the follicles by giving appropriate doses of testosterone propionate, and also that this substance will be useful in the treatment of chronic mastitis.—A. A. LOESER. *Lancet*, 234 (1938), 373. (W. H. H.)

Testosterone Propionate—Effect of, in Eunuchoidism. Testosterone propionate causes enlargement of the prostate and progression of secondary sex characters in the eunuchoid, together with a gain in weight, nitrogen and sodium retention, and a slight increase in the basal metabolic rate.—ALLAN T. KENYON, IRENE SANDIFORD, A. HUGHES BRYAN, KATHRYN KNOWLTON and F. C. KOCH. *Proc. Soc. Exptl. Biol. Med.*, 37 (1938), 683. (A. E. M.)

Threadworms—Treatment of. The authors who record twenty-four illustrative cases, maintain that the citrate of iron and ammonia in large doses—amounting to six to eight Gm. in all—two or three times a day is well borne by children, and in such amounts has a destructive action on threadworms. Some cases, however, prove refractory, and it is impossible to say if they can be sterilized by larger doses such as, for example, five to twelve Gm. The drug is also very effective when given in enemata which enable it to reach the caecum.—A. CASTELLANOS, A. V. PAUSSA and J. P. TRUJILLO. *Bol. Soc. cubana Pediat.* (Oct. 1937), 425; through *Brit. Med. J.*, 4021 (1938), 264B. (W. H. H.)

Thyrotropic Hormone of the Pituitary in Prevention of Spontaneous Mammary Cancer in Mice. The spontaneous development of cancer of the mamma in female mice of a special strain having a high incidence of mammary cancer can be prevented by the thyrotropic hormone of the anterior pituitary gland. The changes in the anterior lobe of the pituitary gland, as well as the development of the mammary gland in males, produced by prolonged oestrinization can be kept in check by the simultaneous administration of the thyrotropic hormone. The thyrotropic hormone

is therefore in some respects a physiological antagonist to the oestrogenic hormone.—W. CRAMER and E. S. HORNING. *Lancet*, 234 (1938), 72. (W. H. H.)

Undulant Fever—Diagnosis and Treatment of. Diagnosis dependent for final confirmation on laboratory tests of agglutination with brucella group, correlated with symptoms and physical signs shown by patient. May be leukopenia but with normal differential count. Most successful treatments accompanied by sharp thermal reaction, whether treatment is vaccine, specific serum-protein or mechanically produced fever. May be spontaneous recovery. Report of 10 cases treated with intravenous injection of killed typhoid and paratyphoid organisms compares favorably with other methods. Contraindications are arteriosclerosis, hypertension, rheumatic heart, etc. Benefit chiefly from fever; cheapness and availability are advantages.—CARL E. ERVIN and HENRY F. HUNT. *J. Am. Med. Assoc.*, 109 (1937), 1966. (G. S. G.)

Vaccine Therapy in Rheumatism—Critical Evaluation of. Use of vaccine demands the assumption that disease is of bacterial origin. Immunization achieved by formation of antibodies, or by desensitization. In either case causative agent must be known. Cases of rheumatic fever of ultra sensitive type might be benefited by vaccines determined after specific skin tests. Possibilities of use of vaccine in rheumatoid arthritis, osteoarthritis and specific arthritides vague; and as yet have little scientific basis. Further evaluation depends on clinical proof.—EDWIN P. JORDAN. *J. Am. Med. Assoc.*, 109 (1937), 1444. (G. S. G.)

Vinyl Ether as an Anesthetic Agent. Vinyl ether is a potent anesthetic for major and minor surgery. It has been used in a large variety of cases and it is suggested that its sphere of usefulness is a wide one. Administration by means of a closed inhaler has advantages over the open method. A series of 1191 cases is reported, without a death or serious complication.—V. GOLDMAN. *Brit. Med. J.*, 4016 (1937), 1265. (W. H. H.)

Vitamin A—Parenteral Administration of. The author alludes to recent reports in coeliac disease of excessive fecal excretion of vitamin A and of an absence of its increase in the serum (or of clinical improvement) after its oral administration. The biological test of ocular photosensitivity has shown some degree of latent A-avitaminosis, and xerophthalmia is an occasional complication. In a typical case of coeliac disease and in one of xerophthalmia with spasmus nutans (salaam convulsions), both complicated by gastro-intestinal disturbances rendered utilization of orally given preparations impossible. The author saw prompt and pronounced improvement follow parenteral administration of vitamin A in combination with cholesterol.—G. LODI. *Rass. clin. terap.* (Sept. 17, 1937), 206; through *Brit. Med. J.*, 4013 (1937), 1152B. (W. H. H.)

Vitamin C in Psoriasis. Clinical improvement after administration of vitamin C in psoriasis has been noted by the authors in a few cases. One of the authors now finds, from investigation of twelve out-patient cases of psoriasis, that the vitamin C excretion in the urine is very low (10.5 mg. daily as an average), and that the great bulk of vitamin C administered therapeutically is retained. Excretion of sulfur is considerably diminished, but it rises to a slight extent if ascorbic acid is given. The C-hypovitaminosis in psoriasis is probably due to inflammatory processes and the increase in oxidation accompanying increased keratinization. No clinical improvement occurred in the cases here described—possibly because the dosage employed did not approximate to saturation.—F. REISS. *Dermatol. Wochschr.* (Oct. 30, 1937), 1418; through *Brit. Med. J.*, 4016 (1937), 1310B. (W. H. H.)

Vitamin C in Tuberculosis. The author recalls that numerous observers have recorded that vitamin C deficiency in the diet influences unfavorably experimental tuberculous infections in animals. Testing vitamin C metabolism in fifty-five sanitorium patients, both early and moderrately advanced cases, by estimation of its increased urinary excretion after the oral administration of ascorbic acid, he found that with the ordinary institutional diet, rich in fruit and vegetables, vitamin C deficiency was rare. Only about 10% of the patients showed an excretory deficit of 1000 mg. or over, and this deficiency seemed to be unrelated to the course of the illness, the sedimentation rate, or the general condition. Treatment by vitamin C is probably desirable in those patients showing a deficiency; untoward effects, such as activation of quiescent lesions, have not been noted.—E. HAEFLIGER. *Deut. Tuberk.-Blatt* (Aug. 1937), 185; through *Brit. Med. J.*, 4014 (1937), 1206F. (W. H. H.)

Vitamin H. Extensive loss of hair and skin lesions were produced in young rats by a ration composed exclusively of zweiback or rusks containing 85% coarse wheat flour. Good sources of vitamin H (liver, kidney) produced a rapid growth of hair and cure of the dermatitis.

Cystine and small amounts of desiccated thyroid gland exerted a slower and less marked action.—I. ABELIN. *Z. Vitaminforsch.*, 6 (1937), 334; through *Chem. Abstr.*, 32 (1938), 2577. (F. J. S.)

Zinc Peroxide—Use of, in Microaerophilic Infections. Two typical cases of chronic undermining ulcer due to microaerophilic hemolytic streptococci healed rapidly after the use of zinc peroxide. Zinc peroxide introduced into the large bowel has proved useful in a case of perectal abscess associated with a nonhemolytic anaerobic streptococcus.—J. E. RHOADS. *Surgery*, 2 (1937), 937; through *Am. J. Pharm.*, 110 (1938), 142. (A. C. DeD.)

NEW REMEDIES

SYNTHETICS

Albisol (J. D. Riedel-E. de Haën, A. G., Berlin-Britz) consists of a bismuth salt having the formula, $C_{30}H_{61}O_{12}Bi$, in an oily base. Each cc. contains the equivalent of 0.04 Gm. bismuth, and it is supplied in packages containing 3, 10 and 50 ampuls, each containing 1.2 cc. and in flasks of 11 and 125 cc.—*Pharm. Ztg.*, 82 (1937), 912. (N. L.)

Carbantren Granules (Ges. für chem. Industrie, Basel) is sold in 50-Gm. packages and contains 5 Gm. bismuth iodochloro-oxyquinoline, 10 Gm. pectin and 35 Gm. charcoal.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Cosan (J. D. Riedel-E. de Haën, A. G., Chemische Fabrik, Berlin-Britz) is a colloidal, fluid sulfur preparation intended in the treatment of fungous infections. It is supplied in bottles of 50, 100, 250 and 1000 Gm.—*Pharm. Ztg.*, 82 (1937), 922. (N. L.)

Efosedif-Tablets (E. F. D.-Pharm., Apotheker Hans Otterbach, Ludwigshafen, a. Rh.) consists chiefly of potassium bromide and sodium phenylallylmalonyl carbamide. It is recommended as a nervine in neurasthenia and in the treatment of other neurological disturbances, and is supplied in packages of 12 and 24 tablets.—*Pharm. Ztg.*, 82 (1937), 911. (N. L.)

Heliobrom Ointment (Chem. Fabrik Merz & Co., Frankfurt am Main) contains 10% of bromtannin urea in an ointment base.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Heliosin Ointment (Dr. Wander G.m.b.H., Vienna 21st dist.) is put up in 25-Gm. packages and contains pyralgin (*o*-oxyquinoline sulfosalicylate), balsam of Peru and vitamin A.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Hydragen Ampuls (Firma Eggochemia, Vienna, 19th dist.) are available in packages of 3 ampuls of 10 cc. each containing 6 Gm. sodium mandelate in 10 cc. distilled water.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Jostasan (C. Hartmann Komm.-Ges. München, 2 SW) contains as its principal ingredient a cupro-aluminum-sulfur-acetate complex. It is indicated in the treatment of eczema, psoriasis and prurigo.—*Pharm. Ztg.*, 82 (1937), 851. (N. L.)

Kalzana (Therapeutic Products Ltd., Perivale, Middlesex) is the double salt of calcium-sodium lactate. It is used in pregnancy and lactation. Regulates calcium metabolism of mother and child. It is marketed in packages of 50, 100 and 1000 plain tablets, also in powder form.—*Australasian J. Pharm.*, 19 (1938), 389. (A. C. DeD.)

Mandelat "Asta" (Asta Aktiengesellschaft, Chem. Fabrik, Brackwede i. W.) consists of the neutral calcium salt of mandelic acid, $(C_6H_5CHOHCOO)_2Ca$. It is supplied in bottles containing 100 cc. of a 25% solution with ammonium chloride, and as a powder in packages of 93 Gm. It is recommended in the treatment of coli infections.—*Pharm. Ztg.*, 82 (1937), 890. (N. L.)

Mersalyl B. D. H. (The British Drug Houses Ltd., London) is the sodium salt of salicylamide-*o*-acetic acid. It is a diuretic. It is used for oedematous conditions, particularly those associated with cardiac dysfunction. It is supplied in a sterile buffered solution in ampuls of 1 and 2 cc. and in suppositories for adjuvant treatment or for administration (following a single injection) in mild cases.—*Australasian J. Pharm.*, 19 (1938), 389. (A. C. DeD.)

Neo-Hombreol (Organon Laboratories, London) is synthetic testosterone propionate (5 mg. per cc. in oil). It is used for mental attitudes and sexual disturbances due to castration or hypogonadism in adult male.—*Australasian J. Pharm.*, 19 (1938), 390. (A. C. DeD.)

Neo-Solganol Ampuls (Schering-Kahlbaum A. G., Berlin) are sold in single ampuls containing 0.01, 0.02, 0.05, 0.10, 0.20, 0.50 or 1.00 Gm. calcium-gold keratinate.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Provetan (Schering-Kahlbaum A. G., Berlin) is available in 5-cc. bottles and contains in 5 cc. 5 mg. of estrodiolbenzoate equivalent so 50,000 international units.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Resyl Ampuls (Ges. für chem. Industrie in Basel) are available in packages of 10 ampuls containing in each 2 cc., 0.10 Gm., guaiacol-glyceryl ether in sterile aqueous solution. **Resyl Drops** are sold in 20-Gm. bottles containing 10% of guaiacol-glyceryl ether.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Rodilone Tablets (Société Parisienne d'Expansion Chimique Spezia, Paris) are supplied in packages of 20 and contain in each tablet 0.50 Gm. di-(*p*-acetylaminophenyl)-sulfone.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Seconal (Eli Lilly and Co. Ltd., London) is sodium propyl-methyl-carbinyl-allyl-barbiturate. It is used in sedation and hypnosis. It is marketed in $1^1/_2$ grain "Pulvules" brand filled capsules.—*Australasian J. Pharm.*, 19 (1938), 390. (A. C. DeD.)

Septazin (Curta & Co. G.m.b.H., Berlin-Britz) is para-benzylaminophenylsulfonamide, a new chemotherapeutic agent used in the treatment of localized streptococci and staphylococcus infections. It is supplied in packages of 10, 20 and 250 tablets, each consisting of 0.5 Gm. of the medicinal agent. **Solu-Septazin** is the sodium salt of para-phenylpropylaminophenylsulfonamide-disulfonic acid, and is supplied in packages of 5 and 25 ampuls, each containing 5 cc. of a 6% solution of the chemical. Both preparations are indicated in the treatment of erysipelis, puerperalis, septic abortion, angina, lymphangitis, meningitis, cystitis and pyelitis.—*Pharm. Ztg.*, 82 (1937), 884. (N. L.)

Solidox (Parfumerie Elida Gesellschaft, Berlin) is a toothpaste containing as its antiseptic principal, a sulforicinoleate compound (D. R. P., 470, 505). It is supplied in tubes containing 32 and 75 Gm.—*Pharm. Ztg.*, 82 (1937), 864. (N. L.)

Tonocor Quinine Pills (A. G. Astra, Södertälje, Sweden) are sold in packages of 25 and 100 pills containing in each 0.025 Gm. pyridine-β-carbonic acid diethylamide, 0.04 Gm. quinine lactate, 0.015 Gm. lactic acid, etc.—*Pharm. Presse*, 43 (1938), 132. (M. F. W. D.)

Specialties

Abjinin Ointment (Salesianer-Apotheke, Vienna, 3rd dist.) is sold in 20-Gm. packages and contains arnica extract, sage extract, oil of turpentine, elemi resin, camphor plaster and ointment base.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Adrenal Cortex Extract (Endocrines-Spicer, Ltd.) is an approved adrenal cortex extract for oral administration, described as Adreno-Cortin. This product is biologically standardized and is issued in soft gelatin capsules, each containing 5 minims of extract. Adrenal cortex therapy has been found of value in major and minor adrenal insufficiencies, convalescence, hyperemesis, gravidarum, the toxemia of burns and infections, and as an adjuvant in the treatment of hay fever, utricaria, etc. Adreno-Cortin is available in packages of 30 capsules.—*Chemist and Druggist*, 128 (1938), 448. (A. C. DeD.)

Adsorgan for Diabetics (Chem. Fabrik Heydn A. G., Radebeul-Dresden) is sold in 25- and 50-Gm. packages and contains 40% of silver chloride-silicic acid gel, 10% of silver charcoal, 25% cacao and 23.9% calcium phosphate.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Alunozal Tablets (Firma Société Parisienne Exp. Chimique Specia, Paris) are available in packages of 20 tablets containing 0.50 Gm. basic aluminum salicylate.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Antipect (Tell and Co. (Pharmaceutical Manufacturers) Ltd., Perivale, Middlesex, England) contains fluidextract of thyme, sodium benzoate, sodium benzoylthymoloxybenzoate, sodium bromide, tincture of ginger, tincture of orange. It is used for bronchitis, laryngitis, pharyngitis and whooping cough. The dose is 2–3 teaspoonfuls daily. In whooping cough, one teaspoonful every hour. It is supplied in 6-ounce bottles.—*Australasian J. Pharm.*, 19 (1938), 389. (A. C. DeD.)

Antisodit (Pharm. Werk "Pharmacia," Saarbrücken) contains chiefly magnesium oxide, calcium carbonate and ethereal oils. It is recommended as an alkalizer in hyperacidity and gastritis, and is supplied in packages of 25 and 60 tablets.—*Pharm. Ztg.*, 82 (1937), 985. (N. L.)

Asthmapyrin (Otfried Kieszner, Leipzig-Probstheida) is a decoction of polygala, quebracho and lobelia with the addition of potassium iodide, codeine phosphate and adrenalin. It is supplied in bottles of 100 and 200 Gm.—*Pharm. Ztg.*, 82 (1937), 884. (N. L.)

Benerva Ampuls (Hoffmann-LaRoche, Basle) are sold in packages of 6 ampuls containing 1 cc. of solution equivalent to 500 international units or 1.25 mg. crystalline vitamin B_1. **Benerva Tablets** contain in each tablet 1 mg. Aneurin or crystalline vitamin B_1 equivalent to 500 international units. The tablets are marketed in 20's.—*Pharm. Presse*, 43 (1938), 132. (M. F. W. D.)

Calcium-Resorpta with Vitamin E (Gehe & Co., A. G., Dresden) consists of a soluble calcium compound with vitamin E, and is recommended for use in the treatment of amenorrhea, habitual abortion and sterility. It is supplied in the form of dragees.—*Pharm. Ztg.*, 82 (1937), 922. (N. L.)

Cardin Suppositories (Akt. Ges. Hommel, Haematogen, Zurich) are supplied in packages of 6 suppositories which contain 20 drops of cardin solution in cacao butter.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Combizym Dragees (Luitpold-Werk, München) are sold in packages of 30 dragees containing multivalent digestive enzyme preparations.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Digestivum Dragees (Dr. Wander, G.m.b.H., Vienna, 21st dist.) are sold in packages of 50 dragees, containing in each alucol, medicinal charcoal, menthol, pancreatin, etc.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Efolor (E. F. O.-Pharm., Apotheker Hans Otterbach, Ludwigshafen, a. Rh.) consists chiefly of acetylsalicylic acid, acetophenetidin, phenylallylmalonylurea and caffeine. It is recommended as a nervine, anti-neuralgic, analgesic and antipyretic, and is supplied in packages of 10 and 20 tablets.—*Pharm. Ztg.*, 82 (1937), 911. (N. L.)

Femilan Brand Tablets (Chemical and Natural Products Ltd.) are used for the relief of dysmenorrhoea.—*Retail Chemist* (April 1938), 43. (A. C. DeD.)

Gastein Spa Water with "K"-Element (The Radio-Active Mineral Water Co. Ltd., London) is bottled water of Badgastein Spa, Austria. The "K"-element is suspended from the cap of every bottle. It is claimed to retain the radioactivity at full strength. It is used in rheumatism, gout, arthritis; liver and nervous complaints; tonic and revitalizes in advancing years.—*Australasian J. Pharm.*, 19 (1938), 389. (A. C. DeD.)

Kamichtal (Bika, Chem.-Pharm, Fabrik, Stuttgart) is a readily absorbed salve, consisting of extract of chamomile, sodium sulfate, sodium chloride, formic acid, oil of turpentine and soft ointment with glycerin. It is recommended in the treatment of hemorrhoids, frostbites, muscular rheumatism, etc. It is marketed in tubes of 25 and 120 Gm.—*Pharm. Ztg.*, 82 (1937), 985. (N. L.)

Kamochin Inhalation (Chem.-Pherm. A. G. Bad Homburg in Frankfurt am Main) is available in 10-Gm. packages and contains quinine, chamomile extract, ethereal oils and olive oil.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Latucyl Beans (Knoll A. G., Chem. Fabrik., Ludwigshafen a. Rh.) consists chiefly of the water-soluble active constituent of the milk juice obtained from *Lactuca virosa*. It is recommended in the treatment of various irritating coughs, especially whooping cough, and is supplied in packages of 20 beans.—*Pharm. Ztg.*, 82 (1937), 832. (N. L.)

Lecin Powder (Lecinwerk Dr. E. Laves, Hannover) is sold in 25-Gm. packages and contains 10% iron and 10% phosphoric acid. **Lecin Tablets** contain 65% iron albuminate phosphorated, 5% magnesium silicate and calcium albuminate.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Lonacol Ampuls (Bayer, I. G. Farbenindustrie, A. G., Leverkusen am Rhine) are put up in ampuls of 5.5 cc. containing in each 5 cc. of distilled water, 0.50 Gm. aminoacetic acid, 0.04 Gm. sodium biphosphate, 0.05 Gm. sodium phosphate dried. **Lonacol Powder** contains 8% of sodium biphosphate, 10% dried sodium phosphate and aminoacetic acid; the packages contain 100 Gm.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Mandelate-Asta (Chem. Fabrik Asta, A. G., Brackwede) contains 93 Gm. calcium mandelate and 100 cc. of 25% ammonium chloride solution.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Medichin (Oxylax-Laboratorium, Halle) consists principally of pyrazol dimethylphenyl salicylate 0.15%, amidopyrine 0.1%, caffeine 0.05% and quinine hydrochloride 0.05%. It is

indicated in the treatment of grippe, pneumonia, etc., and is supplied in packages of 10 and 20 tablets (or dragees).—*Pharm. Ztg.*, 82 (1937), 843. (N. L.)

Nicotinic Acid B. D. H. (The British Drug Houses Ltd.) is the precursor of the pellagra-preventing factor of the vitamin B complex, the factor itself being formed in the body from the nicotinic acid after ingestion. The tablets contain 30 mg. (1/2 grain approximately) of the pure substance for oral use in the treatment of pellagrous symptoms.—*Retail Chemist* (April 1938), 43. (A. C. DeD.)

Opticura Bengué (H. Goetz, Pharmazeutische Präparate, Frankfurt a. M.) contains zinc sulfate 0.045 parts, novocain (Bayer) 0.30 parts, glycerin 5.0 parts, rose water 25.0 parts and distilled water 70.0 parts. It is recommended in the treatment of conjunctivitis and other conditions of the eyes, and is supplied in ampuls of 25 cc.—*Pharm. Ztg.*, 82 (1937), 912. (N. L.)

Ovarian Hormone Ampuls-Chemosan (Chemosan-Union, A. G., Vienna, 3rd dist.) contain from 5000 to 50,000 and 250,000 international units of ovarian hormone in each cc. The packages contain one ampul of 50,000 units or 5 of 10,000 units.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Pancortex Ampuls and Solution (Dr. G. Henning, G.m.b.H., Berlin) are put up in packages of 3–1-cc. ampuls and 1–10-cc. ampul, each cc. of which contains 0.05 Gm. ascorbic acid and the extractive from 50 Gm. fresh suprarenal cortex. **Pancortex Dragees** are sold in packages of 20, each of which contains 0.05 Gm. ascorbic acid and the extractive from 10 Gm. fresh suprarenal cortex.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Panergon Dragees (Medizinischer Versand, G.m.b.H., Berlin, W 35) consist principally of vitamins D, B_1, B_2, lecithin, saccharated oxide of iron, calcium lactate, calcium phosphate, ascorbic acid, exsiccated sodium sulfate, calcium hypophosphate and albuminous iodine. They are recommended as a nervine and blood tonic.—*Pharm. Ztg.*, 82 (1937), 843. (N. L.)

Pavyco Tablets (Chem. Fabrik Dr. Weil, Frankfurt am Main) are sold in packages of 10 tablets, each of which contains 0.035 Gm. papaverine hydrochloride, 0.00035 Gm. eumydrin, 0.10 Gm. amidophenazonestrontium sulfosalicylate, barbital sodium and camphoric acid.—*Pharm. Presse*, 43 (1938), 172, (M. F. W. D.)

Picabo (Pharmazeutisches Laboratorium "Erbigo," G.m.b.H., Görlitz) is an antirheumatic preparation consisting chiefly of capsicum, camphor, salicylic acid, oil of mustard, oil of pine needles, menthol and chloroform.—*Pharm. Ztg.*, 82 (1937), 931. (N. L.)

Praepitan Suppositories (Sanabo G.m.b.H., Vienna, 12th dist.) are sold in packages of 5, each of which contains 300 rat units of gonadotropic hormone from the anterior lobe of the pituitary in cacao butter. **Praepitan Tablets** are sold in packages of 20 and each tablet contains 200 rat units of gonadotropic hormone from the anterior lobe of the pituitary.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Pregnyl (Organon Laboratories, London) is the pituitary-like gonadotropic hormone. It is used for disorders of development associated with hypogonadism in the prepuberal male. It is supplied in twin capsules of powder and solvent; 100 and 500 rat units.—*Australasian J. Pharm.*, 19 (1938), 390. (A. C. DeD.)

Preloban for injection (Bayer I. G. Farbenindustrie A. G., Leverkusen) is packaged in 3 ampuls each containing 25 units of standardized hormone preparation from the anterior lobe of the pituitary along with 3 ampuls containing 1 cc. of physiological saline solution.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Purgocit (Idasan Chem.-Pharm. Fabrik, Berlin N 4) consists chiefly of frangula, rhamnus cathartica, prune and phenolphthalein. It is supplied in the form of a confection and is recommended as a purgative and cathartic.—*Pharm. Ztg.*, 82 (1937), 995. (N. L.)

Räudex (Cooper, McDougall, E. Robertson, Berkhamsted, England) comes in 25- and 125-Gm. packages and consists of rotenone, sulfur, soap and borax.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Revirol (Chem.-Pharm. Lab., P. Felgenauer & Co., Erfurt-Hochheim) contains in each tablet, 4 Gm. of a silicate salt and 1.25 mg. sodium iodide. It is recommended in the treatment of arteriosclerosis.—*Pharm. Ztg.*, 82 (1937), 926. (N. L.)

Sapolan Ointment (R. Cavailles, Paris) contains distilled petroleum, lanolin and calcium oleate. The packages contain 100 Gm.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Serocalcin (Harwoods Chemists Ltd., Watford, Herts.) is sulfoguaiacolic precipitate of whole plasma. It is used for the prevention and treatment of the common cold. The dose is three tablets, three times a day (children 2, three times a day). It is supplied in vials of 20 tablets, boxes of 60, bottles of 100 and 250.—*Australasian J. Pharm.*, 19 (1938), 288. (A. C. DeD.)

Silogel Ointment (Hartmann & Co., Vienna, 12th dist.) is put up in 40-Gm. jars and contains silicic acid gel.—*Pharm. Presse*, 43 (1938), 172. (M. F. W. D.)

Solvochin-Guaicol Ampuls (Chem.-Pharm. A. G., Bad Homburg in Frankfurt am Main) are available in packages of 2 or 15 ampuls containing 2 cc. Each ampul contains 1 cc. solvochin and 15 gr. guaicol.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Sulfur-Diasporal Solution (Chem. werk Dr. Klopfer, Dresden) is sold in 100-Gm. packages and contains 2% of sulfur-diasporal A, camphor, menthol, glycerin and dilute alcohol.—*Pharm. Presse*, 43 (1938), 227. (M. F. W. D.)

Suntan Cream (Yardley and Co., Ltd.) promotes a warm even tan without danger of the skin blistering or burning. At the same time it soothes and protects the skin from ultraviolet rays. The cream is packed in a large attractive tube container.—*Chemist and Druggist*, 128 (1938), 500. (A. C. DeD.)

Tar Dermament (Parke, Davis and Co.) is a combination of a special type of alcohol-soluble phenolic resin, having analgesic properties, with 6% of washed crude coal-tar. It is relatively non-toxic, mildly anesthetic and exerts a slightly vaso-constrictor effect. When painted on the skin the solvent evaporates leaving a covering of the resin which holds the tar at the place of application, and ensures direct and continuous contact of the antiseptic with the area under treatment. It is supplied in rubber-stoppered vials of 15 and 50 cc. with a camel-hair brush for its application.—*Retail Chemist* (April 1938), 43. (A. C. DeD.)

Taurolin Ampuls (Schering-Kahlbaum A. G., Berlin) are put up in packages of 5 ampuls containing 2 or 5 cc. of a solution of sodium taurocholate.—*Pharm. Presse*, 43 (1938), 226. (M. F. W. D.)

Urandil (The Anglo-French Drug Co. Ltd., London) is an ointment containing zinc oxide 12%, iodine 9.7% and uranium 9.2%. It is used in cases of eczema, dermatosis, wounds, burns, sycosis and staphylococcic infections. It is supplied in 1-ounce tubes.—*Australasian J. Pharm.*, 19 (1938), 390. (A. C. DeD.)

Xorox (H. R. Napp Ltd., London) is a complex organo-therapy compound. It is a hemotonic for primary and secondary anemia. It is used in debility, following acute infections; as a general tonic; carbuncles, boils and whitlows. The dose for children: one year, $^1/_2$ tablet daily; 2–4 years, 1 tablet daily; 5–10 years, 1 tablet two times a day; 11–16 years 1 tablet three times a day. Adults: 2 tablets three times a day. It is supplied in bottles of 40 and 200 tablets.—*Australasian J. Pharm.*, 19 (1938), 288. (A. C. DeD.)

BACTERIOLOGY

Acidosis—Effect on Production of Antibodies in Rabbits. Acidosis was produced in rabbits by intravenous injections of ammonium chloride. A determination of the carbon dioxide-combining power of the plasma indicated that a persistent acidosis was produced during the immunizing period. The rabbits were injected with typhoid bacilli and ovalbumin. Agglutinin and precipitin titres of the immunized animals with and without an experimentally induced acidosis were compared. Acidosis reduced the agglutinin titres (1:240 as compared to 1:3600 in the normal rabbits) and the precipitin titres (1:8900 as compared to 1:28,000 in the normal rabbits).—W. W. BRANDES and A. B. CAIRNS. *J. Immunol.*, 32 (1937), 137. (T. C. G.)

Aerobic Micro-Organisms—Detection of Factors Which Influence the Multiplication of. Proliferation of *B. coli* is followed by manometric determination of respiration rates in a Barcroft-Warburg apparatus and the effect of temperature, nutritive substances and sowing on the growth curves is investigated in all phases of growth.—J. HIRSCH. *Enzymologia*, 4 (1937), Part II, 94; through *Physiol. Abstr.*, 22 (1937), 1107. (F. J. S.)

Agar—New Chocolate, for the Culture of Gonococcus. An excellent chocolate-colored agar which enhances the growth of weakly growing or slowly developing strains of gonococci is prepared from 77 Gm. gelatin agar, 1000 cc. of distilled water, and 100 cc. of citrated beef blood, heated together at 100° for twenty minutes after preliminary treatment described in detail.—

C. H. E. BECK. *J. Lab. Clin. Med.*, 23 (1938), 415; through *Squibb Abstr. Bull.*, 11 (1938), A-363. (F. J. S.)

Alcohol and Trichinosis. Tests *in vitro* of destructive action of alcohol on trichinella-infected meat, demonstrated slowed gastric digestion and eventual destruction of trichinella by alcohol from 6.25 to 25%. But period required is longer and concentrations greater than those maintained in human stomach.—CURRENT COMMENT. *J. Am. Med. Assoc.*, 109 (1937), 1728. (G. S. G.)

Alkyl-Dimethyl-Benzyl-Ammonium Chlorides—Fungicidal Properties of. Dilutions 1:1000 of the compound mixture as an alcohol-acetone tincture destroyed all of the pathogenic fungi on test. The results were less uniform in presence of 20% horse serum.—CECIL G. DUNN. *Proc. Soc. Exptl. Biol. Med.*, 37 (1938), 661. (A. E. M.)

Alum-Precipitated Toxoid—Is Lasting Active Immunity Against Diphtheria Obtainable with a Single Injection of? Forty-seven children (6 months to 8 years) were injected with a single dose of alum-precipitated diphtheria toxoid (22 to 24 Lf doses). After intervals from 11 to 27 months, 44 or over 90% of the children were found to be Schick negative.—H. W. STRAUS. *J. Lab. Clin. Med.* 22 (1937), 893. (T. C. G)

Anaerobic Cultures—Chromium Sulfuric Acid Method for. The chromium sulfuric acid method for culturing anaerobes is recommended because it requires less expensive apparatus and is simpler than most other methods. The reagents required are: (1) Chromium metal powder. (2) Sulfuric acid, 15% aqueous solution by volume. (3) Sealing mixture, consisting of 90 parts of white petrolatum and 10 parts beeswax, melted together and allowed to resolidify. (4) Methylene blue indicator consisting of (*a*) 3 cc. of 0.5% aqueous solution of methylene blue diluted to 100 cc. with water, (*b*) 6% aqueous solution of glucose with a crystal of thymol and (*c*) 6 cc. *N*/10 sodium hydroxide, diluted to 100 cc. with water. Immediately before use, equal parts of the three solutions are mixed. The procedure for making anaerobic cultures is as follows: (1) Pour on the bottom of a Novy or desiccator jar the 15% sulfuric acid solution (100 cc. per liter capacity of the jar) and add the chromium metal powder (5 Gm. per liter capacity of the jar). (2) Place test-tubes, petri dishes, etc., in the jar. (3) Place a tube filled with the methylene blue indicator solution in the jar. (4) Place the lid, previously smeared with the sealing mixture, on the jar and leave the gas outlet open. (5) After the vigorous evolution of hydrogen has subsided, close the gas outlet and place the jar in the incubator. (6) On opening the jar, avoid exposure to open flames since the jar and its contents are saturated with hydrogen.—L. ROSENTHAL. *J. Bact.*, 34 (1937), 317. (T. C. G.)

Anaphylactic Shock—Influence of Narcotics on. Guinea pigs were sensitized with horse serum and then given urethane, ether or morphine before the shocking dose of horse serum was injected. Urethane and ether ameliorated the symptoms and reduced the fatality rate of anaphylactic shock, while morphine was without effect. The author believes the protective effect of urethane and ether is due to the fact that these narcotics produce dilation of the bronchioles, thus counteracting the bronchiole constriction characteristic of anaphylactic shock in the guinea pig. On the other hand, since morphine itself contracts the bronchioles, it serves to enhance the symptoms of shock in the guinea pig.—L. FARMER. *J. Immunol.*, 32 (1937), 195. (T. C. G.)

Anaphylactic Shock—Rôle of the Liver of the Guinea Pig in. Guinea pigs were sensitized with sheep serum and after two weeks the abdominal viscera were removed. The animals were then given the shocking dose of the serum by intravenous or intracardial injections. The eviscerated animals showed the same signs and died as rapidly of anaphylactic shock as the control animals which had not been eviscerated. This experiment indicates that the cells of the reticulo-endothelial system present in the liver and spleen apparently do not play any rôle in the production of experimental anaphylactic shock in the guinea pig.—R. H. BROH-KAHN and I. A. MIRSKY. *J. Immunol.*, 32 (1937), 409. (T. C. G.)

Antibody Formation in Cold Blooded Animals—Relation of Temperature to. Two groups of frogs were injected with human erythrocytes, one group being held at 22–27° C. and the other group at 8–10° C. After immunization, the sera from both groups of frogs were examined for the presence of hemolysins. The frogs kept at 22–27° C. developed hemolysins in low titres (1:3), while those kept at 8–10° C. did not develop any demonstrable hemolysins.—F. W. ALLEN and E. C. MCDANIEL. *J. Immunol.*, 32 (1937), 143. (T. C. G.)

Antihemorrhagic Vitamin—Synthesis of, by Bacteria. Dried bacteria of some species show from 5 to 8 times the antihemorrhagic activity of dried alfalfa. Good sources were: unspecified organisms growing on fish meal, *Bacillus mycoides, subtilis, cereus, Bacterium prodigiosum, coli, Sarcina lutea, Staphylococcus aureus, Mycobacterium tuberculosis.* Void of activity were *Pseudomonas aeruginosa* and yeasts.—H. J. ALMQUIST, C. F. PENTLER and E. MECCHI. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 336. (A. E. M.)

Antiseptic—New, Bactericidal Power and Harmlessness of. The *p*-hydroxybenzoate of methylpropyldiphenol has shown itself a valuable antiseptic, devoid of toxicity in the doses used and free from irritant action on the mucous membranes. By contact at a concentration of 0.20% it kills staphylococci, streptococci and *B. coli* in less than 2 minutes, and at a concentration of 0.15% it kills them in less than 8 minutes. Koch's bacillus is destroyed in 3 hours by the compound at a concentration of 1%. By emanation, a concentration of 1 in 10,000 is sufficient to destroy staphylococci and streptococci in 4 days and *B. coli* in 3 days. It can be used by atomization in sick rooms and locally in diseases of the respiratory tract.—A. LOIR. *Ann. Hygiène*, 14 (1936), 709–715; through *Chimie & Industrie*, 38 (1937), 936. (A. P.-C.)

"Armor" of Disease Germs—Substances Sought to Pierce. In laboratory tests, harmless bacteria from soil and sewage were found to destroy the capsule polysaccharides of types I, II and III pneumococci. H. hopes to prepare the active enzyme solutions from these soil and sewage bacteria. No experiments on animals or man have yet been tried.—J. C. HOOGERHEIDE. *Science News Letter*, 33 (1938), 120; through *Squibb Abstr. Bull.*, 11 (1938), A-407. (F. J. S.)

Bacteria—Wine. The mannitol bacteria of wine are of several morphological forms, and may be classified under Coccaceæ and Bacteriaceæ. The various forms show similar chemical activity, but their actions differ somewhat in intensity. Several forms are briefly described and are figured. Other bacteria (butyric, lactic) may also be present.—G. DEBORDES. *Ann. fermentations*, 3 (1937), 528–536; through *J. Soc. Chem. Ind.*, 57 (1938), 312. (E. G. V.)

Calomel Ointment—Improved. Statements that the N. F. VI ointment produced insufficient response to the F. D. A. Agar Plate Antiseptic Test to be considered antiseptic led to this investigation. The N. F. VI ointment produces zones of inhibition up to 2 mm. in width; the N. F. V which has a different base gives almost identical results; and samples purchased on the open market yield zones from 1 mm. to 2 mm. Since new or increased pharmacologic activity sometimes results from use of the substance in a colloidal state this was tried. A newly formed salt precipitated in the presence of protective colloids like gelatin or acacia tends to become a colloidal suspension. Microscopic examination of calomel showed variation of particles from 2 to 110 microns; the U. S. P., with an average of 7 microns, varied from 2 to 50. In the calomel suspensions, the maximum size of visible particles was 0.8 micron. Many could not be seen under an oil-immersion lens. Ointments prepared from this calomel had a much higher antiseptic power. Some variation was tried in preparation of the calomel but the following was decided upon: Dissolve 3 parts of mercurous nitrate in 100 parts of acidulated water (nitric acid 1, water 100). Dissolve 2 parts of gelatin and 1.2 parts of sodium chloride in 100 parts of water. Add the mercurous nitrate solution drop by drop (about one drop per second) to the sodium chloride-gelatin solution which is under constant agitation by mechanical stirring. Wash the suspension by dialysis until free from acidity and soluble salts. Concentrate by evaporation in a vacuum pan until the concentrate contains 1 Gm. of calomel in 3 Gm. of the suspension. This concentrated suspension is permanent and suitable for incorporation into the ointment base. Likewise some variations were tried in preparing the ointment but the following was chosen: Into 70 parts by weight of ointment base, incorporate 90 parts by weight of suspension (containing 30 parts by weight of calomel) to make 160 parts by weight of ointment. In reality this gives an ointment containing about 18% of calomel (anhydrous). The antiseptic power was tested by the F. D. A. Agar Plate Technic. A tabulation shows the results of a wide variety of ointments including the new one. Few ointments produce a broader zone in the F. D. A. Agar Plate Test than the new calomel ointment; of the official ones only Citrine Ointment. The antiseptic value of the compound formed by mercurous nitrate and gelatin, of an ointment using a calomel precipitated in a sodium chloride-acacia solution, of the suspension of the new calomel, of ointments stored in jars and in tubes were all determined. Effort was made to develop an assay method for the new calomel and one giving results 97% to 98% of theoretical is reported. Toxicity and absorption tests were made. Two- to 4-Gm. doses of either official or "new" calomel ointments produce diarrhea on the first or

second day after inunction and death on the fourth to the twentieth day. The official calomel ointment corresponds in antiseptic value to a 1 to 10,000 mercuric chloride ointment but the new calomel ointment is more than equivalent to a 1 to 1000 mercuric chloride ointment. Dilution of the suspension of calomel to 1 part of calomel to 1000, weight to volume has a phenol coefficient about equal to 1% phenol solution.—E. E. VICHER, R. K. SNYDER and E. N. GATHERCOAL. *J. Am. Pharm. Assoc.*, 26 (1937), 1241. (Z. M. C.)

Carbohydrate Gradient of Certain Microörganisms. If an organism ferments any sugar, it utilizes dextrose. If dextrose is fermented then fructose and mannose are usually fermented, although often more slowly. In this work a search was made to find organisms which would ferment one or two but not all three of the dextrose, fructose, mannose triad, so that the selected organisms could be used as reagents to detect the interconversion of these three carbodydrates in chemical analyses. Some 800 aerobic bacteria, yeasts and yeast-like fungi were examined for this purpose. The utilization of the carbohydrates was detected by dye indicators and chemical analysis for reducing sugars. Some 22 organisms were found which fermented dextrose and fructose but not mannose. Among these were *B. anthracis, B. mycoides, Proteus vulgaris, Staphylococcus aureus* and *albus*.—A. G. WEDUM and B. L. GOLDEN. *J. Infectious Diseases*, 60 (1937), 94. (T. C. G.)

Carbon Dioxide Tension—Individual Culture Dish with Increased. In 1930, Spray devised an individual dish for culturing anaerobes by the alkaline pyrogall method. This dish consists of a deep beaker with a partition dividing the bottom in half and a moat around the top of the dish into which an inverted petri dish is sealed with paraffin. The present report describes the use of this dish for culturing organisms such as *Neisseria gonorrhoeæ* and *Neisseria intracellularis* which require an increased (10%) carbon dioxide tension for optimum growth. Two solutions are required: Solution A consisting of 84 Gm. of sodium bicarbonate in 1000 cc. of distilled water and Solution B consisting of 1 cc. of concentrated sulfuric acid in 29 cc. of distilled water. The sodium carbonate solution should be boiled or autoclaved before using. One cubic centimeter of each solution is pipetted into each side of the partition in the bottom of the dish, the petri dish containing the inoculated medium is inverted in the moat and sealed in place with melted paraffin. After the paraffin has solidified, the two solutions are mixed by tipping the dish.—A. L. JOYNER and C. P. JONES. *J. Lab. Clin. Med.*, 22 (1937), 1184. (T. C. G.)

"Catadynized" Water—Experimental Study of the Action of, on Bacteria. "Catadynized" water which contains traces of silver exhibits an inhibiting action toward the development of bacteria, increasing progressively with the degree of activation of the water. The inhibitory activity reaches a maximum at values of about 260 γ of silver, and does not increase further, even with 800 γ. The minimum time required to convert the inhibitory to a bactericidal action varies from 1 to 2 hours; this period is indispensable and does not depend on the silver content of the contaminated liquid. No appreciable differences were observed in the behavior of mobile and stationary bacteria under the action of catadynized water. The number of bacteria seems to have an effect on the mechanism of sterilization, but only above a certain limit, which can be set roughly at 100,000 per cc.; above this value there is a slowing down of the bactericidal action, the causes of which are but imperfectly known.—L. SCHIOPPA. *Ann. Igiene*, 46 (1936), 497-504; through *Chimie & Industrie*, 38 (1937), 886. (A. P.-C.)

Colds—Oral Immunization to. Previous work by the authors has lead them to believe that the presence of the heterophile (Forssman) antibody gives considerable protection against the common cold. Since numerous bacteria contain the heterophile antigen which may be administered orally, these workers have orally immunized numerous persons in previous studies with cold vaccines and reported considerable success. In the present study 100 persons were given the oral vaccine and 100 persons, living under similar conditions, served as the controls. The vaccine consisted of 25 billion pneumococci, 5 billion *H. influenzæ*, 15 billion streptococci and 5 billion *M. catarrhalis* which were heat killed, dried, mixed with starch and placed in a capsule. Each individual in the experimental group took one capsule for seven consecutive mornings and then one capsule each week throughout the remainder of the season. The results indicated that the persons in the control group had four times as many colds as the experimental group, and that the experimental group showed a 67.7% reduction in the number of colds.—G. E. ROCKWELL, H. C. VAN KIRK and H. M. POWELL. *J. Lab. Clin. Med.*, 22 (1937), 912. (T. C. G.)

Coliform Organisms in Water—Practical Study of Procedure for the Detection of the Presence of. Over 1200 water samples from which lactose broth presumptives were obtained, were examined for coliform organisms. Five confirmatory methods were used: the "completed test" of standard methods of water analysis, brilliant green bile, crystal violet, fuchsin and formate ricinoleate broths. Fuchsin broth was also used as a primary medium in the examination of approximately 900 of the above samples. The lactose broth and the brilliant green bile confirmatory methods are favored.—H. MacCrody. *Am. J. Pub. Health*, 27 (1937), 1234; through *Am. J. Pharm.*, 110 (1938), 127. (T. C. G.)

Complement-Fixation Test in Psittacosis. A psittacosis antigen has been prepared from a crude virulent mouse-spleen suspension by centrifuging out the virus, resuspending it in a phosphate buffer and heating the suspension for thirty minutes at 100° C. This heated antigen has been found superior to the crude virus suspension for carrying out complement-fixation tests with the sera from cases of human psittacosis. The advantages of the tested antigen are that it makes the test more delicate, that it is not dangerous to handle and that it keeps well.—S. P. Bedson. *Lancet*, 233 (1937), 1477. (W. H. H.)

Diphtheria—Duration of Immunity against, Achieved by Various Methods. Toxoid supplanted toxin-antitoxin as more effective and giving equally long immunity. Alum-precipitated toxoid claimed superior having advantage of one injection over two or three of fluid toxoid. Recent doubts of real efficacy for duration of immunity of alum precipitate toxoid against antitoxin. Other evidence contradictory. Preliminary report of study of duration of immunization against diphtheria in New York City. Tests with 2 groups of guinea pigs on 2 or 3 doses of alum precipitated toxoid and of fluid toxoid, and a third group with one dose each of alum-precipitated and fluid toxoid. Last determination done 42 to 46 weeks after immunization. Poorest results in group receiving 1 dose of each. But groups were small and time too short. Tests on 3 groups of children: 21 given 3 doses toxin-antitoxin, 22 given 2 doses unmodified toxoid, 21 given 1 dose alum-precipitated toxoid. All had positive Schick test reactions before. Final Schick tests given 39, 37 and 27 months, respectively, after immunization. Ninety-five per cent of first and third groups gave negative tests; 86% of second group. But time was unequal. So far groups too small and duration too brief and too unequal for statistical value. Suggest continuation with larger groups of children, for test period of 5 years, no more.—Wm. Hallock Park. *J. Am. Med. Assoc.*, 109 (1937), 1681. (G. S. G.)

Diphtheria Toxin. I. Isolation and Characterization of a Toxic Protein from Filtrates of Corynebacterium Diphtheriæ. Treatment of normal toxin preparations with ammonium sulfate, aluminum oxide, dialysis, etc., affords a heat-coagulable protein (N 16, S 0.75, tyrosin 9, tryptophan 1.4%; $[\alpha]_D$ approximately $-40°$ in water; isoelectric point p_H 4.1; molecular weight probably about 17,000) which is readily denatured at p_H less than 6 and moderate temperature, and is lethal in 5 days to guinea pigs (body weight 250 Gm.) in doses of approximately 1×10^{-4} mg.—A. M. Pappenheimer, Jr. *J. Biol. Chem.*, 120 (1937), 543; through *Physiol. Abstr.*, 22 (1937), 1105. (F. J. S.)

Disinfectants—Non-Phenolic, Practical Method for Testing. Reference is made to several definitions of a disinfectant and the limitations of the phenol coefficient method. A suitable method for non-phenolic odorless disinfectants used on floors, woodwork and furniture in sick rooms has been devised. Material needed and procedure are given. The test makes use of varnished sticks, dipping them into the culture, exposing them to air for 72 hours, then immersing in the highest dilution of the disinfectant that is recommended for disinfecting woodwork in a sick room, drying and finally immersing in sterile broth and examining the broth. The test is limited to non-phenolic disinfectants that do not depend on a volatile constituent and which are odorless. —William C. Clark. *J. Am. Pharm. Assoc.*, 27 (1938), 130. (Z. M. C.)

Fatty Acids of Tubercle Bacillus. Tuberculo-stearic acid and phthioic acid were isolated from heat-killed tubercle bacilli.—T. Wagner-Jauregg. *Hoppe-Seyler's Z.*, 247 (1937), 135; through *Physiol. Abstr.*, 22 (1937), 1107. (F. J. S.)

Filter Flask for Dispensing Filtrates Aseptically. The author devised a flask which combines the essential features of an aspirator bottle and a filter flask. There is a tubulation at the top for suction and one at the base for removing the sterile filtrate. When this flask is used in conjunction with a glass bell filling device, it practically precludes the possibility of air contamination in dispensing sterilized filtrates. The flask has been used for dispensing sera, sugar solutions,

toxins, etc., which have passed through Seitz or Berkefeld filters.—T. C. GRUBB. *J. Lab. Clin. Med.*, 22 (1937), 1190. (T. C. G.)

Germicidal Activity of Disinfectants—Use of Cutaneous Staphylococcus Lesions in Mice for the Evaluation of. The therapeutic activity of certain germicides was tested by injecting various dilutions of the germicide together with an invasive strain of *Staphylococcus aureus* intradermally into white mice. The value of the germicide was indicated by its ability to prevent the development of cutaneous lesions in mice. Merthiolate (1:1000) failed to prevent infection, while 1:5000 chlor-iso-octyl-resorcinol prevented infection when injected not later than one hour after the inoculation of the organisms. The failure of merthiolate to prevent the development of cutaneous lesions lead to a further study of related mercurial antiseptics to determine the cause of its ineffectiveness. A suspension of *Staphylococcus aureus* was added to dilutions of merthiolate, metaphen and mercurochrome. After varying periods the organisms were removed from the germicides washed with distilled water or saturated hydrogen sulfide solution and inoculated into serial dilutions of glucose broth. It was found that the inorganic mercurials have a slow germicidal action which is greatly diminished by the presence of hydrogen sulfide.—G. A. HUNT. *J. Infectious Diseases*, 60 (1937), 232. (T. C. G.)

Germicidal Efficiency of Hypochlorites—Comparison of High and Low Alkalinity Hypochlorites. The germicidal efficiency of hypochlorites of high (0.5%) and low (0.13%) alkalinity was tested on *Staphylococcus aureus* and *Eberthella typhosa* using the total plate and dilution tube methods of determining surviving bacteria. The test cultures were added to solutions varying from 50 to 200 p. p. m. of available chlorine and samples were withdrawn at 3-, 5- and 10-minute intervals. Sodium thiosulfate was added to the dilution bottles to stop the action of the chlorine in the plates and broth tubes. The p_H of the hypochlorite solutions was measured with a glass electrode at 3-, 5- and 10-minute intervals after inoculation. It was concluded that hypochlorites of low alkalinity had a greater killing power than those of higher alkalinity both for *Staphylococcus aureus* and *Eberthella typhosa*. The counts obtained by the dilution tube method were consistently somewhat higher than the plate counts, although for practical purposes, both methods gave approximately the same results.—S. M. COSTIGAN. *J. Bact.*, 34 (1937), 1. (T. C. G.)

Hemolytic Streptococci—Studies on Streptococcus Scarletinea. IV. In the author's collection of 395 strains of hemolytic streptococci, 14 can be definitely classed as *Streptococcus scarletinæ* by their fermentation reactions, fibrinolysis and growth in 10% bile. *Streptococcus scarletinæ* may cause scarlet fever or sore throat without a rash, but it rarely if ever causes other diseases.—A. E. EVANS. *J. Bact.*, 34 (1937), 21. (T. C. G.)

Hormones—Serologic Antibodies Against. After extended treatment by hormones, resistance develops to these substances. Noted with thyroxine, parathyroid extract, adrenal cortex extract and especially thyrotropic and gonadotropic principle of anterior pituitary. Explained by theory of antihormones, at least for tropic principles. Serologic antibodies produced against pure thyroxine. Rabbits used as test animals. Antibodies detected by complement fixation tests. Other hormone extracts containing a phenol group, epinephirine, insulin also give this reaction. Patients with hyperthyroidism give this reaction. Reaction also produced by other substances, iodotyrosine, tyrosine, phenol, containing a phenol group.—JULIUS BAUER. *J. Am. Med. Assoc.*, 109 (1937), 1442. (G. S. G.)

Hypersensitiveness. Sensitization of Rhesus Monkeys with Poison Ivy. Solutions (13%) of poison ivy oil and poison oak oil were evaporated until a gummy substance remained. The gummy poison ivy oil was applied with patches to the shaved skin of *Rhesus* monkeys for 48 hours and then washed off with acetone and carbon tetrachloride. The skin remained normal after this initial application. Seven to ten days later the poison ivy gum was again applied in a similar manner to the sensitized monkeys, and within 48 hours erythema, fedema and induration followed by scaling and ruptured vesicles in 72 hours had developed. The skin returned to normal within one to two weeks. The animals remained sensitive to poison ivy oil for a period of at least 8 months. Animals sensitized with poison ivy oil gave a positive reaction when poison oak oil was subsequently applied on patches, proving the common antigenic structure of the two substances.—H. W. STRAUS. *J. Immunol.*, 32 (1937), 241. (T. C. G.)

Immunological Response of Tissues Cultured in Vitro. Rabbit and guinea-pig serum, guinea-pig erythrocytes and killed *Salmonella paratyphi* were added to tissue cultures containing minced chick embryos in Tyrode's solution. Repeated attempts to detect precipitins, hemolysins

or agglutinins produced *in vitro* to the above antigens were uniformly unsuccessful. The authors summarize the previous reports of the successful production of antibodies *in vitro*. They point out that in experiments where the antigen is injected into the living animal and then portions of the animal's organs cultured *in vitro*, antibodies are more likely to be formed than where the antigen is added directly to the tissue *in vitro*. They conclude that thus far there has been no clear-cut experimental evidence that antibodies, in appreciable titre, can be formed *in vitro*.—A. J. SALLE and W. A. MCOMIE. *J. Immunol.*, 32 (1937), 157. (T. C. G.)

Iodine—Tincture of, and Antisepsis in Operations. A tincture containing 2% iodine and 2.4% potassium iodide in 50% alcohol is of higher antiseptic value and less irritation than the usual 10% tincture.—GUIDO RICCI and TERESA SATRIANO DE DAURAT. *Rev. farm. (Buenos Aires)*, 79 (1937), 461. (A. E. M.)

Meningococci and Gonococci—Differential Medium for. The principal method for distinguishing meningococci and gonococci is by the use of fermentation tests. However, since these organisms do not grow well in ordinary fermentation media, a special medium, as here described, has been devised which allows luxuriant growth with more rapid fermentation of the test sugars. A serum-water mixture is prepared by adding 3 parts of serum (beef, calf, lamb or hog) to 1 part of sterile water. The mixture is heated on two successive days in a 65° C. water-bath for one hour. *Escherichia coli communis* is added to the mixture and allowed to incubate at 37° C. for 4–5 days. The mixture is then heated in a water-bath at 65° C. for 1 hour to kill the organisms. A concentrated broth is prepared as follows: peptone, 50 Gm.; meat extract, 10 Gm.; sodium chloride, 10 Gm.; sodium sulfate, 10 Gm. and sodium nitrate, 5 Gm. are added to 1000 cc. of water. To 800 cc. of the serum-water mixture, 200 cc. of the concentrated broth are added. The medium is adjusted to p_H 7.8 and 25 cc. of a 0.1% solution of brom thymol blue are added. Ten grams of the carbohydrate to be tested (glucose, maltose, etc.) are finally added. The medium is tubed in 5-cc. amounts, coagulated in a slanting position by inspissation and sterilized by autoclaving at 2 lbs. pressure for 30 minutes on two successive days. The organisms to be tested are streaked on the slant or stabbed in the medium. The tubes are corked to avoid loss of gases and reduce the oxygen tension. In this medium, meningococci fermented glucose and maltose within 4–16 hours, and gonococci fermented glucose within 8–24 hours.—S. F. BAILEY. *J. Bact.*, 34 (1937), 645. (T. C. G.)

Microbic Dissociation—Further Advances in the Study of. The author reviews some 200 papers on microbic dissociation which have been published since the writing of his monograph on the subject in 1927. The subjects of colony morphology, phase transformations, stability of phases, filterable forms, virulence and toxigenicity are discussed at length. It is now generally accepted that most bacteria may exhibit three phases—a smooth (S), a rough (R) and a mucoid (M) phase. Certain organisms such as the pneumococci, streptococci and the tubercle bacillus exhibit additional phases, as for example, the "matt," "glossy," etc., phases. In general the smooth or mucoid phases indicate greater virulence than the rough phase.—P. HADLEY. *J. Infectious Diseases*, 60 (1937), 129. (T. C. G.)

Nicotinic Acid and Aneurin—Specificity of, in Growth of Staphylococcus Aureus. Isonicotinic and picolinic acids and trigonelline salts are unable to replace nicotinic acid or nicotinamide in the growth requirements of *Staphylococcus aureus*. The effect of quinolinc acid and other substituted nicotinic acids has also been investigated. A large number of differently substituted pyrimidines and thiazoles related to the component parts of the aneurin molecule have been tested; the results emphasize the specificity of aneurin or of its components in the growth requirements of the organism.—B. C. J. G. KNIGHT and H. MCILWAIN. *Chemistry and Industry*, 57 (1938), 276. (E. G. V.)

Pectin as Antiseptic. Pectin agar maltose, in diarrhea led to study of bactericidal qualities. Active only in acid medium. Useful on exposed wound surfaces, destroying local streptococci and staphylococci. Recommend further study of pectin as surgical dressing.—CURRENT COMMENT. *J. Am. Med. Assoc.*, 109 (1937), 1283. (G. S. G.)

Peptone—Bacterial, Preparation of, in the Laboratory. Commercial gelatin was peptonized in the presence of sulfuric acid. Peptonization was followed by tests of viscosity which diminished to a constant low, and through the character of the precipitate formed with phosphotungstic acid. The peptonization was usually completed in 80–100 hours after which the solution was heated to 100°, filtered and concentrated. Bacterial and chemical tests indicated a satis-

factory end product.—MARCELLO PICCIONI. *Diagnostica tec. lab. (Napli), Riv. mons.*, 8 (1937), 489; through *Squibb Abstr. Bull.*, 11 (1938), A-493. (F. J. S.)

Phosphoric Esters—Dissimilation of, by Propionic Acid Bacteria. Proliferating *Propionibacterium pentosaceum* degrades phosphoglyceric acid, hexose diphosphate and α-glycerophosphate, and more readily, glucose. 0.02*M* sodium fluoride prevents or greatly restricts the degradation of phosphoglyceric acid, hexose diphosphate and α-glycerophosphate, but not the growth of the bacteria in presence of yeast extract or their power normally to ferment glucose. Possibly phosphoglyceric acid is not invariably an intermediate in bacterial glycolysis.—C. H. WERKMAN, R. W. STONE and H. G. WOOD. *Enzymologia*, 4 (1937), Part II, 24; through *Physiol. Abstr.*, 22 (1937), 1107. (F. J. S.)

Plasteins—Apparent Antigenicity of. It has been generally believed that when proteins are acted upon by certain enzymes, the structure of the protein is destroyed and new proteins, called plasteins, are synthesized which are antigenic. To test this belief, the authors prepared plasteins by allowing pepsin and trypsin to act on egg albumen. Rabbits were immunized with the native egg albumin, peptic and tryptic plasteins, trypsin and pepsin. To test the immunologic relationships of the various antigens, intradermal skin sensitivity and precipitin tests were made. The results showed cross reactions between the enzymes and their corresponding plasteins, and between the native protein and the plasteins. The authors conclude that the immunologic responses produced by plasteins are of such a magnitude that their antigenicity may be more easily attributed to the presence of traces of unaltered protein, or to the antigenicity of the enzymes themselves used in preparing the plasteins, rather than to synthesized, antigenic, protein molecules. This work invalidates the immunologic evidence that plasteins are synthesized products of molecular dimensions approximating those of proteins.—E. W. FLOSDORF, S. MUDD and E. W. FLOSDORF. *J. Immunol.*, 32 (1937), 441. (T. C. G.)

Rheumatoid Arthritis—Precipitins for Streptococcus Hemolyticus in. It is now generally agreed that agglutinins for hemolytic streptococci are usually found in the sera from patients with rheumatoid arthritis and absent in the sera from osteoarthritis cases. In this report the authors attempted to determine whether precipitins for hemolytic streptococci also show a similar relation between these two forms of arthritis. A crude precipitin antigen containing the group specific carbohydrate C and the type specific protein M was prepared by extracting broth cultures with hydrochloric acid. A refined precipitin antigen containing only the type specific protein was also prepared by extracting the crude antigen with alcohol and sodium acetate. The sera of 47 patients with rheumatoid arthritis, 20 with osteoarthritis and 22 normal sera were tested for the presence of hemolytic streptococcus precipitins with the crude and refined antigens. Agglutination tests were also run on these sera using the NY-5 strain. Agglutinins and precipitins for hemolytic streptococci were found in 44% of the cases with rheumatoid arthritis, while these antibodies were absent in the sera from normal persons and cases of osteoarthritis. The crude and refined precipitin antigens gave approximately the same results.—M. S. NEIL and E. F. HARTUNG. *J. Lab. Clin. Med.*, 22 (1937), 881. (T. C. G.)

Streptococcus Toxins and Antitoxins—Titration of, by the Flocculation Reaction V. The authors believe that the failure of many previous workers to obtain a flocculation between streptococcus toxin and antitoxin was due to the use of weak toxins and excessive amounts of antitoxin. The authors obtained a potent streptococcus toxin (2,400,000–3,600,000 STD) for this work by concentration with ammonium sulfate. The technic of the flocculation test is similar to the Ramon test for the titration of diphtheria toxins and antitoxins. In determining the Lf of a toxin, constant amounts of toxin are added to varying amounts of antitoxin, and the mixtures incubated at 42° C. until flocculation is detected in one of the tubes. The procedure is, of course, reversed in determining the number of antitoxic units in a serum. The correlation coefficient of the results obtained by the *in vitro* and *in vivo* methods of determining antitoxic potency was 0.947 ± 0.023, indicating that the flocculation test is as satisfactory as the rabbit test for determining the unitage of streptococcus antitoxin.—L. RANE and L. WYMAN. *J. Immunol.*, 32 (1937), 321. (T. C. G.)

Sulfone and Sulfonanilide Therapy in Streptococcal Infections. 4,4′-Di-(acetylamino)-diphenylsulfone is more efficacious than sulfanilamide against certain hemolytic streptococcal infections in mice. Against the same infections, the 4,4′-diamino-benzene-sulfonanilide is as good or better than sulfanilamide. The sulfone is less toxic than either the anilide or sulfanilamide.

Medication in mice with these drugs produced no demonstrable hepatic or renal lesions.—FRANK B. COOPER, PAUL GROSS and MARION LEWIS. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 375. (A. E. M.)

Tea—Microbiology of. I. Determination of Microörganisms on Fresh Tea Leaves and Those in Different Stages of Manufacture. Distribution of bacteria, fungi and yeasts is examined.—A. ITANO and Y. TSUJI. *Ber. Ōhara Inst. landw. Forsch.*, 7 (1936), 403–408; through *J. Soc. Chem. Ind.*, 56 (1937), B., 480. (E. G. V.)

Toxin and Antitoxin—Mutual Multivalence of. The Ehrlich and Madsen and Arrhenius theories of toxin-antitoxin combination postulate that these two substances always unite in a fixed ratio to form a neutral compound. The Bordet theory postulates that the ratio is not fixed but varies with the composition and toxicity of the reacting substances. In this paper, Eagle presents evidence confirming the latter hypothesis. Increasing amounts of either diphtheria toxin or horse antitoxin were added to a fixed quantity of the other reagent in each series. Aliquot portions of each mixture were tested for toxicity in guinea pigs. Rabbit antihorse serum was then added to the various toxin-antitoxin mixtures to precipitate all of the horse-serum proteins, but not the uncombined toxin. The precipitate was washed with saline and tested for toxicity by guinea-pig injection. The results definitely showed that more toxin combines with antitoxin than is necessary to exactly neutralize it. In a similar manner it was shown that more antitoxin combines with a given amount of toxin than is necessary to just neutralize it. Thus the toxin-antitoxin compound may be toxic or antitoxic, depending upon whether toxin or antitoxin is present in excess in the reacting mixture, both reagents being multivalent with respect to each other.—H. EAGLE. *J. Immunol.*, 32 (1937), 119. (T. C. G.)

Trypanocidal Substances—New. The investigation described in this paper was prompted by the discovery that synthalin has a direct trypanocidal action. A considerable number of guanidines, isothioureas, amidines and amines, with alkyl and alkylene chains, were prepared and examined for trypanocidal activity. It was found that certain of the diamidines exhibit a powerful trypanocidal action *in vitro*. With the most active member of the series, undecane diamidine, it is possible to produce permanent cures in infected laboratory animals. A sundecane diamidine is of entirely different chemical constitution from all known trypanocidal substances, this discovery is of considerable academic interest. This interest is increased by the fact that resistance to the drug is acquired by the trypanosome very slowly, if at all, and that trypanosomes which have been made completely resistant to the aromatic arsenicals and to Bayer 205 exhibit no resistance to this compound. It is also of practical significance in that it opens up a new field in the search for substances of therapeutic value against trypanosomal infections.—H. KING, E. M. LOURIE and W. YORKE. *Lancet*, 233 (1937), 1360. (W. H. H.)

Typhoid Fever—Comparative Study of Oral and Subcutaneous Vaccination against. Subcutaneous or oral vaccination against typhoid fever was given to 187 individuals divided into three groups. The subcutaneous method consisted of three injections at weekly intervals of the standard T. A. B. vaccine. The oral method consisted of feeding one capsule of bile and one capsule of vaccine (10 billion heat killed typhoid bacilli in starch) on the first morning followed by one capsule of vaccine on each of the following two mornings. Blood for agglutination tests was collected before and four weeks after the vaccinations. The first group contained twenty individuals who had been previously vaccinated against typhoid. Ten were given the oral and ten the subcutaneous vaccination. The average agglutinin titre of those orally vaccinated was 1:304, and 1:224 for those subcutaneously vaccinated. The second group contained 124 individuals who had been previously vaccinated against typhoid. The average agglutinin titre of the 71 orally vaccinated was 1:710, and of the 53 subcutaneously vaccinated, 1:503. The third group contained 43 persons who had not been previously vaccinated against typhoid. The average agglutinin titre of the 26 orally vaccinated was 1:320, and of the 17 subcutaneously vaccinated, 1:312. No untoward reactions were experienced by those taking the oral vaccine, while about 50% of those subcutaneously injected had the usual local or systemic reactions. It is concluded that the oral method of vaccination is satisfactory since it gives as good if not better agglutinin response than the subcutaneous method, the peak of the agglutinin titre is reached sooner and the vaccine is more easily administered than by the subcutaneous method.—H. D. BROWN and I. L. BROWN. *J. Lab. Clin. Med.*, 22 (1937), 1216. (T. C. G.)

Typhoid and Paratyphoid Vaccines—Potency When Freshly Prepared and after Storage. Tests were carried out to determine whether typhoid and paratyphoid vaccines deteriorate when stored at 8–10° C. for 2½ to 3 years. Rabbits were immunized with freshly prepared vaccines and those which had been stored 2½ years. There was no demonstrable difference between the freshly prepared and the stored vaccines in their ability to stimulate the production of agglutinins. Mice were immunized with freshly prepared vaccines and vaccines stored 1½ to 3 years. They were then injected with 2 to 5 M. L. D.'s of typhoid bacilli to test the protective action of the vaccines. Vaccines stored up to 3 years gave as good protection as those freshly prepared. It is concluded that typhoid and paratyphoid vaccines may be stored several years without loss of potency.—L. MISHULOW, I. MOWRY and A. K. STOCKER. *J. Infectious Diseases*, 60 (1937), 357. (T. C. G.)

Unitarian Theory of Antibodies—Immunological Studies with Purified Serum Proteins Bearing on. Previous work to prove or disprove the unitarian hypothesis of antibodies has yielded equivocal results in many instances because complex antigens such as bacteria and red blood cells have been employed. In this experiment, simple, purified antigens were prepared by adding human serum albumin and pseudoglobulin to a suspension of collodion particles small enough to exhibit Brownian movement. Rabbits were immunized with these antigens and the presence or absence of agglutinins, precipitins, opsonins and complement fixing antibodies was noted by appropriate procedures. When precipitins were entirely removed by absorption with homologous antigens, agglutinins, opsonins and complement fixing antibodies were also completely removed. The results of this experiment give indirect evidence supporting the unitarian hypothesis.—E. DELVES. *J. Infectious Diseases*, 60 (1937), 55. (T. C. G.)

Vitamin C and Experimental Diphtheria and Botulinus Toxin Poisoning. Injections of ascorbic acid had no protective action in rabbits given lethal doses of diphtheria or botulinus toxin.—H. WEBER. *Compt. rend. soc. biol.*, 126 (1937), 1029; through *Chem. Abstr.*, 32 (1938), 2576. (F. J. S.)

Whooping-Cough—Measuring Immunity in. Technic for measurement of cytophagic titre in vaccinated and unvaccinated persons. Duration of immunity commensurate with opsonocytophagic titer.—CURRENT COMMENT. *J. Am. Med. Assoc.*, 109 (1937), 1458. (G. S. G.)

BOTANY

Inhibitory Materials Occurring in the Plant and Animal Kingdoms. These materials were first proved to be in yeast, then in plants and finally in animal organs. As a source of material for this study, an aqueous alcoholic macerate of dry yeast and a fermentation solution which is obtained by allowing a larger quantity of compressed yeast to ferment in at least a 20% sugar solution, were mixed. In order to follow the course of the arresting action of these solutions, the seeds of garden cress were used. These sprout in 3–4 days on moistened filter paper at room temperature; but if they are moistened in the yeast solutions show no sprouting even if the alcohol produced was removed by distillation in a vacuum. Plant juices (spinach, tomato, green cabbage, etc.) and organ juices (liver, testicles, etc.) were freed of alcohol and were obtained by sugar osmosis and later fermentation of sugar by yeast, inhibited the sprouting of the cress. The approximate properties of the inhibiting substances are: (1) In dilutions of yeast solutions (1 + 1) the inhibition of growth is undiminished; on the contrary, in dilutions of 1 + 4 the growth is found to be complete. (2) The dissolved inhibitory substance is not injured by steam at 100–120° C. (3) The ash of the yeast solutions produces no inhibiting action on the growth of the cress seeds. (4) The inhibiting substance is dialyzable and may be precipitated from the compressed yeast solution by means of alcohol-ether. (5) The dry substance as obtained in (4) upon dissolving in water shows the same inhibiting properties as the solution before precipitation. (6) The substance may finally be again precipitated by adsorptive agents (benzoic acid) and then may be freed again and then dissolved in water showing the same inhibiting properties as before. (7) By these precipitation and adsorption experiments it is proved that this inhibition of growth is not caused by lactic acid or mineral salts but by an organic substance.—RUDOLF RAPP. *Apoth. Ztg.*, 52 (1937), 1392–1393. (H. M. B.)

Invertase—Synthetic and Hydrolytic Actions of, in Living Plants. Invertase (I) occurs free and combined in plants, the free form having hydrolytic, the combined form synthetic prop-

erties. Since the ratio free I: combined I varies greatly according to the species of plant concerned, and since the ratio is altered by various factors (*e. g.*, water content, stage of development, temperature, action of narcotics), the ratio hexose: sucrose likewise varies greatly. Sugar beet contains considerable amounts of I, most of which is combined.—A. I. OPARIN. *Enzymologia*, 4 (1937), Part II, 13; through *Physiol. Abstr.*, 22 (1937), 1112. (F. J. S.)

Methylpentoses of Cell Wall of Plants. When methylfurfuraldehyde is distilled in hydrochloric acid solution by the usual Tollens procedure there is a 27% destruction of the aldehyde partly due to oxidation, since the yield is improved by distillation in nitrogen. The action of the acid is the main cause of this loss, which becomes more pronounced as the concentration of the acid increases, and it was found that it is more satisfactory to distil in the presence of salt, which stabilizes the acid concentration. The yield of methylfurfuraldehyde from methylpentoses is influenced not only by acid concentration and oxidation, but also by the stereochemical configuration of the sugar; rhamnose appears to decompose more readily than the pentoses.—C. R. MARSHALL and F. W. NORRIS. *Biochem. J.*, 31 (1937), 1053; through *Physiol. Abstr.*, 22 (1937), 1111. (F. J. S.)

Moulds—Propagation of. There is no relation between the final oxidation-reduction potential attained in suspensions of the fungi and their power to propagate, but the time required for the production of each generation decreases as the respiration increases. In suspensions of living yeast the potential depends on $[O]_2$ if less than 66.7%, but not if it is greater than 66.7%.—A. VON SZILVINYI. *Biochem. Z.*, 291 (1937), 7; through *Physiol. Abstr.*, 22 (1937), 1113. (F. J. S.)

Plants—Death of, Caused by Low Temperatures. Seeds germinated in aqueous potassium chloride withstood low temperature better than those germinated in water. The tendency of the outer water film of the seed to supercooling is a notable factor in cold resistance. Washing seeds in potassium chloride after germination eliminated the increased resistance to subsequent low temperature treatment. Pretreatment with salts of tetravalent bases was less effective than with those of univalent bases in increasing cold resistance.—H. WARTENBERG. *Ernähr. Pflanze*, 34 (1937), 21–27; through *J. Soc. Chem. Ind.*, 57 (1938), 422. (E. G. V.)

Polyhydroxyanthraquinones—Production of, by Moulds. Emodin Me_1 ether from *Aspergillus ruber* is identical with physcion from the lichen *Xanthoria parietina*, L.—H. RAISTRICK. *Enzymologia*, 4 (1937), Part II, 76; through *Physiol. Abstr.*, 22 (1937), 1112. (F. J. S.)

Sterol—Production of, by Yeast. During the production of yeast by the method of Braun and Pfundt the amount of sterol present increases five-fold when the nitrogen source is inorganic and six-fold when it is organic.—F. REINDEL, K. NIEDERLÄNDER and R. PFUNDT. *Biochem. Z.*, 291 (1937), 1; through *Physiol. Abstr.*, 22 (1937), 1112. (F. J. S.)

CHEMISTRY

GENERAL AND PHYSICAL

Calcium Phosphates—Chemical and X-Ray Diffraction Studies of. Commercial primary and tertiary calcium phosphates vary considerably from the theoretical composition. Secondary calcium phosphates are of greater constancy of composition and vary little from the theoretical values. Primary and secondary calcium phosphates each exist in three crystallographic modifications. In each case, one form may be a hydrate, another the anhydrous, while a third is unidentified. Regardless of the crystallographic form of the primary calcium phosphate before ignition, there is only one crystalline form after ignition, probably calcium pyrophosphate. Commercial tertiary calcium phosphates are probably hydroxylapatite with more or less absorbed phosphate ions to give the empirical formulæ approaching the theoretical. On ignition at 900° C. for 1 hour, a reaction between the hydroxylapatite and the adsorbed phosphate ions takes place which produces beta $Ca_3P_2O_8$, the amount of change depending on the amount of adsorbed phosphate ions.—H. C. HODGE, M. L. LEFEVRE and W. F. BALE. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 156–161. (E. G. V.)

Camphor—Use of, in Cryoscopy. The cryoscopic constant of camphor is very high (500). The melting point of the pure camphor is determined (T_1), then the melting point of a mixture of 0.1 Gm. of the same camphor and 0.004 Gm. of the substance to be examined is obtained (T_2). The molar quantity is given by the formula: $T_1 - T_2 = 500 - \frac{m'}{M} \times \frac{100}{m}$ or $M =$

$\frac{50{,}000\ m'}{m(T_1 - T_2)}$. 500 = cryoscopic constant of camphor; m and m' = respective weights of camphor and substance examined.—J. F. DURAND. *Bull. Soc. Chim. France* (Jan. 1937); through *J. pharm. Belg.*, 20 (1938), 278. (S. W. G.)

Cerate Oxidimetry. The old theory of mechanism of ceric oxidimetry based upon the assumption of a simple Ce^{++++}/Ce^{+++} ratio is faulty as a theoretical guide in the interpretation of experimental results. Tetravalent cerium in nitric and perchloric acid solution has a potential of 1.6 to 1.87 volts, as compared with 1.44 in sulfuric acid solution. An increase in concentration of perchlorate ion increases the potential; nitrate ion decreases it slightly, and sulfate considerably. These effects are best explained by assuming the formation of a complex cerate ion. Potentiometric titrations of ferrous iron in various concentrations of perchloric, nitric, sulfuric and hydrochloric acid solutions have been carried out and the results compared graphically. Proposed applications of the new procedures include the simultaneous differential oxidation of ferrous and vanadyl salts, the improved determination of oxalate including calcium, and the improved titration of arsenite to arsenate. Cerate oxidimetry in perchloric acid solutions makes available oxidation potentials which are higher than any at present available using a stable standard oxidizing solution, namely, 1.7 to 1.87 volts with reference to the standard hydrogen electrode.—G. F. SMITH and C. A. GETZ. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 191–195. (E. G. V.)

Damar Solutions—Viscosities of. The paper deals with the importance of solvents in the preparation of damar solutions and the damar-containing vehicles. Petroleum solvents vary markedly in their effects on the viscosity of a damar solution. Results are given for a range of work covering commercial petroleum solvents as well as solvent materials derived from petroleum. The effect of these on the viscosity of a damar has been studied and incorporated in tables and graphs. A petroleum solvency test employing damar is proposed in which the petroleum solvent is evaluated according to the Gardner-Holdt viscosity produced in the test.—C. L. MANTELL and A. SKETT. *Ind. Eng. Chem.*, 30 (1938), 417–422. (E. G. V.)

Extraction Apparatus—Discontinuous Fractional, Utilizing Reflux. Solvent-extraction processes are very useful in affecting the separation of complex liquid mixtures by physical means. This is especially true if reflux conditions and countercurrent contacting of the phases are employed. In this way, the sharpness of the separation is better and the segregation of the components more complete. This paper describes a suitable small-scale batch-extraction process utilizing reflux for conditions where the solvent is either lighter or heavier than the liquid undergoing treatment. The apparatus is shown to be reproducible, efficient and practically self-operating. It permits the separation of a liquid mixture by solvents into as many fractions as desired.—R. E. HERSH, K. A. VARTERESSIAN, R. A. RUSK and M. R. FENSKE. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 86–91. (E. G. V.)

Fats and Fatty Acids—Relation between Viscosity and Density of, and Their Iodine Values. The viscosity of linolenic and oleic acids has been measured between 20° and 90°, and of stearic acid at 70° and 80°. Viscosity increases when the number of double linkings decreases. Viscosity of an unsaturated oil increases in the course of hydrogenation; that increase and the simultaneous decrease of the iodine value are connected by a linear equation. The extinction of the heat of the reaction and the appearance of a crystalline X-ray pattern in the course of hydrogenation have also been measured.—G. B. RAVITSCH. *Kolloid. Zhur.*, 3 (1937), 257–264; through *J. Soc. Chem. Ind.*, 57 (1938), 183. (E. G. V.)

Gelatin and Glue—Control in Manufacture of. The speed of hydrolysis of collagen into gelatin depends on p_H. Maximum swelling occurs at p_H 2.4 and 11.6, and minimum swelling at p_H 4.7 and 7.7. The rate of hydrolysis of collagen is least in the p_H range 3.0–8.0. Hydrolysis during evaporation is least at the isoelectric point, p_H 4.7. Gelatin for ice cream should have high jelly strength at p_H 6.3, and glue must be raised to p_H 7 to give maximum adhesive power.—C. H. STUPHOLME. *Food Manuf.*, 13 (1938), 46; through *J. Soc. Chem. Ind.*, 57 (1938), 417. (E. G. V.)

Granules—Apparatus for Testing Crushing Strength of. The apparatus consists of a first class lever, pivoted in the center. The applied force acting upwards on one end is a direct function of the granule resistance to crushing on the other. A granule is placed on the plate, directly beneath one end of the lever, and the load is applied on the opposite end at a uniform rate by winding the string on a small reel until failure occurs. A spring balance, connected in the reel

system and sliding in upright supports, registers the amount of load applied at that end of the lever. It was found convenient to use lever arm ratios of 4 and 8 to 1 and consequently the balance reading was multiplied by 4 or 8 as the case may be. The capacity of the instrument was 2000 Gm. with a lever ratio of 4 to 1 and 4000 Gm. with a lever ratio of 8 to 1.—E. F. HARFORD. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 40–41. (E. G. V.)

Particle Size and Shape—Factors Influencing, in Grinding. The measurement of particle size and shape, the effect of the nature of the material and the type of mill on the distribution of particle size, and the process of classification are briefly reviewed.—L. T. WORK. *Bull. Am. Ceram. Soc.*, 17 (1938), 1–5; through *J. Soc. Chem. Ind.*, 57 (1938), 329. (E. G. V.)

p_H—Spectrophotometric Determination of, in Colored Media without Standards of Comparison. The method is based on the determination of absorption coefficient of the solution, after addition of the indicator, in two different regions of the spectrum. This gives two equations, which permit of finding two unknowns of the problems, namely, the quantity of indicator which has undergone change at the highest p_H of its range of utilization, the amount which has changed at the lowest p_H of this range. This technic offers the advantage of requiring as little colored indicator in a naturally colored as in an originally uncolored solution, which reduces the error due to the indicator in media that are but slightly buffered. Moreover, the indicator need not be measured with a high degree of accuracy as is necessary in the direct spectrophotometric method.—A. LECLERE. *J. pharm. chim.*, 25 (1937), 118–122; through *Chimie & Industrie*, 38 (1937), 1083. (A. P.-C.)

X-Rays and the Chemical Industry. The value of X-rays for identification, study of molecular weight, size and shape and complete structure analysis is discussed with special reference to colloidal substances and proteins.—J. D. BERNAL. *Food Manuf.*, 12 (1937), 427–428; through *J. Soc. Chem. Ind.*, 57 (1938), 180. (E. G. V.)

ORGANIC

Alkaloids

Ergot—Active Constituents of. A review paper on the state of advance of research on the ergot alkaloids in 1937, read before the meeting of the Federation Internationale Pharmaceutique in Copenhagen, Aug. 26, 1937. Optical constants are tabulated and a flow sheet shows the steps of conversion (partial synthesis) of ergotinine to ergobasine. Twenty-seven literature references are cited.—A. STOLL. *Dansk Tids. Farm.*, 12 (1938), 1. (C. S. L.)

Phenyldehydrosparteine—Oxidative Degradation of. XV. Contribution to the Elucidation of the Structure of Sparteine or Lupanine. Knowledge of the constitution of the two alkaloids, sparteine and lupanine, has been advanced by numerous investigators so far in the last few years that there is no longer any doubt about the number and kind of ring linkages within the molecular skeleton or the position of the carbonyl group.

The elimination of the obstacles relative to the arrangement of ring D through the evidence of the degradation of didehydrosparteine indicates a hexagonal ring. To confirm the findings of pre vious investigators the authors undertook the step-wise oxidative degradation of N-benzoylphenylsparteone—a viscous yellow uncrystallizable oil, the picrate ($C_{28}H_{34}N_2O_2.C_6H_2(NO_2)_3OH$) of which crystallized from absolute methyl alcohol as small yellow crystals melting between 87° and 88° C. Its iodomethylate, a bright yellow powder melting between 73° and 75° C., was stable to alkaline permanganate solution. Oxidation by means of chromic acid, nitric acid, permanganate, etc., indicates that the degradation proceeds in essentially the same manner irrespective of the oxidizing agent. Oxidation with an excess of reagent yields succinic acid, delta-amino valeric acid and diketone, $C_9H_{13}NO_2$. Its gold chloride salt obtained in bright yellow granular crystal aggregates melts at 174° C. with decomposition. The hydrochloride and hydrobromide remained oily. A dark red crystalline reineckate, $C_9H_{13}NO_2(Cr(SCN)_4(NH_3)_2)H$, was soluble in acetone and decomposed between 206° and 208° C. Milder oxidation yielded a lactone, $C_{18}H_{17}NO_3$, char-

acterized by a brick-red reineckate, $C_{13}H_{17}NO_3(Cr(CNS)_4(NH_3)_2)H$, which sintered at 153° C. The oxidative degradation of sparteine and various dehydrosparteines demonstrated that the first step-wise degradation occurred at the C_{16} grade when the symmetry of the sparteine molecular skeleton is destroyed through the opening of one of the rings. The detection of non-lupinan, delta-aminovaleric acid, *N*-methyl-piperidone and piperidine indicate ring D to be of a piperidine nature.—K. WINTERFELD and MAX SCHIRM. *Arch. Pharm.*, 275 (1937), 630. (L. L. M.)

Essential Oils and Related Products

Angelica and Lovage Oils. A discussion of different types of volatile oils found in closely related species or even in different parts of the same plant, and plants with similar odors but with oils of different composition. While the principal constituent of oil of angelica is phellandrene, the odor is probably due to lactones such as osthol (I), angelicin (II) and ambrettolid (III). Angelicin is the parent substance of a number of natural furo-cumarins. Oil of lovage contains chiefly *d*-α-terpineol but its other constituents are not definitely known. Both oils are similar in odor and in their change upon aging. They are used in medicine, liquor, seasoning and candy industries.—K. BOURNOT. *Am. Perfumer*, 36 (1938), 38–40. (G. W. F.)

Essential Oils. The data obtained by measurement of absorption of ultraviolet light may be useful in many cases for the examination of essential oils.—ANON. *Les Parfums de France* (Aug. 1937), 194; through *Am. Perfumer*, 36 (1938), 34. (G. W. F.)

Essential Oils—Hungarian. A discussion of the cultivation, harvesting, distillation and chemical composition of oil of sweet marjoram (*Origanum majorana* L.), oil of caraway (*Carum carvi* L.), oil of clary sage (*Salvia sclarea* L.) The constants of oil of sweet marjoram are: specific gravity at 15° C.: 0.9099–0.9164; optical rotation: +13°15′ to +32°24′; refractive index at 20° C: 1.4653–1.4821; ester number 30.94–60.07; soluble in 10–40 volumes of 70% alcohol. The yield is about 0.53–1.93%; the first cutting gives the most oil. Oil of caraway yield is inferior to the Dutch, being 3.3–4.63%. The carvone content of oil from the wild seed was 55.8%. The constants of oil of clary sage were: specific gravity at 15° C.: 0.9072–0.9328; optical rotation: −13°28′ to −28°18′; linalyl acetate 60–83%; usually soluble in one volume of 90% alcohol with marked opalescence and separation of crystals with more alcohol. The yield is about 0.169%.—ERNEST GUENTHER. *Am. Perfumer*, 36 (1938), 48–49. (G. W. F.)

Essential Oils—Russian. In addition to standard essential oils, many new oils have been produced. Among them are: *Oil of Juniperus Polycarpus.*—Yield 0.75%; odor somewhat like that of carrot oil; constants: $d_{15°}$ 0.8460; (a_D) 29°41′; acid number traces; ester number 2.3; aldehyde and ketone content 3%; phenol content 9.5%. Oil blends with pine needle oil and is valuable for perfuming soaps. *Oil of Juglans Fallax* Dode.—Yield 0.02%; odor balsamic and fine; constants: $d_{15°}$ 0.907; acid number 4.2; ester number 23.4. Useful in perfuming cosmetics and pomades. *Oil of Glycyrrhiza Uralensis* Fisch.—Obtained from petroleum ether extraction of distillate; yield 0.0005%; dark colored with odor and taste of licorice. Used as flavor in medicinal and dental preparations and for flavoring tobacco. *Oil of Hypercium Perfoliatum* L.—Yield 0.08%; odor value fine; constants: $d_{15°}$ 0.8726; a_D 1.489; acid number 0.6; ester number 10.6; aldehyde and ketone content 8.5; phenol content 3%; begins to boil at 158°. *Oil of Salvia Spinosa* L.—Yield 0.03%; odor fine balsamic between clary sage, patchouli and vitivert; specific gravity 1.0177, therefore useful as fixative for perfumes of oriental type. *Oil of Perovskia Scrophulariæfolia* Bge.—Obtained from leaves. Yield 0.2–0.5%; should be rectified; rectified oil, constants: $d_{15°}$ 0.8775; a_D 9°01′; acid number 0.25, ester number 7.4; ester number after acidulation 25.0; aldehyde content (bisulfate method) 3%; phenol content 6%; begins to boil at 142°; saponification with 10% sodium hydroxide in alcoholic solution improves quality, giving odor similar to lavender or rosemary; about 20% of this fraction has odor of linalool. *P. Scrophulariæfolia* Bge. grows wild in middle Asia and gives a good yield. *Oil of Origanum Vulgare* L.—Yield 0.05%, from Tadjikstan and Kirgize; constants: $d_{15°}$ 0.9109; a_D − 1071′; acid number 1.5; ester number 3.8; aldehydes (bisulfite method) 4%; phenol content 35%; begins to boil at 138°. After rectification with steam, it produces oil for perfuming low priced toilet waters and soaps; in odor value it is competitive with Spanish origanum oil. *Oil of Lachnophyllum Gossypinum* Bge.—Yield 0.12–0.3%, greenish brown color, congeals at −2.7° in long needles; begins to boil at 165°; constants after rectification and allowing 50% to remain in still (II) and regular oil (I): $d_{15°}$ I 0.9894, II 0.8959; a_D I 0°54′; II 18°825′; acid number I 4.0, II 3.9; ester number I 237.5, II 64.3; aldehyde and ketone content I

4%, II 4%; phenol content I 7.5%, II 1.6%. About 35% of rectified oil is soluble in 10% solution sodium hydroxide. After treatment with water and again with 10% alcohol potassium hydroxide and zinc dust for 24 hours, resultant oil is dark colored with odor of apricots. Known as "Lachnol." *Oil of Pulicaria Salviæfolia* Bge.—Yield 0.15–0.2%; raw oil not pleasant odor. Constants: $d_{15°}$ 0.8974; a_D 18.52′; acid number 2; ester number 22.9; aldehydes and ketones (bisulfite method) 2%; phenol content 1%. Treatment with 10% alcoholic solution of sodium hydroxide and zinc dust converts odor to pleasant note and makes it useful for bouquet creations. *Oil of Artemisia Scopariiformis* M. Pop.—Yield 0.08–1.0%; odor pleasant and balsamic, grows near Chadjent, etc. Constants: $d_{15°}$ 0.8756; a_D 3°01′; acid number 0.2; ester number 7.4; aldehyde and phenol content 3%; phenol content 1.5%. *Oil of Artemisia Arenaria* D.C.—Yield 0.09–1.1%; odor, after rectification, between wormwood and oak moss, grows near Nausski. Constants of rectified oil: $d_{15°}$ 0.8619; a_D 3°01′; acid number 0.3; ester number 33.0; aldehyde and ketone content 2%; phenol content 2%; useful for perfuming soaps. *Oil of Artemisia Maritima* L.—Yield 0.15–0.75%; grows in middle Asia. Constants of rectified oil: $d_{15°}$ 0.8683; a_D 2°54′; acid number 4.4; ester number 23.0; aldehyde and ketone content 5%; phenol content 5%. Effective as prophylactic against mosquitos when diluted 10% in cottonseed or sesame oil. *Oil of Artemisina Annua* L.—Yield 0.06–0.09%; grows near Chadejnt. Constants: $d_{15°}$ 0.8254; a_D −5°2′; acid number 0.9; ester number 10.30; aldehyde and ketone content 3%. Useful for perfuming soaps.—ALEXANDER KATZ. *Am. Perfumer*, 36 (1938), 35–36. (G. W. F.)

Essential Oils of the Leaves of Some Species of Languas. The composition of the oil obtained from the leaves of a given plant of this family is partly similar to that of the oil from the rhizome of the same plant. The following constituents were identified in the oil of leaves of *Languas romburghiana:* α-pinene, β-pinene, cineol, camphor, borneol and methyl cinnamate. The oil of the leaves of *Languas speciosa* Small was found to contain α-pinene, β-pinene, cineol and a cinnamic ester (probably methyl cinnamate). The oil of *Languas Schumanniana* Sasaki contains camphor and that of *Languas malaccensis* Merr. α-pinene, β-pinene, cineol and methyl cinnamate.—A. J. ULTÉE. *Rec. trav. chim. Pays-Bas*, 56 (1937), 409–412; through *Chimie & Industrie*, 38 (1937), 744. (A. P.-C.)

Eucalyptus Radiata (E. Numerosa)—Occurrence of a Number of Varieties of, as Determined by Chemical Analysis of the Essential Oils. II. Investigations into the varieties of *Eucalyptus radiata* as determined by chemical analysis of the essential oils have been continued. The results obtained confirm the constancy of the several forms or varieties, but a remarkable observation was made with a tree planted from seed of the form called Variety A. In this particular instance two stems grew from the one root system. The leaves and terminal branchlets from each stem were separately distilled, whereupon the essential oils were found to differ from one another in chemical composition. One yielded an oil containing 50% piperitone, identical with Variety A, and the other yielded an oil containing only 18% piperitone with a considerable quantity of piperitol and, consequently, it bore a very close resemblance to what the authors prefer to regard as the type. Although the type contains usually only about 5% piperitone, earlier findings reveal the occurrence of intermediate forms between the type and Variety A containing up to 18% piperitone. There was considerable difference in the content of piperitone and piperitol in the respective oils. The odors were also dissimilar, one resembling *E. dives* rich in piperitone, while the other had the characteristic fragrant odor associated with the *E. radiata* type. It is noteworthy further that the weight of foliage and yield of oil obtained from No. 2 stem were considerably greater than those obtained from No. 1. Apparently no similar record has ever been reported. It was the original intention merely to record this observation without comment, but since the far-reaching influence of this observation cannot be over-emphasized, it would appear justified to direct attention to its probable effect on the botanical nomenclature of the eucalyptus, as also to the undesirable practice of certain botanists of describing new species and varieties of economic plants on very slender morphological evidence just as it is a dangerous practice to use differences in chemical composition alone as a basis of classification.—A. R. PENFOLD and F. R. MORRISON. *J. Proc. Soc. N. S. Wales*, 70 (1937), 375; through *Chem. Abstr.*, 32 (1938), 2686. (F. J. S.)

Glycosides, Ferments and Carbohydrates

Lipase—Activity of, at Low Temperatures. The splitting of olive oil and of tributyrin takes place with measureable velocity at temperatures far below the point where the system is

solid. No sudden change was observed in the rate of hydrolysis corresponding to the change in state. The enzymic hydrolysis of fat in frozen tissues presents a definite and detectable change in chemical composition which probably has an important bearing on the quality of the stored product as food.—A. K. BALLS and I. W. TUCKER. *Ind. Eng. Chem.*, 30 (1938), 415–416.
(E. G. V.)

Phosphatase Activity. A variety of substrates have been used, and the phosphatase activity has been determined both by reference to the liberated phosphoric acid and to the alcoholic (or phenolic) residue of the hydrolyzed ester. In no instance was any significant difference noted in respect of the amount of hydrolysis in the presence and absence of ascorbic acid. Phosphatase activity, in addition to its dependence on the presence of magnesium ions, is influenced by the nature of the alcohol group in the ester. Different phosphoric esters are hydrolyzed at greatly different rates.—E. J. KING and G. E. DELORY. *Chemistry and Industry*, 57 (1938), 85.
(E. G. V.)

Saponin from the Fruits of a Gleditschia Species Native to China. Previous workers have isolated more or less definite saponins and sapogenins from the fruits of *Gleditschia horrida* Makino. By general methods a saponin named gledinin has been isolated from the fruits of a Chinese *Gleditschia* species. Hydrolysis with mineral acids in alcohol gave the sapogenin gledigenin: $C_{29}H_{46}(OH)COOH$; decomposing at 310°; it contains one double bond in β-γ or γ-δ position to COOH, like oleanolic acid or sanguisorbigenin. The following derivatives were described: ethyl ester, m. p. 203°; mono-acetate, m. p. 264°; iso-acetate, m. p. 190°; acetyl-ethyl ester, m. p. 184°; benzoate, m. p. 217°; brom-lactone, m. p. 235°; acetyl-brom-lactone, m. p. 200°; acetyl-lactone, m. p. 279°.—K. FUJII and T. MATSUKAWA. *J. Pharm. Soc. Japan*, 55 (1935), 250–251.
(R. E. K.)

Fixed Oils, Fats and Waxes

Avocado Pear Oil. Avocado pear oil has been found to be rich in oil-soluble vitamins (A, D and F), phytosterol and lecithin. Avocado oil belongs to the class of semi-drying oils. The chemical and physical characteristics, and the composition of the oil are given. Several formulæ for cleansing and tissue creams using avocado oil are given.—ANON. *Chemist and Druggist*, 128 (1938), 347. (A. C. DeD.)

Fat Hydrogenation—Catalytic. I. Apparatus for Experiments. The reproducibility of laboratory hydrogenation experiments depends on the standardization of the catalyst and conditions of hydrogen flow and agitation. By incorporating a fritted-glass filter-plate in the base of the hydrogenation vessel, finely divided hydrogen can be blown through the oil at a standard rate and pressure and no further mechanical agitation of the oil is necessary; reproducible results with any one plate are obtainable, and by reversing the hydrogen current after hydrogenation the filter-plate can conveniently be used to remove the oil from the catalyst without atomic exposure. A homogeneous exposure can be prepared by completely reducing a mixture of nickel formate (31.45 Gm.) in soya-bean oil (50 Gm.) and powdering and mixing the fully hardened product; the activity of this catalyst increases on storage, however, owing, apparently, to the formation of colloidal nickel soaps. Catalysts prepared by precipitating platinum on barium sulfate or silicon oxide gel, or nickel on kieselguhr did not give reproducible results: platinum active carbon catalyst gave more uniform results.—H. P. KAUFMANN. *Fette u. Seifen*, 44 (1937), 514–518; through *J. Soc. Chem. Ind.*, 57 (1938), 293. (E. G. V.)

Fat Spoilage—Chemistry of. II. Ketone Reaction of Fat Solvents. Whereas the nitroprusside test detects 75 micrograms of ketone (acetone), the salicylaldehyde test (Schmalfuss modification) is sensitive to 10 micrograms. Positive ketone reactions in the latter test were found with "analytical" qualities of light petroleum, ethyl alcohol, carbon tetrachloride, chloroform, diethyl ether and even "anesthetic" ether (which required 9 washes with water to remove all traces of ketones); synthetic *n*-octane (Kahlbaum) and crystalline benzene gave negative reactions. Before testing extracted fats, etc., it is therefore essential to check the absence of ketones from the apparatus, the water (purified by redistillation), and the solvents (purified by washing) used.—F. KIERMEIER and K. TAUFEL. *Fette u. Seifen*, 44 (1937), 508–509; through *J. Soc. Chem. Ind.*, 57 (1938), 294. (E. G. V.)

Fats—Artificial Coloration of Edible. A discussion of the chemistry and legislation pertaining to the subject.—L. HOTON. *J. pharm. Belg.*, 20 (1938), 275–277. (S. W. G.)

Fatty Acids—Preparation of Pure, from Fats, in Particular from Castor Oil. The general applied methods of preparation of fatty acids fail in presence of OH-acids, owing to ester and lactone formation, which are shown to take place in the case of ricinoleic acid, to yield a variety of products (ricinoleolactone, ricinoleylricinoleic acid and its lactone).—M. JAKES and J. HOKL. *Chem. Listy*, 32 (1938), 15–22; through *J. Soc. Chem. Ind.*, 57 (1938), 401. (E. G. V.)

Fatty Oils—Extraction Process for, the Sole Method of the Future. Costs, yields, etc., of the various operations in the expression and extraction processes are compared to the advantage of the latter process.—M. SINGER. *Seifens.-Ztg.*, 64 (1937), 863–865, 881–882; through *J. Soc. Chem. Ind.*, 57 (1937), 294. (E. G. V.)

Shark Liver Oils. Liver oils of "Aizame" (*Centrophorous sp.*) (I), "Togaritsunozamé" (probably *Squalus japonicus*), "Aka-ondenzame" (probably *Somniosus microcephalus*), the whale shark (*Rhinodon typicus*) and "Ose" or "Kirinotobuka" (*Orectolobus japonicus*) had, respectively: d_4^{15} 0.8650, 0.9140–0.9147, 0.9140, 0.9173, 0.9295; n_D^{20} 1.4920, 1.4734–1.4735, 1.4738, 1.4750, 1.4815; acid value 0.27, 0.64–1.32, 0.16, 0.85, 0.16; saponification value 26.2, 172–174.9, 161.8, 187.2, 182.9; iodine values (Wijs) 317.2, 100.2–108.3, 122.1, 143.0, 177.0; unsaponifiable matter (%) 86.11, 7.16–6.07, 16.61, 2.86, 2.25. Squalene was present (80.7%) in I, but absent from the other oils. The vitamin A content (antimony chloride test) of the oils is greater than that of cod liver oil.—M. TSUJIMOTO. *J. Soc. Chem. Ind. Japan*, 40 (1937), 365B; through *J. Soc. Chem. Ind.*, 57 (1938), 295. (E. G. V.)

Train Oils—Deodorized. Simple and inexpensive heat-treatment of fish or whale oil suffices to produce odorless oils, capable of yielding odorless soaps. The plant lends itself to the production of oils for soap making, oleines or paint oils. Other processes are available for the deodorization of train oil soap stock.—WITTKA. *Algem. Oel- u. Fett-Ztg.*, 35 (1938), 11–12; through *J. Soc. Chem. Ind.*, 57 (1938), 404. (E. G. V.)

Tung Oil—American, Further Study on the Composition of, with Special Reference to the Linoleic Acid Content. The complete separation of elaeostearic acid from linoleic acid by the irradiation and crystallization of tung oil fatty acids was found difficult if not impossible. The application of several cold alkaline permanganate oxidation procedures to samples of tung oil fatty acids indicated the presence of less than 1% linoleic acid in tung oil. A study of the reaction of maleic anhydride with alpha elaeostearic, beta elaeostearic acid and with the alpha elaeostearic acid glyceride present in tung oil showed that this reagent does not react with them quantitatively but only to 86.6% of the theoretical amount. It was found that the elaeostearic acid content of a tung oil can be calculated by dividing its diene value by 78.4, the determined diene value of pure alpha elaeostearic acid. In this way it was calculated that two samples of American tung oil contained 85.5 and 89.4% of elaeostearic acid. It was found that alpha elaeostearic acid and the mixed fatty acids from tung oil when exposed to the air quickly underwent a change to form an extremely sticky material whose use as an adhesive for insecticides will probably soon be determined.—R. S. MCKINNEY and G. S. JAMIESON. *Oil and Soap*, 15 (1938), 30; through *Squibb Abstr. Bull.*, 11 (1938), A-428. (F. J. S.)

Unclassified

Acrylic Acid Derivatives as Local Anesthetics. *2,103,265*—Compounds of the general formula RCH:C(R')COXR"NYZ in which R represents an alkyl, an aryl or a substituted aryl, R' represents an alkyl or aryl, R" represents an alkylene or a substituted alkylene, X represents oxygen or substituted imidogen and Y and Z represent alkyls or aralkyls, and salts of these compounds, are prepared by causing a suitable acyl chloride to react with an alcohol or diamine, or, where X is oxygen, by causing the sodium salt of the appropriate acid to react with the suitable alkyl chloride. *2,103,266*—This relates to the production of acylated diols (local anesthetics) of the general formula $XOCH_2C(R)(NR'R'')CH(Y)OQ$, in which X represents an aryl acyl or a substituted aryl acyl, R represents hydrogen or an alkyl, R' represents hydrogen, an alkyl or an aralkyl, R" represents hydrogen, an alkyl or an aralkyl, or R' and R" jointly represent an alkylene, Q represents hydrogen or an alkyl, and Y represents an aryl or a substituted aryl; and the hydrochlorides thereof; especially where X stands for C_6H_5NHCO or benzyl or $C_6H_5CH:C(Z)CO$, where Z represents hydrogen or an alkyl.—WM. A. LOTT, assignor to E. R. SQUIBB & SONS. U. S. pats. 2,103,265 and 2,103,266, Dec. 28, 1937. (A. P.-C.)

Acyl-α and -α'-Aminonicotines. Acetylation or benzylation of aminonicotine was effected by heating the base in benzene with a definitely calculated amount of acetic or benzoic anhydride directly on the steam-bath. The purpose of the investigation was to develop therapeutically valuable derivatives of nicotine less toxic than the mother substance. Acetyl-α'-aminonicotine melts at 106° to 107° C.; its picrate melts at 185.5° to 186.5° C.; its hydrochloride is readily soluble in water and alcohol. Acetyl-α-aminonicotine melts at 35° to 37° C.; its picrate melts at 199° to 200° C.; its hydrochloride softens at 225° C. and decomposes completely at 240° C. Benzoyl-α-aminonicotine melts at 98.5° to 99.5° C. and boils at 235° to 236° C.; its hydrate melts at 75° to 77° C.; its picrate melts at 230° C. with decomposition; its hydrochloride melts at 214° to 218° C.—I. L. GOLDFARB. *Izvest. Akad. Nauk S. S. S. R.* (1936), 543–552; through *Chimie & Industrie*, 38 (1937), 739. (A. P.-C.)

3-Amino-4-Hydroxybenzenearsonic Acid. 3-Amino-4-hydroxybenzenearsonic acid, required in the synthesis of salvarsan, was prepared by reduction of the corresponding nitro-hydroxybenzenearsonic acid in alkaline medium by means of glucose or ferrous chloride. The product thus obtained is purified by dissolving hot in a 10% sodium carbonate solution, salting out with common salt and decomposing the precipitated sodium salt by means of acetic acid. The oxidation products of the amino-hydroxybenzenearsonic acid are not precipitated out under these conditions.—G. A. KIRCHHOF and A. F. DIVINSKI. *Prom. Org. Khim.*, 1 (1936), 92; through *Chimie & Industrie*, 38 (1937), 739–740. (A. P.-C.)

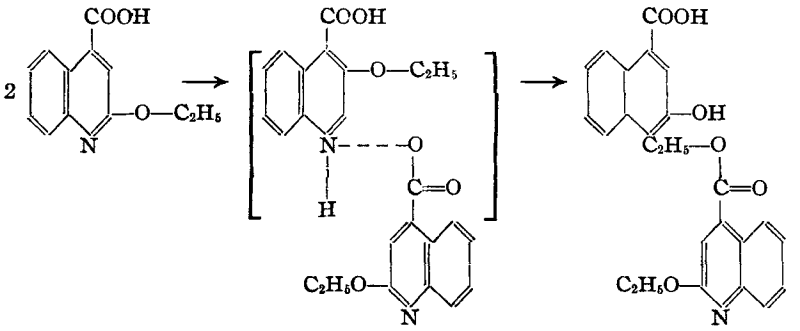
Arsenic Compounds—Therapeutic Organic. *2,099,685*—Compounds serving as active antisyphilitic agents have the general formula R'—O—R—As<, in which R is an aromatic grouping which may contain substituents such as the amino, substituted amino, nitro, sulfo and halogen groups and R' is an alkyl or aralkyl group containing a ketone or a substituted ketone group. The arsenic group may be present either in trivalent or quinquevalent form. The simplest member of the series possesses the formula $CH_3COCH_2OC_6H_4AsO_3H_2$ but variations in the mother substance may be introduced by changes in the nature of the oxy-ketone group, in the phenoxy group and in the arsenic group. Derivatives involving the ketone group can also be prepared and such examples are described. The ketone group permits the preparation of derivatives such as oximes, hydrazones, guanidines, etc., both simple and substituted. The most convenient form for oral administration consists of the arsonic acids which form water-soluble salts such as those of potassium, ammonium, lithium, calcium or sodium. For hypodermic use the arsonic acid salts may be used as such or reduced to the arseno (—As=As—) compounds or to the intermediate arsenoxides (—As=O) and used as such or in the form of derivatives. *2,099,686*—This relates generally to the production of organic arsenic compounds in which the arsenic is attached to the aryl nucleus of an aryloxy alkanol group and describes the production of numerous such compounds. Various compounds of this clay may be administered orally or hypodermically in the treatment of trypanosome or spirochete infections. Water-soluble salts are suitable for oral administration, and for hypodermic use the arsonic salts may be used as such or reduced to the arseno compounds or to the intermediate arsenoxides and used as such or in the form of derivatives.—CLIFF S. HAMILTON, assignor to PARKE, DAVIS & CO. U. S. pats. 2,099,685 and 2,099,686, Nov. 23, 1937. (A. P.-C.)

Benzenesulfonalkanolamide Derivatives. *2,097,414*—Streptococcicidal products suitable for oral or parenteral administration, soluble in hot water and alcohol, have the general formula p-$H_2NC_6H_4SO_2NHR$, in which R represents an alkanol group having at least one and not to exceed two hydroxyl groups, among the alkanol groups included in R are the following: —CH_2CH_2-OH, —$CH_2CH_2CH_2OH$, —$CH_2CH(OH)CH_3$, —$CH_2CH(OH)C_2H_5$, —$CH_2CH(OH)CH_2OH$, —$CH(CH_2OH)_2$, and are produced by treating p-acetamidobenzenesulfonyl chloride with alkanolamine containing 1 or 2 hydroxyl groups and two to four carbon atoms (examples with details of procedure being given). *2,097,415*—This patent relates to the production of p-aminobenzenesulfonhydroxamide (which melts with decomposition at 156° to 165° C.), suitable for use in treating streptococcic infections, by treating p-acetamidobenzenesulfonyl chloride with a hydroxylamine salt and making alkaline, to produce p-acetamido benzenesulfonhydroxamide as an intermediate, and boiling the latter with a dilute non-oxidizing inorganic acid such as six times normal hydrochloric acid, and neutralizing.—MORRIS S. KHARASCH and OTTO REINMUTH, assignors to ELI LILLY AND CO. U. S. pats. 2,097,414 and 2,097,415, Oct. 26, 1937. (A. P.-C.)

Cyclopropane—Homologues of. I. Preparation of Methyl Cyclopropane. Because cyclopropane clinically had latent dangers consideration was given to mono- and dimethyl cyclopropanes to see if they possessed advantages. Having a much higher boiling point liquefaction and packaging would be simpler. It was prepared and studied. Details of its preparation and the studies made are reported. In brief it was made by reduction of 1,3-dichloro-isobutane with zinc. Reduction of 1,3-dichloroisobutane under similar conditions gave almost entirely isobutylene instead of methyl cyclopropane.—W. A. LOTT and W. G. CHRISTIANSEN. *J. Am. Pharm. Assoc.*, 27 (1938), 125. (Z. M. C.)

Diene Synthesis in the Indolizine Series. Methyl-2-indolizine (1 mole) reacted in ether with maleic anhydride (2 moles) to form a purplish black mass. The acetone insoluble portion, recrystallized from methanol + acetone, consisted of sandy, colorless crystals, $C_{17}H_{17}O_8N$, decomposing at 144°; silver salt, amorphous; no Ehrlich reaction. The major product, soluble in acetone, was a hygroscopic resin. It was esterified with CH_2N_2 and crystallized by distillation at 220–270° (bath temperature) and 0.06-mm. pressure: $C_{13}H_{13}N(COOCH_3)_4$, m. p. 126–127°. It was concluded that the indolizine ring reacted both as an aromatic nucleus and as an N-alkyl pyrrole toward maleic anhydride.—H. KONDO and K. HAMAMOTO. *J. Pharm. Soc. Japan*, 56 (1936), 4–6. (R. E. K.)

α-Ethoxy-Cinchoninic Acid—Migration of the Ethoxyl in the Rearrangement of, into α-Oxy-Cinchoninic-Acid-Ethyl-Ester. The conversion of the α-ethoxy compound into the ethyl ester was described by Koenig but the mechanism of the rearrangement has remained obscure. Various possibilities were tested. The shift does not involve an intermediate N-alkyl compound because N-methyl-quinolone-2-carboxyl-4 remained unchanged after 10 minutes' fusion (244°). Neither can the ethyl ester be formed from an anhydride because α-oxycinchoninic anhydride could not be obtained by heating either the α-oxy- or the α-ethoxy-cinchoninic acid. The most plausible intermediate is the α-ethoxy-cinchoninic-acid-ethyl-ester, formed from 2 molecules of the ethoxy-acid through a so-called dimer:



This mechanism is consistent with the mixture of products formed in Koenig's reaction, with the formation of the ethyl-ester-ethyl-ether compound by the pyrolysis of the silver salt of α-ethoxy-cinchoninic acid, and with the almost quantitative formation of α-oxy-cinchoninic-ester by the fusion of α-oxy-cinchoninic-acid with α-ethoxy-cinchoninic acid-ethyl-ester. When benzoic acid is used in the last reaction, ethyl benzoate is formed.—H. KONDO and T. NOZOE. *J. Pharm. Soc. Japan*, 56 (1936), 6–8. (R. E. K.)

Ethyl Chloride—Synthesis of. Ethyl chloride is obtained (yield 90% of theory) from ethylene and hydrochloric acid in presence of aluminum chloride and aluminum at −55° to −12°. The catalyst undergoes rapid inactivation, the yields of the ethyl chloride per Gm. of aluminum chloride being 750 Gm. in absence of aluminum and 5 Kg. in its presence.—D. M. RUDKOVSKI, V. K. PASHITNOV, B. V. IVANOVSKI and N. S. GOLOUSCHIN. *Prom. Org. Khim.*, 4 (1937), 499–502; through *J. Soc. Chem. Ind.*, 57 (1938), 251. (E. G. V.)

Hexamethylenetetramine—Action of, on Alkylhalogens in Presence of Monophenols. A study of the halogenation of phenolates of hexamethylenetetramine, which are noncaustic and of low toxicity, in order to increase their antiseptic power without reducing their solubility. Whereas the introduction of bromine or iodine into phenol molecules increases their activity but at the same

time considerably reduces their solubility and increases their toxicity, with the phenolates that were investigated there was a definite increase in antiseptic power and very much reduced toxicity. The phenolated iodo-ammoniums, which have a manifest iodic activity, can be used safely for treating neuro-vascular accidents in tertiary syphilis; and similarly the iodosalicyl derivatives can be used in the various forms of rheumatism. The anti-infectious function of the iodomethylate of hexamethylene-tetramine is of the same order as that of urotropine. The better antiseptic results obtained *in vitro* on bacterial cultures with urotropine iodomethylate and iodoethylate than with hexamethylenetetramine is attributed to a liberation of formaldehyde.—P. BOUCHEREAU. *J. pharm. chim.*, 25 (1937), 159–173; through *Chimie & Industrie*, 38 (1937), 938. (A. P.-C.)

Insecticides. Polyhalogen derivatives of neutral esters containing not more than one halogen in any radical, *e. g.*, esters derived from monohalogenated acids and dihydric alcohols or monohalogenated alcohols or dibasic acids and monohalogenated alcohols, are treated with inorganic thiocyanates in presence or absence of solvents. In the examples $(CH_2)_8(CO_2.[CH_2]_2.O.[CH_2]_2Cl)_2$ (104), sodium thiocyanide (45), methyl butyl ketone (50) and copper (1 Gm.) are heated at 100° for 48 hours, diluted with water and extracted with ether and benzene; the oily product (75 Gm.) is 5.9% of the $(CNS)_1$ and 85.6% of the $(CNS)_2$ derivative, which is dispersed in water 1:800 and used as an insecticidal spray. $CH_2(CO_2.[CH_2]_2.O.[CH_2]_2.CNS)_2$ is similarly obtained in 94% yield and used dispersed in water at 1:1900.—ANON. *Brit. pat.*, 478,604; through *J. Soc. Chem. Ind.*, 57 (1938), 427. (E. G. V.)

17-Methyltestosterone—Preparation of. Cholesterol was oxidized to trans-dehydroandrosterone (I) by the method of Butenandt and Ruzicka. I was converted by CH_3MgI into methyl-17-$\Delta^{5,6}$-androstenediol-3,17 (II): $C_{20}H_{32}O_2$, m. p. 195–96°. II was brominated to the dibromide, which was oxidized by chromic oxide to change the —OH into a =O in position 3 (III). III was then debrominated, yielding methyl-17-$\Delta^{5,6}$ androstenol-17-one-3 (methyl-17-testosterone), m. p. 155–156°. The physiological action of this substance was to be compared with that of testosterone.—K. FUJII and T. MATSUKAWA. *J. Pharm. Soc. Japan*, 56 (1936), 1. (R. E. K.)

Piperazyl Dyestuffs. Azo Dyestuffs. By varying systematically the molecules of substituted piperazines, the properties are varied to obtain therapeutically active products. *N-p*-aminophenylpiperazine was diazotized and the diazo derivative coupled with various compounds. With *N*-phenylpiperazine benzene diazonium chloride gives *n*-phenyl-*N'*-diazobenzene piperazine. Coupling *N*-acetyl-*N'*-phenylpiperazine with benzenediazonium chloride in dilute acetic acid solution gives 4*N*-(*N'*-acetylpiperazyl)-azobenzene. Certain diazo solutions can be coupled directly with *N*-phenylpiperazine without formation of the diazoamino derivative. In hydrochloric acid solution 4-diazoaminobenzene-sulfamide gives the hydrochloride of 4'-*N*-piperazyl-azobenzene-4-sulfamide; with *N*-acetyl-*N'*-phenylpiperazine, there is obtained the *N*-acetyl derivative of this dyestuff. The tests showed that the aliphatic nitrogen of piperazine, which influences the basicity of the aromatic nitrogen, plays a decisive rôle in the establishment of the supposed quinoid constitution.—V. PRELOG and D. KOHLBACH. *Coll. Trav. Chim. Tchécoslovaquie*, 8 (1936), 377–389; through *Chimie & Industrie*, 39 (1938), 118. (A. P.-C.)

Salicylic Acid—Esters of, Manufacture of. Aryl salicylates are manufactured by refluxing excess of the phenol with a salicylate of an alcohol of low boiling point in presence of 2–5% of the salt of one of the phenolic components with an alkali or alkaline-earth metal. The reaction is preferably conducted so that the displaced alcohol is removed continuously; at a suitable degree of conversion (60%) the catalyst is removed and the product and excess of reactants are recovered by distillation.—W. E. HUGGETT. Brit. pat. 476,898; through *J. Soc. Chem. Ind.*, 57 (1938), 256. (E. G. V.)

Therapeutically and Disinfectantly Active Substances—Production of. Gold is deposited by the process of Brit. pat. 474,614 before or after silver, *e. g.*, chlorauric acid (8.25) and crystalline manganous chloride (I) (8.6) in water (200 Gm.) with an excess of aqueous sodium hydroxide give a precipitate, 2 Au. 3 MnO_2, which is mixed with 10 parts of silver containing material. Gauze (75 Gm.) is dipped successively into (*a*) chlorauric acid (0.83) and I (0.86 Gm.) in water (400), (*b*) 4% sodium hydroxide, (*c*) silver nitrate (1.7), I (1.45) in water (500 Gm.), (*d*) 4% sodium hydroxide, and (*e*) water; or the silver may be deposited before the gold. Preparation of a colloidal silver-gold solution is described.—SYNGALA FABR. F. CHEM.-SYNTHETISCHE U.

GALENISCHE ARZNEIMITTEL G.M.B.H. and F. FEIGL. Brit. pat. 476,376; through *J. Soc. Chem. Ind.*, 57 (1938), 320. (E. G. V.)

Xanthones and Substituted Xanthydrols—Preparation of. The author describes the procedures for preparing xanthydrol and xanthone homologues of higher molecular weight. These compounds may be used in gravimetric determinations in place of the compounds now used.—A. LESPAGNOL and J. DUPAS. *Bull. Soc. Chim. France* (Mar. 1937); through *J. pharm Belg.*, 20 (1938), 237. (S. W. G.)

BIOCHEMISTRY

Acidity and Fermentation—Volatile. Volatile acids modify the course and nature of (wine) fermentation (*Sacch. ellipsoideus*). Part of the volatile acids disappear (formic, acetic, propionic, etc.) apparently as a result of enzyme action, since the effect attains its maximum long after cell multiplication has ceased. The destruction of the acid appears to lead to an economy of sugar, the ratio sugar consumed to ethyl alcohol decreasing with increasing addition of acetic acid, although the onset and rapidity of fermentation and yeast multiplication are retarded by this.—J. VENTRE. *Ann. fermentations*, 3 (1937), 447–465; through *J. Soc. Chem. Ind.*, 57 (1938), 312. (E. G. V.)

Antihemorrhagic Vitamin. An improved process for the isolation of the vitamin is described. The process involves molecular distillation and crystallization from methyl alcohol at low temperature. The antihemorrhagic vitamin is a colorless, crystalline substance of low melting point containing not less than one benzene ring.—H. J. ALMQUIST. *J. Biol. Chem.*, 120 (1937), 635; through *Physiol. Abstr.*, 22 (1937), 1056. (F. J. S.)

Apple Juice—Fresh, Chemical Composition of. Investigations were made to determine what variations in the composition of apple juice were normally to be expected and how the average composition of the juice would compare with that of whole apples, when considered from a nutritional point of view. The results indicate that most of the nutritional value of whole apples is retained in the juice. Existing methods of analysis are reviewed and tentative suggestions are offered as a basis for discussion in the development of standard methods.—H. T. FAWNS and E. J. MARTIN. *J. Soc. Chem. Ind.*, 57 (1938), 60–65. (E. G. V.)

Aqueous Humor—Osmotic Pressure of. The osmotic pressure of the aqueous humor is in fact higher than that of blood serum by an amount averaging 50–60 mm. of mercury. The plasmoid aqueous, which reforms quickly when the anterior chamber of the eye is emptied, has a lower osmotic pressure than lower intraocular fluid. The reversals of results is shown to be due to the fact that ether anesthesia was used on cats, whereas in the present work on man and dogs the samples were obtained under local anesthesia. The immediate effect of ether anesthesia is to cause a sharp rise in the osmotic pressure of the blood, a rise not reflected at once in the aqueous humor, so that the osmotic pressure of the blood becomes greater than that of the aqueous humor. In view of these findings, the aqueous humor cannot now be regarded as a dialysate of the blood, since as such it would have an osmotic pressure less than that of its parent fluid by an amount corresponding to approximately 30 mm. of mercury.—G. H. BENHAM and T. H. HODGSON. *Chemistry and Industry*, 57 (1938), 274. (E. G. V.)

Ascorbic Acid—Chemical Identification of, in Urine. Dehydroascorbic acid was isolated as its 2:4-dinitrophenylhydrazone (20 mg.) from normal urine (12 liters). Another hydrazone was also isolated but not identified.—P. J. DRUMM, H. SCARBOROUGH and C. P. STEWART. *Biochem. J.*, 31 (1937), 1874; through *Physiol. Abstr.*, 22 (1937), 1056. (F. J. S.)

Ascorbic Acid—Spectrophotometric Method for Determining. The method previously described for tissues (*Compt. rend. soc. biol.*, 124 (1937), 594–596) cannot be applied directly to blood. Shake 4 cc. of blood with 0.5 cc. of 1% potassium cyanide containing "several cg." of sodium fluoride. Add 10 Gm. of anhydrous sodium sulfate to take up the water. To the dry powdered mixture add 10 cc. of absolute alcohol saturated with hydrogen sulfide. After stirring 15 minutes at 0° C. take 2 cc. of the alcoholic solution, evaporate in an atmosphere of nitrogen at 60° C. and dissolve the residue in 8 cc. of water. This solution is equivalent to the blood diluted 1:10. Determine the ascorbic acid by the method previously described.—A. CHEVALLIER and YVONNE CHORON. *Compt. rend. soc. biol.*, 124 (1937), 743–744; through *Chimie & Industrie*, 38 (1937), 1085. (A. P.-C.)

Bilirubin—Plasma, Normal Level of. The level of the plasma bilirubin observed in one hundred healthy individuals varied from 0.2 to 1.7 mg. per 100 cc., 93% of the values being below 0.8 mg. per 100 cc. The mean value for the whole series was 0.539 mg. per 100 cc. It is suggested that without knowledge of urobilin excretion in relation to plasma bilirubin it is impossible to assess the significance of these figures or those previously recorded.—J. M. VAUGHAN and G. A. D. HASLEWOOD. *Lancet*, 234 (1938), 133. (W. H. H.)

Cereal Foods—Content of Vitamin B_1 in. Products from bran-containing and ordinary flour contain approximately 500 international units of B_1 per Kg. (*i. e.*, of the same order as bread). Approximately 50% of the vitamin B_1 initially present is extracted unchanged by water used in their preparation.—L. DECARO and A. LOCATELLI. *Boll. soc. ital. biol. sperm.*, 12 (1937), 618–619; through *J. Soc. Chem. Ind.*, 57 (1938), 313. (E. G. V.)

Cevitamic Acid (Vitamin C)—New Method for the Standardization of the Dye Used for the Determination of. The new method which is presented is based on the fact that the dye, 2,6-dichlorophenolindophenol, will quantitatively oxidize iodide to iodine. The iodine liberated can then be determined by titration with standard sodium thiosulfate. This method is not only simpler in procedure than other methods, but also gives more accurate results. The results agree very closely with those obtained when pure cevitamic acid is used as the standard.—R. E. BUCK and W. S. RITCHIE. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 26. (E. G. V.)

Cholesterol—Excretion of, in Urine. Cholesterol in the form of acetate or benzoate was isolated from human urine; from 450 liters of urine, 5.85 Gm. cholesterol acetate were obtained. Considerably greater amounts of cholesterol than could be isolated in the pure form must actually be present. Probably about 0.75–1.0 mg. is excreted per day.—A. BUTENANDT and H. DANNENBAUM. *Hoppe-Seyler's Z.*, 248 (1937), 151; through *Physiol. Abstr.*, 22 (1937), 1062. (F. J. S.)

Cobalt—Detection of Small Quantities of, in Human Urine. After the intramuscular injection of 1 to 2 cc. of isotonic solutions of cobalt salts the urine of persons has been examined for cobalt by the use of an acetic acid solution of α-nitroso-β-naphthol. If the amount of cobalt is slight the color of the urine may mask the reaction. Some persons do not eliminate an appreciable amount of cobalt during the first 24 hours after injection. A cobalt complex is not detected by α-nitroso-β-naphthol but the urine can be boiled first with sulfuric acid to liberate the cobalt. The preferable method is to electrolyze the urine and to examine for cobalt the nitric solution of the deposition formed on the cathode. The reagent can detect as little as 0.05γ cobalt.—RAYMONDE DUVAL and J. M. LEGOFF. *Compt. rend. acad. sci.*, 204 (1937), 817–818; through *Chimie & Industrie*, 38 (1937), 1086. (A. P.-C.)

Cumotocopherol, a New Factor of the Vitamin E Group. In the analysis of the unsaponifiable matter of wheat germ oil, the mother liquor from which α-tocopheryl allophanate separates yields the allophanate (I), m. p. 146°, $[\alpha]_D^{18}$ + 6.7° in choloform, of cumotocopherol (II), $C_{28}H_{48}O_2$, and a hydrocarbon, probably $C_{18}H_{38}$, m. p. 63°. II at 350–370° yields 2:3:5-trimethylquinol (III). Probably II and α-tocopherol are the monoethers of $C_{13}H_{37}OH$ and III and 2:3:5:6-tetramethylquinol, respectively. I and II exhibit maximum absorption of ultraviolet light at 280 and 295 mμ, respectively. II exhibits antisterility action on rats in doses of 8 mg., but does not restore normal lactation in the females.—W. JOHN. *Hoppe-Seyler's Z.*, 250 (1937), 11; through *Physiol. Abstr.*, 22 (1937), 1058. (F. J. S.)

Dextrins, Starch and Disaccharides—Fermentation of. Dried yeasts are able to ferment ordinary starch, soluble starch and other substances—*e. g.*, dextrins—which are not attacked by amylases. Inhibition of the fermentation by sodium fluoride does not affect the hydrolysis of the polysaccharides. By suitable treatment of the yeast the ability to attack polysaccharides is lost, although such preparations can still ferment glucose. Probably the fermentation of the polysaccharides can take place only after hydrolysis.—K. MYRBÄCK, B. ÖRTENBLAD and K. AHLBORG. *Enzymologia*, 3 (1937), 210; through *Physiol. Abstr.*, 22 (1937), 1069. (F. J. S.)

Endocrines in Relation to Sterility and Abortion. Anterior hypophysis dominant influence in reproductive system. Pituitary ovaries, and thyroid glands most frequently involved in infertility, sterility and abortion. Disorders of menstrual interval and flow result from ovarian underfunction, type indicated by state of endometrium. Estrogenic substance is useless here because a gland is not stimulated by its own product. Gonadotropic substance more effective. Habitual abortion and sterility are allied to low fertility because of insufficient endocrine factors to preserve pregnancy; progesterone is logical treatment here. Use of gonadotropic hormones in treat-

ment of sterility is still in experimental stage. So far most effective therapy is use of thyroid because of low basal metabolic rate of most patients with functional disturbances. Great discrepancy between laboratory knowledge of hormones and their clinical application. Suggest more caution in clinical use until more is known.—JENNINGS C. LITZENBERG. *J. Am. Med. Assoc.*, 109 (1937), 1871. (G. S. G.)

Ethyl Alcohol—Direct Determination of, in Saliva without Distillation. All but a small, but relatively constant, quantity of the oxidizable material of normal saliva may be removed by the addition of two reagents: (1) a solution of copper sulfate, mercuric sulfate and ferric sulfate and (2) a suspension of calcium hydroxide. The residual material from normal saliva is equivalent to 10.5 ± 4.6 mg. % of ethyl alcohol. The method is described in detail. The results are 11.2 ± 3.3 mg. % higher than by the method of Friedemann and Klaas.—THEODORE E. FRIEDEMANN. *Proc. Soc. Exptl. Biol. Med.*, 37 (1938), 686. (A. E. M.)

Fat Globules—Compounds and Enzymes Adsorbed on the Surface of. The protein isolated from cream after many washings with 0.9% aqueous sodium chloride and centrifuging was different from casein, albumin and globulin. This protein contains the Schardinger enzyme and it was possible to purify it by adsorption on aluminum hydroxide and elution with aqueous potassium biphosphate. The efficiency of the enzyme is associated with the presence of this protein.—G. SCHWARZ and O. FISCHER. *Proc. XIth World's Dairy Cong., Berlin*, 2 (1937), 559–561; through *J. Soc. Chem. Ind.*, 57 (1938), 401. (E. G. V.)

Furan-2,5-dicarboxylic Acid (Dehydromucic Acid)—Occurrence of, in Urine. Furan-2,5-dicarboxylic acid was isolated from all human urines examined. The excretion amounts to 3 to 5 mg. per day. Additions of carbohydrate or fat-rich foods to a mixed diet did not change the amount excreted. The acid was not present in the urine of dogs. The acid is pharmacologically and bacteriologically inactive. The dimethyl ester melts at 110° C. The acid can be extracted from acid urine with ether, the ether extract evaporated and treated with 2 cc. of 50% sulfuric acid at 180° to 200° C. for 1 hour; benzoic acid is removed by steam distillation. The solution is evaporated to 3 to 4 cc. and cooled over night. The acid crystallizes and can be filtered and weighed after washing and drying at 100° C.—B. FLASCHENTRÄGER and K. BERNHARD. *Hoppe-Seyler's Z. physiol. Chem.*, 246 (1937), 124–132; through *Chimie & Industrie*, 38 (1937), 1086. (A. P.-C.)

Germicidal Substances—an Improved Method for the Evaluation of. The test is performed in presence of minced hearts from chick embryos. The germicidal power is brought in relationship with the damaging effect on living tissue.—A. J. SALLE, W. A. MCOMIE, I. L. SHECHMEISTER and D. C. FOORD. *Proc. Soc. Exptl. Biol. Med.*, 37 (1938), 694. (A. E. M.)

Glucosides—Acetolysis of. Identification of Glucose. A method which is superior in accuracy and quantity of material required to the classical method of hydrolyzing glucosides and identification of the glucose by means of the osazone is the following: 1 Gm. of powdered glucoside is suspended in 5 cc. of acetic anhydride and 2–3 drops of acetolyzing mixture "A" is added (1 volume of sulfuric acid and 2 volumes of acetic anhydride). The temperature is raised and there is formation of the acetyl derivative of the glucoside. After cooling, 5 cc. of "A" is again added and the mixture allowed to stand at 40° in a closed flask. After 48 hours, it is poured into a separatory funnel containing 150 cc. of cold water. It is extracted with 50 cc. of ether, the ethereal layer washed with sodium bicarbonate solution, filtered, evaporated and the residue dissolved in 10 cc. of alcohol. To the alcoholic solution, 1 cc. of acetic acid and 1 Gm. of *p*-toluidine are added. After 1–5 hours, crystals are deposited which are dried, recrystallized from 80% alcohol and the β-tetracetyl-glucosyl-*p*-toluidine identified. In quantities of 0.5–1.0 Gm., the glucose from *d*-α-methylglucoside, arbutin, salicin, coniferin, phlorhizin, esculin and verbenalin was identified.—MARCEL FREREJACQUE. *Compt. rend.*, 206 (1938), 111. (G. W. H.)

Glutathione—Determination of, in Tissues. Further refinements of technic and simplification of the authors' procedure is reported. The method is based on the reduction of glutathione oxide by a cyanide solution and precipitation of the total glutathione by cadmium lactate; but the authors use a solution of a double cyanide of potassium and cadmium, which eliminates the use of a special reagent of acidified cadmium lactate. Difficulty in titration of the iodine has been removed by adding sodium chloride to the orthophosphoric acid. Under these conditions the autoxidation of hydriodic acid is practically suppressed.—L. BINET and G. WELLER. *Bull. soc. chim. biol.* (Jan. 1938); through *J. pharm. Belg.*, 20 (1938), 236. (S. W. G.)

Glutathione, Cysteine, Acetone and Creatinine—Reduced, Difference between the Nitroprusside Reactions of. Sodium nitroprusside gives pink or purple colors with acetone, acetaldehyde, creatinine, reduced glutathione, cysteine and hydrosulfide compounds in general. The tint, intensity and time of duration of the color are influenced by the degree of alkalinity and it is possible to determine with some degree of certainty which compound is present by carrying out the reaction at different p_H values between 9 and 14. Methods are described. The preparation of color standards by mixing solutions of cobalt chloride and of ferric chloride is described. Small amounts of reduced glutathione are best detected by using Zimmet's nickel nitroprusside reagent (*Compt. rend soc. phys. hist. nat. Genève*, 52 (1935), 225; 53 (1936), 44). This does not react with acetone or creatinine.—P. D. ZIMMET and J. P. PERRENOUD. *Bull. soc. chim. biol.*, 18 (1936), 1704–1709; through *Chimie & Industrie*, 38 (1937), 668. (A. P.-C.)

Glycogen—Method for the Routine Determination of, in Oysters. Mince a suitable quantity of drained oysters and weigh 20 Gm. of the wet sample into a 200-cc. beaker. Add 40–50 cc. of hot 56–60% potassium hydroxide solution, cover and digest for three hours in a boiling water-bath with frequent stirring. Cool and dilute to 100 cc. with water. Withdraw 50 cc. of the liquid into a beaker, add 80 cc. of 95% alcohol and stir. Heat in a water-bath at about 80° C. until the alcohol boils. Decant the liquid through a filter paper under slight suction returning the first filtrate until clear. Redissolve the crude glycogen in 50 cc. of boiling water and reprecipitate with alcohol and filter as before. Wash the paper and purified glycogen into a beaker with boiling water and make up the solution to approximately 100 cc. Add 8.5 to 11 cc. of concentrated hydrochloric acid, making the solution 3–4% with respect to the acid, and digest in a boiling water-bath for 3 hours. Cool and neutralize the digest to phenolphthalein with potassium hydroxide solution. Determine the dextrose by any of the standard methods.—J. P. TULLY. *Analyst*, 63 (1938), 93. (G. L. W.)

Glycolysis—Tissue, Measurement of, in Serum. The method of Dixon and Keilin for the determination of glycolysis in Ringer bicarbonate solution was adapted to the measurement of the respiration and glycolysis of tissues in serum. A detailed description of the technic is given.—M. DIXON. *Biochem. J.*, 31 (1937), 924; through *Physiol. Abstr.*, 22 (1937), 1063. (F. J. S.)

Hormone Content of Ovarian Tumors. The fluid from a number of follicular cysts of the ovary has been tested for oestrin. The concentration of oestrin in the fluid was of the same order as in the normal ripe follicle. Owing to the increased volume of fluid, the absolute volume of oestrin in the ovary was considerably increased. Characteristic changes were found in the mucous membrane and muscular coats of the uteri. These changes may be more evident either in the mucous membrane or in the muscular coat, and sometimes both are equally affected. A total of seventy ovarian tumors and the corresponding pre-operation urines have been examined for prolans A and B and for oestrin. Prolan A was found in larger amounts in the cyst fluid and urine in cases of malignant than in cases of innocent ovarian tumors. This prolan may be found, however, in all varieties of ovarian tumors. Prolan B was found in the cyst fluid in two out of three pregnant patients. The only cysts that yielded oestrin were the follicular cysts where it occurred in a concentration at least as high as in the normal follicle, and two specimens of germinal cysts in which the concentration was so low as to suggest that it was the same as in the blood stream. The association of menstrual irregularities with follicular cysts has been confirmed. Other ovarian tumors are far less often associated with disturbance of menstrual rhythm. Pain in and swelling of the breasts before a period was noted more often in patients with follicular cysts than in patients with other types of benign ovarian tumors.—E. H. LEPPER, C. L. G. PRATT, F. B. PRATT and D. M. VAUX. *Lancet*, 234 (1938), 249. (W. H. H.)

Hormones. Parathyroid Gland. The physiological functions of the parathyroid gland and its relationship to the thyroid gland and vitamin D is reviewed The preparation of parathyroid extracts, and the therapeutic applications of the various American and European preparations of the parathyroid gland are also described.—J. MARTINIUS. *Pharm. Ztg.*, 82 (1937), 860–863. (N. L.)

Hormones. Thyroid and Thyroxin. A continuation of the review on thyroid and thyroxin (*Pharm. Ztg.*, 82 (1937), 829–831). The synthesis of and quantitative methods for the determination of thyroxin, and the therapeutic applications of thyroid preparations are described.—J. MARTINIUS. *Pharm. Ztg.*, 82 (1937), 848–850. (N. L.)

Hormones. Thyroid Gland and Thyroxin. A review of the anatomy and physiological functions of the thyroid gland, its relationship to other hormones and vitamins and the chemistry of thyroxin is presented.—J. MARTINIUS. *Pharm. Ztg.*, 82 (1937), 829–831. (N. L.)

Insulin—New Standard of, and New Definition of the Unit. The new unit is defined as: The specific activity of $^1/_{22}$ mg. of a standard preparation preserved at the National Institute of London and at the Physiology Laboratory of the University of Toronto.—*Bull. Trim. Organization of Hygiene and Biolog. Standardization of the League of Nations* (Nov. 1936); through *J. pharm. Belg.*, 20 (1938), 36. (S. W. G.)

Insulin-Tannic Acid-Zinc Suspension in Diabetes. The blood sugar levels of stabilized diabetic patients were examined after hypodermic injection of insulin-tannic acid-zinc suspension and compared with the levels following the use of protamine insulin-zinc suspensions and ordinary insulin, respectively. A delayed but prolonged hypoglycemic effect was observed, the potential clinical application of which, however, is offset by it liability to produce irritant skin reactions in some patients.—C. N. JENKINSON and K. J. G. MILNE. *Brit. Med. J.*, 4024 (1938), 380. (W. H. H.)

Iodine—Blood. A method for determining various fractions of blood iodine is described. Iodized protein is separated by ultrafiltration and the inorganic iodine of the ultrafiltrate removed by silver sulfate. In blood ultrafiltrate, 1–3 $\times$ 10^{-6}% of iodine is present in organic combination. Its importance is discussed.—T. LEIPERT. *Biochem. Z.*, 293 (1937), 99; through *Physiol. Abstr.*, 22 (1937), 1037. (F. J. S.)

Lead—Identification and Rapid Determination of, in Edible Oils. Weigh 50 Gm. of oil in a 500-cc. Pyrex flask, dissolve the oil in 200 cc. of petroleum benzin and add 1 cc. of acetic acid. Heat for a half hour under a cooled reflux condenser, then pour into a settling cylinder and add 5 cc. of dilute alcohol. Shake, without fear of any emulsion that forms, then separate by decanting through a small filter which catches any fatty matter. Repeat three times and combine the alcoholic liquids. Determine the lead in the alcoholic liquid by the usual micromethods.—VIZERN and GUILLOT. *Ann. chim. anal. chim. appl.* (Oct. 15, 1937); through *J. pharm. Belg.*, 20 (1938), 74. (S. W. G.)

Manganese—Determination of Small Quantities of, in Biological Products. Destroy organic matter by the perchloric acid method. Take up the colorless residue with 30 cc. of 10% potassium bisulfate solution; after 10 minutes filter and wash to a total volume of about 70 cc. Add 5 cc. of concentrated sulfuric acid, 4 drops of 10% silver nitrate and 0.25 Gm. of powdered potassium persulfate. Gradually heat to boiling, boil for 10 minutes and cool, to obtain maximum color of the potassium permanganate. Add 10 cc. of 1% hydrogen peroxide standardized against hundredth-normal potassium permanganate, and titrate back with hundredth-normal permanganate, 1 cc. of which = 0.109 mg. of manganese. In 5 determinations, where 0.056 to 0.560 mg. of manganese was added to 50 Gm. of human blood, the error in recovery was 0 to + 3%, average, 1.6%.—P. CHERAMY and A. LEMOS. *J. pharm. chim.*, 25 (1937), 17–20; through *Chimie & Industrie*, 38 (1937), 1084. (A. P.-C.)

Mannose as a Possible Precursor of Ascorbic Acid in the Rat. The claim of Guha and Ghosh that mannose is converted into ascorbic acid both *in vitro* and *in vivo* could not be substantiated.—J. R. HAWTHORNE and D. C. HARRISON. *Biochem. J.*, 31 (1937), 1061; through *Physiol. Abstr.*, 22 (1937), 1002. (F. J. S.)

Milk—Variations of the Simplified Molecular Constant of. The Simplified Molecular Constant shows a maximum variation of about 5%. This was determined by following all the factors in cows in normal health, after lactation and during gestation. Results are tabulated.—F. HENRIOUL. *J. pharm. Belg.*, 20 (1938), 185–189, 207–213. (S. W. G.)

Nicotinic Acid—Relation of, to Growth and Dermatitis Factors in Rice Polishings. The extracts and eluates derived from rice polishings represented concentrated sources of the dermatitis factor as shown by curative properties and growth effects. The filtrate from repeated adsorptions possessed properties which increased the growth-promoting action of the pyridine eluate. Nicotinic acid or amide was not equivalent to the filtrate or the dermatitis factor in the nutrition of the rat. Neither did they have a supplementary effect when combined with concentrates from rice polishings and with yeast adenylic or nucleic acid.—CHARLES A. COOK, MIRIAM F. CLARKE and AMOS E. LIGHT. *Proc. Soc. Exptl. Biol. Med.*, 37 (1937), 514. (A. E. M.)

Nicotinic Acid and Yeast Nucleic Acid—Failure of, in "Filtrate Factor" Deficiency in Rats. Female rats received a diet in which all the known factors of the vitamin B_2 complex were supplied except that found in a multiple adsorbed liver filtrate. They failed to show a growth response on the addition of nicotinic acid, yeast nucleic acid or a combination of the two to their ration. Liver filtrate, on the other hand, produced a marked and immediate stimulus to growth.—GLADYS A. EMERSON and HERBERT M. EVANS. *Proc. Soc. Exptl Biol. Med.*, 38 (1938), 195. (A. E. M.)

Pellagra-Like Lesions Produced in Mice by Mineral Deficiencies. On a diet with a basis of cereal components (including maize, wheat, sarrasin and millet) albino mice developed signs resembling those of pellagra. Exactly similar signs developed on a diet which was adequate in all respects, except that its mineral components resembled those of maize. These signs disappeared as soon as a normal salt mixture was given. Thus there is a reason to seek the cause of pellagra in an insufficiency of mineral components in food (cereals).—C. M. LEUTSKY. *Lancet*, 233 (1937), 1421. (W. H. H.)

Pepsin—Mode of Action of. By measuring the evolution of the electrokinetic potential of various proteins (egg albumin, edestin, gelatin) subjected to the action of pepsin, the hypothesis was confirmed that the proteolysis is preceded by a fixation of the pepsin on the protein.—JEAN LOISELEUR. *Compt. rend.*, 205 (1937), 1103. (G. W. H.)

Phenol and Glyoxaline Content of Blood. Determination of the "diazo value" of blood by three methods shows that less than 1% of the total value is made up of ether-soluble phenols, the remainder being due presumably to nitrogen compounds. Differences in the diazo-value are obtained by using *p*-$NH_2.C_6H_4.NO_2$ and *p*-$NH_2.C_6H_4.SO_3H$ as reagents. The use of histidine instead of phenol for the color standard is suggested.—E. G. SCHMIDT, M. J. SCHMULOVITZ, A. SZCZPINSKI and H. B. WYLIE. *J. Biol. Chem.*, 120 (1937), 705; through *Physiol. Abstr.*, 22 (1937), 1028. (F. J. S.)

Phosphagen—Muscular, Modifications of the Method of Lohmann and Jendrassik for the Determination of. Freeze the weighed muscle strip with liquid air and pulverize. Mix with 5% trichloroacetic acid, add 5% of trichloroacetic acid to a definite volume and filter, keeping the temperature always close to 0° C. Neutralize an aliquot part with ammonia and precipitate the phosphorus with magnesia mixture. Mix another part with 2 cc. of a 2.5% ammonium molybdate in five-normal sulfuric acid; heat to 37° C. for 15 minutes, neutralize with ammonia and precipitate with magnesia mixture. The second determination gives the inorganic phosphorus; the difference between the two gives the phosphagen phosphorus, which × 6.8 gives the value for phosphagen. The phosphorus in the magnesia precipitates is determined by the method of Fiske and Subbarov.—U. SBUTEGA. *Biochim. terap. sper.*, 23 (1936), 437–444; through *Chimie & Industrie*, 38 (1937), 1084. (A. P.-C.)

Phosphates—Action of Vitamin D on Absorption of. Monobasic potassium phosphate and sodium glycerophosphate are equally well absorbed in normal and vitamin D-deficient rats. The rate of absorption of inorganic phosphorus from isolated loops increases with increasing concentration and is not influenced by iodoacetic acid poisoning. Esterified phosphate is absorbed largely without hydrolysis, appreciable hydrolysis in the intestinal lumen being observed only at a reaction more alkaline than the normal.—R. NICOLAYSEN. *Biochem. J.*, 31 (1937), 1086; through *Physiol. Abstr.*, 22 (1937), 1057. (F. J. S.)

Phosphorus—"Organification" of. The investigators conclude that the participation of phospholipids is not limited to a substitution of fatty acid radicles but results, at least partially, from a complete synthesis starting from inorganic phosphorus. The indicator showed a maximum of lipidic phosphorus in the liver, kidney and intestine, with medium amounts in parenchymatous organs (spleen, pancreas, adrenals, testes, lungs and heart), with lower values in muscle, brain and medulla.—C. ARTOM and CO-WORKERS. *Nature*, 3524, 836; through *Chemist and Druggist*, 128 (1938), 6. (A. C. DeD.)

Porphyrins—Urinary, Sources of Error in Estimation of. The porphyrin content of urine diminishes on keeping of the urine, by exposure to air or light, or by adsorption on sediments of calcium and magnesium salts. Washing the ether extract of the urine with water to remove acetic acid results in a loss of porphyrin, which is diminished by using adequate amounts of ether.—C. TROPP and A. HOFMANN. *Biochem. Z.*, 292 (1937), 74; through *Physiol. Abstr.*, 22 (1937), 1063. (F. J. S.)

Port Wines—Irregularities and Sophistications of. Total, volatile and fixed acidities have been determined for white (100 samples) and red (200) port wines. The factor fixed acidity/volatile acidity (both as tartaric acid) should be not greater than 3 for genuine wines of this type, a lower value being obtained with diseased wines or those sophisticated by alkali treatment.—J. C. BOTELHO. *Ann. chim. anal.*, 20 (1938), 81–94; through *J. Soc. Chem. Ind.*, 57 (1938), 430. (E. G. V.)

Posterior Pituitary—Antidiuretic Hormone of. Hormones not yet extracted chemically, but physiological activity proved. Important property is antidiuretic activity indicating reabsorption in renal tubule. Antidiuretic hormone found in urine of animals dehydrated by withdrawal of food or water. Hypophysectomized animals excrete more urine than dehydrated controls, and urine from hypophysectomized animals contained no antidiuretic substance. Results offer evidence for hormonic rôle of antidiuretic principle.—EDITORIAL. *J. Am. Med. Assoc.*, 109 (1937), 1545. (G. S. G.)

Progesterone—International Standard. Difficulties arising in the preparation of international standard progesterone have led to the following modification of the original definition. The unit is 1 mg. of material crystallized in the form of prisms, melting at 128.5–129° (not needles, melting at 120–121°), $[\alpha]_D^{20°}$ 200° in chloroform. It is available in small amounts to national laboratories only.—H. H. DALE. *Bull. Health Organization League Nations*, 6 (1937), 892; through *Chem. Abstr.*, 32 (1938), 2689. (F. J. S.)

Propanol-2—Presence of, in Alcohol from Wine. Study of the tailing products from the rectification of alcohol of wine has shown that propanol-2 is a natural constituent and it has been estimated that wines contain about 66 mg. per liter.—MICHEL FLANZY and MARCEL BANOS. *Compt. rend.*, 206 (1938), 218. (G. W. H.)

Redox Potential—Measurements of, and Their Importance in Biology. A review of the methods of measuring redox potentials, the theoretical foundation and description of various types of inorganic and organic redox systems. Well-known reducing substances contained in biological liquids are considered. The influence of the presence of cells, and of the medium surrounding the cells on the redox potentials of biological systems is discussed. The effect of the redox potential on enzymatic processes and on the oxygen consumption of cells is considered, also various poisonings in which redox potentials play an important part.—P. H. ANDRESEN. *Dansk Tids. Farm.*, 12 (1938), 49. (C. S. L.)

Reducing Sugars—Determination of, by the Alkalimetric Method of Rosenthaler-Curli. Rosenthaler and Curli's method, which consists in determining the decrease in alkalinity of a given volume of Fehling solution produced by reduction of the glucose to be determined, is applicable to all reducing sugars. It enables the determination to be carried out by a simple alkalimetric titration, as the decrease in alkalinity is proportional to the amount of sugar; the coefficient K is the same for the principal hexoses and pentoses. For *d*-glucose, arabinose, *l*-glucose, galactose and invert sugar it is 1.23; for lactose, 1.8; for maltose, 2.2. The time required for a determination does not exceed 10 to 11 minutes.—Y. VOLMAR and S. KLEIN. *J. pharm. chim.*, 24 (1936), 400–409; through *Chimie & Industrie*, 38 (1937), 1079. (A. P.-C.)

Relaxin in Human Serum. The authors review the work of Hisaw and others on the hormone known as "relaxin," which is supposed to be elaborated by the corpus luteum and to cause relaxation of the pelvic ligaments during pregnancy. It has been found that slight to moderate degrees of relaxation can be produced in guinea pigs by the injection of large doses of theelin, but that the separation is greatly increased by a small additional dose of relaxin. Pelvic relaxation in pregnant animals is therefore not solely a theelin effect. There is a synergistic relation between theelin and relaxin. The authors have now developed a method of concentrating human serum taken from women in the first half of pregnancy which has acted on guinea-pigs in a manner similar to that of relaxin. The animals are ovariectomized in order to eliminate their own supply of ovarian hormones. Artificial oestrus is then produced with theelin, and specially prepared serum from the pregnant women is injected. The sera of fifteen consecutive women in the first half of pregnancy produced relaxation of the symphysis in the guinea pig. The serum of one woman in the eighth month and that of two non-pregnant women and one man were non-effective. It is believed that pelvic relaxation during pregnancy is facilitated by or is due to the hormone relaxin in the human species as well as in many other mammalia, and that the hormone is produced only or mainly during the first half of pregnancy. As a routine test of pregnancy the pro-

cedure is considered impracticable.—D. ABRAMSON, E. HURWITT and G. LESNICK. *Surg. Gynecol. Obstet.* (Sept. 1937), 335; through *Brit. Med. J.*, 4016 (1937), 1310D. (W. H. H.)

Sodium Taurocholate and Sodium Taurodesoxycholate—Synthesis of. Practical details are given for the synthesis of sodium taurocholate and sodium taurodesoxycholate in yields of 50 and 70%, respectively. The normal form of sodium taurocholate does not change to the para form in aqueous solution. The sodium salts of the conjugated and unconjugated bile acids do not crystallize with a fixed percentage of water corresponding to a definite number of molecules of water of crystallization.—F. CORTESE and J. T. BASHOUR. *J. Biol. Chem.*, 119 (1937), 177; through *Physiol. Abstr.*, 22 (1937), 1061. (F. J. S.)

Sperm—Preserving Fluid for. In veterinary practice a preserving fluid for sperm for artificial insemination is sometimes desired. Russian scientists (Milovanov and Silivanova) have described such a preparation. Two fluids are prepared and mixed just before use: 1. Anhydrous glucose, Dan. Phar., 57.0 Gm., primary potassium phosphate (Sörensen), 2.8 Gm., sterile distilled water, 1000 cc. 2. Secondary sodium phosphate, $Na_2HPO_4.12\ H_2O$, 30.3 Gm., calcium hydrogen phosphate, Dan. Phar., 0.1 Gm., magnesium hydrogen phosphate, $MgHPO_4.2H_2O$, 0.1 Gm., pure anhydrous sodium sulfate, 1.7 Gm., sterile distilled water, 1000 cc. The author finds that for the secondary sodium phosphate with 12 H_2O one may substitute 15.2 Gm. of $Na_2HPO_4.2H_2O$ (Sörensen). The calcium and magnesium phosphates do not fully dissolve in fluid 2, but the excess is not separated. The solutions must be made under aseptic conditions in very clean glassware and are warmed one hour on a steam-bath. The ready mixture should have p_H 7.4. The solutions should not come into contact with rubber.—A. LANNUNG. *Arch. Pharm. Chemi*, 45 (1938), 71. (C. S. L.)

Sterol Digitonides—Scission of, and Other Molecular Compounds in a High Vacuum. Compounds such as cholesterol can be purified with the aid of the addition compounds which they form with digitonin. Usually the alcoholic solution of the addition compound is heated with pyridine on the water-bath and the digitonin is precipitated with ether by the method of Schönheimer and Dam with ether. In the ether-pyridine solution all the sterol is present and can be recovered by evaporating in a vacuum and dissolving the dry residue which has been freed from pyridine. If has been found that the same end can be accomplished much more quickly by heating to 230° to 250° C. under a pressure of 1 mm. to 0.001 mm. The cholesterol distils off and the digitonin remains behind, undecomposed for the most part. The yield is good and the method is probably adaptable to other molecular compounds.—A. CHRISTIANI and M. PAILER. *Mikrochim. Acta*, 1 (1937), 26–29; through *Chimie & Industrie*, 38 (1937), 739. (A. P.-C.)

Sterols—Action of Acid Clay upon. I. Colored Reaction of Ergosterol and Allocholesterol. When a benzene solution of cholesterol dibromide was treated with acid-decolorizing clay, no tetrabromo dicholesteryl ether was formed, and the clay was colored green. In the case of allocholesterol the clay is colored light red, turning violet red, but most of the allocholesterol remains unchanged. Contrary to cholesterol, allocholesterol reacts even in the cold. Under the same conditions ergosterol colors the clay carmine red, turning through brown, violet, deep blue, green, bluish green and finally to indigo.—K. HATTORI and T. KAWASSAKI. *J. Pharm. Soc. Japan*, 57 (1937), 38–39; through *Chimie & Industrie*, 38 (1937), 738. (A. P.-C.)

Sulfanilamide—Estimation of, in Blood and Other Body Fluids. One cubic centimeter of blood, or body fluid, is diluted with 2 cc. of distilled water; 1 cc. of a 20% aqueous solution of trichloracetic acid is then added, and the mixture filtered through a small filter paper. To 1 cc. of the filtrate is added 0.05 cc. (one drop) of 0.5% sodium nitrite solution. After three minutes 0.5 cc. of a 1% alcoholic solution of dimethyl α-naphthylamine is also added, and the whole mixed by gentle shaking. After standing for fifteen minutes to allow the color to reach its maximum intensity, the color is compared to that obtained by treating in a similar manner standard solutions containing known quantities of sulfanilamide. The comparison may be done in any of the usual forms of colorimeter.—H. PROOM. *Lancet*, 234 (1938), 260. (W. H. H.)

Sulfanilamide—Failure of, to Prevent Hemolysis, Fibrinolysis and Production of Erythrogenic Toxin by Hemolytic Streptococci in Vitro. Sulfanilamide produces a slight delay of hemolysis in blood-broth cultures of hemolytic streptococci. When used in concentrations equal to or greater than that induced in the body fluids therapeutically, sulfanilamide was without apparent effect on fibrinolysis or formation of erythrogenic toxin *in vitro*, and was unable to inactivate

small amounts of toxin.—ROBERT W. HUNTINGTON, JR. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 328. (A. E. M.)

Sulfur Content of Milk. Nitro-perhydric mineralization and volumetric estimation with benzidine are applied to fat-free milk. The total sulfur in cow's milk varies from 270 to 440 mg. per liter; that of human milk is from 82 to 202 mg. per liter.—L. RÉVOL and R. PACCARD. *Compt. rend. soc. biol. Paris*, 126 (1937), 25; through *Physiol. Abstr.*, 22 (1937), 1086. (F. J. S.)

Urine Analysis—Diazo Reaction of Albumin and Its Utilization in. To three-quarters of a test-tubeful of urine add 4 to 5 drops of a 1% solution of sodium nitrite, then 3 drops of a clear, 1% sodium β-naphtholate solution, shake to produce foaming, then put upon the foam 10 drops of 10% hydrochloric acid (by volume). With traces of albumin, the foam at first is snow-white above, currant-red below, changing soon to bluish above and violet-blue below. With larger amounts of albumin these colors are intensified. A Bordeaux-red precipitate also forms by the action of urea, acted upon by nitrous acid in the presence of hydrochloric acid, producing nascent oxygen. The "nitrite-naphthol" test is not strictly a diazo reaction; naphthol is transformed into nitrosonaphthol, this into a quinonoxime. The method given, unlike the biuret reaction, can be used with dark-colored liquids.—E. JUSTIN-MUELLER. *J. pharm. chim.*, 25 (1937), 62–69; through *Chimie & Industrie*, 38 (1937), 1085. (A. P.-C.)

Vitamin B_1—Comparison of, Content of Raw and Evaporated Milk by the 10-Day Bioassay Method. Commercial evaporated milk contains about 60% less vitamin B_1 than an equal amount of raw summer milk.—AMY L. DANIELS. *Proc. Soc. Exptl. Biol. Med.*, 38 (1938), 212. (A. E. M.)

Vitamin C. Scorbamic acid (2-desoxy-2-amino-l-ascorbic acid) is not able to replace vitamin C in the diet in spite of the well-known metabolic relation of amino and hydroxy-acids. The explanation probably lies in the fact that the reduction product of scorbamic acid, dihydroscorbamic acid, combines irreversibly with scorbamic acid to form a dye. The preparation of 2-desoxy-l-ascorbic acid has been improved; the product melts at 165° C. Reduction with hydrogen and palladium yields scorbamic acid, browning at 80° C., sintering at 100° C. and carbonizing above 100° C. Nitrotetronic acid is reduced to α-aminotetronic acid by hydrogen and palladium. This substance and scorbamic acid reduce silver nitrate in acid and consume two atoms of scorbamic acid in their titration.—F. MICHEEL and R. MITTAG. *Hoppe-Seyler's Z. Physiol. Chem.*, 247 (1937), 34–42; through *Chimie & Industrie*, 38 (1937), 739. (A. P.-C.)

Vitamin C—2,4-Dinitrophenylhydrazine Derivative of Dehydroascorbic Acid and the Estimation of. When dehydroascorbic acid is treated with a saturated solution of dinitrophenylhydrazine in normal hydrochloric acid a reddish compound is formed, probably an osazone of dehydroascorbic acid. The compound can be prepared from ascorbic acid after treatment with 10% acetic acid and lends itself for the determination of ascorbic acid, based on its reduction with stannous chloride followed by hydrolysis with hydrochloric acid at 15 lbs. pressure. The furfural formed is determined colorimetrically.—JOSEPH H. ROE. *Proc. Soc. Exptl. Biol. Med.*, 37 (1937), 465. (A. E. M.)

Vitamin C Deficiency—Intradermal Test for. A suggested intradermal test for vitamin C subnutrition using 2:6-dichlorphenolindophenol has been examined in a series of 103 patients. Prolongation of the decolorization time appears to run parallel to the degree of vitamin C content of the tissues, although other reducing substances in the skin may be concerned in the decolorization phenomenon. The method may be of value as a rapid clinical test for vitamin C deficiency. A decolorization time of less than five minutes indicates tissue saturation with vitamin C, while ten minutes or longer is in favor of a deficiency.—B. PORTNOY and J. F. WILKINSON. *Brit. Med. J.*, 4023 (1938), 328. (W. H. H.)

Vitamin D—Concentration of, from Tunafish Liver Oil. The unsaponifiable is first separated by means of a methanol solution of caustic potash; vitamin A is eliminated by treating the unsaponifiable with citraconic anhydride or by solution in methanol and cooling to −80° C. Under these conditions 80 to 85% of the vitamin D present is deposited on the cholesterol. The vitamin D is then separated by solution in pentane and freezing, which crystallizes the cholesterol. The vitamin D is adsorbed on activated alumina, dissolved in benzene, ether and alcohol-ether and the filtrate is decomposed by means of phthalic anhydride into an active alcoholic fraction which contains the vitamin D and an inactive alcohol-free fraction. The alcoholic fraction has a potency of 3000 to 3500 international units; it is raised to 5000 units by chromatography.—O.

NERACHER and T. REICHSTEIN. *Helv. Chim. Acta*, 19 (1936), 1382–1391; through *Chimie & Industrie*, 39 (1938), 123. (A. P.-C.)

Vitamin E—Further Observations on. Studies of β-tocopherol, one of the substances showing vitamin E activity, reveal that the molecule is probably not a simple mono-ether of duroquinol. Most of the evidence is derived from studies of the selective absorption in the ultraviolet of tocopherol and its derivatives and from measurements of the area occupied by their molecules in surface films. The results suggest that the molecule of β-tocopherol contains the duroquinol nucleus with one hydroxyl group free and the other hydroxyl group involved in an oxygen ring. There are probably at least three rings close to the phenolic hydroxyl group. Provisional structural formulæ for this part of the molecule are suggested.—A. R. MOSS, W. F. J. CUTHBERTSON, J. F. DANIELLI and J. C. DRUMMOND. *J. Soc. Chem. Ind.*, 57 (1938), 133–136. (E. G. V.)

Vitamin K (Antihemorrhagic Vitamin)—Assay Procedure for. A prolonged clotting time was found to be the most useful criterion of deficiency of vitamin K. A method of assay based on this observation was elaborated. Chicks are placed on the experimental diets as soon as they are hatched and the assay is completed in two weeks. Hemoglobin determinations are not necessary, for anemia is the result of hemorrhage and is not due directly to deficiency of K. Soy bean oil is a source of vitamin K.—H. J. ALMQUIST and E. L. R. STOKSTAD. *J. Nutrition*, 14 (1937), 235; through *Physiol. Abstr.*, 22 (1937), 1059. (F. J. S.)

Vitamin Research—Development of. A brief history is given of the development of research on the biochemical activities of the vitamins. This was delivered as a review lecture before the Medical Society of Copenhagen, Jan. 25, 1938.—L. S. FREDERICIA. *Arch. Pharm. Chemi*, 45 (1938), 127, 156. (C. S. L.)

Wines—Medicinal. The orange juice should be partly neutralized with calcium carbonate to a residual acidity of 10 Gm. per liter (calculated as sulfuric acid); the reducing sugars are determined and the ethyl alcohol yield is calculated therefrom. Previously inverted sugar is added at the rate of 2 Kg. per 100 liters of juice, for each 1% of ethyl alcohol, in order to obtain a fermented juice containing 14% of ethyl alcohol. Selected cultures should be used for fermentation.—A. LEAL. *Publ. Pharm., S. Paulo*, 1 (1935), 7–9; through *J. Soc. Chem. Ind.*, 57 (1938), 430. (E. G. V.)

Yeast—Irradiated, Antirachitic Action of. The author has investigated the antirachitic action of irradiated yeast in children. He found that a daily dose of six Gm. of the irradiated yeast was sufficient to cure active rickets within six weeks; the total dosage of yeast was 250 Gm. Clinical and radiological improvement was already noticeable after three weeks. To possess such antirachitic activity one Gm. of this yeast must contain at least 2000 protective antirachitic rat units. It is quite possible that a more active preparation of irradiated yeast may be discovered, but at present the doses of yeast are necessarily very high.—H. HOFFMANN-WÜLFING. *Arch Kinderheilk.* (1937), 112, 4, 227; through *Brit. Med. J.*, 4022 (1938), 320C. (W. H. H.)

ANALYTICAL

Aldehydes—Precipitation of, by Means of Barbituric Acid. A saturated solution of barbituric acid in fuming hydrochloric acid gives precipitate only with a limited number of aromatic aldehydes. No precipitate is obtained with salicylaldehyde, α-isoamylcinnamaldehyde, hydrocinnamic aldehyde, formaldehyde and acetaldehyde. On the other hand, benzaldehyde, anisaldehyde, cinnamaldehyde, vanillin, piperonal and furfural yield specific crystals.—L. ROSENTHALER. *Mikrochem.*, 21 (1937), 216–217; through *Chimie & Industrie*, 39 (1938), 51. (A. P.-C.)

Amino Acids—Microscopical Identification of. Amino acids react with the alkaloid reagents and with solutions of heavy metals to give distinctive crystals that can be used for their identification. Less than 5 mg. will serve for the isolation and identification of acids such as cystine and tyrosine. It is probable that a systematic scheme of analysis could be developed by classifying them in accordance with their solubilities and sensitiveness toward the various reagents. The reactions of glycine, cystine, tyrosine, alanine, glutamic acid, aspartic acid, leucine, phenylalanine and proline with barium hydroxide, cupric nitrate, lead acetate, magnesium hydroxide, Marmé's reagent, Mayer's reagent, mercuric chloride, Millon's reagent, picric acid, pricolonic acid, chloroplatinic acid, potassium iodate, saccharin, silicotungstic acid, silver hydroxide,

tannic acid, Wagner's reagent and zinc hydroxide are tabulated with respect to whether a test, a fair test or a good test was obtained with less than 5 mg. of the acid.—J. D. SURMATIS and M. L. WILLARD. *Mikrochem.*, 21 (1937), 167–170; through *Chimie & Industry*, 39 (1938), 313. (A. P.-C.)

Anabasine and Its Derivatives—Comparative Microscopic Identification of. By treating anabasine sulfate with soda, extracting with petroleum ether, and subjecting the extract to fractional distillation, a fraction can be separated containing only pure anabasine, entirely free from lupinine and other impurities. Very nearly all the microreactions of anabasine give crystals identical to those obtained with nicotine; gold chloride is the only reagent that gives specific, readily identifiable crystals.—MARGARET E. ZERBEY, M. T. ORINICK and M. L. WILLARD. *Mikrochem.*, 21 (1937), 171–179; through *Chimie & Industrie*, 39 (1938), 314. (A. P.-C.)

Antimony, Arsenic, Iodides and Thiocyanates—Microdetermination of. An adaptation of the method of Andrews (*J. Am. Chem. Soc.*, 25 (1903), 756) to the determination of antimony, arsenic and salts of hydriodic and thiocyanic acids by microtitration with potassium iodate.—I. M. KORENMAN and Z. A. ANBROCH. *Mikrochem.*, 21 (1936), 60–67; through *Chimie & Industrie*, 38 (1937), 1075. (A. P.-C.)

Antipyretics—Inhibiting Action of, on Some Oxidation Reactions. The influence of phenols, arylamines, semicarbazide, pyrazolone and alkaloidal derivatives used as antipyretics on the autoxidation of benzaldehyde, the autoxidation of ferrous salts in aqueous solution and the decoloration of methylene blue by animal tissues is reported and discussed.—A. BOUTARIC and J. A. GAUTIER. *J. pharm. chim.*, 27 (1938), 97–105. (S. W. G.)

Antipyrine—Precipitation of, in the Crystalline State. When treated with a drop of a solution containing 10% copper sulfate and 4% potassium bromide, antipyrine yields a brown, amorphous precipitate, which gradually becomes crystalline. A corresponding precipitation takes place when the potassium bromide is replaced by sodium chloride. Pyramidon and iso-propylantipyrine do not give the reaction.—L. ROSENTHALER. *Mikrochem.*, 21 (1937), 217, through *Chimie & Industrie*, 39 (1938), 313. (A. P.-C.)

Arsenic Acid—Volumetric Method of Determining, as Ammonium Arsenate. The method consists essentially in precipitating the arsenic acid as ammonium arsenomolybdate and titrating the precipitate with standard sodium hydroxide. Presence of ammonium nitrate is favorable to the formation of the precipitate to a degree that increases with the ammonium nitrate content. There is an optimum nitric acid concentration; too low or too high nitric acid concentration results in incomplete precipitation. A marked excess of ammonium molybdate is required. As in the case of phosphoric and silicic acids, these three factors are interdependent; a graph can be constructed giving the relative proportions which permit of obtaining quantitative precipitation and indicating the limits beyond which either precipitation is incomplete or molybdic oxide precipitates out with the ammonium arsenomolybdate.—I. WADA, S. KITAJIMA and J. TAKAGI. *Sci. Papers Inst. Phys. Chem. Research*, 31 (1937), 677–682; through *Chimie & Industrie*, 39 (1938), 247. (A. P.-C.)

Arsenic, Antimony and Bismuth—Volumetric Determination of, by Means of Potassium Iodide. Arsenic, antimony and bismuth may be determined volumetrically by formation of complex iodides obtained by adding a known volume of 1:10 potassium iodide just to the formation of a permanent precipitate, and carrying out a comparative reaction with a standard solution having the same acidity. The following acidities are recommended: bismuth, 10% by volume of sulfuric acid; arsenic, 40% by volume of acid; antimony, 25% by volume of acid. The turbidity at the end-point is comparable to that obtained in the cyanoargentimetric method.—L. FAUCHON and L. VIGNOLI. *J. pharm. chim.*, 26 (1937), 337–341. (S. W. G.)

Arsenic—Detection of, in Organic Compounds. When the modified Fleitmann arsenic test is applied to organic compounds after treatment with aluminum and sodium hydroxide, solusalvarsan, neosalvarsan and arsylen sodium gave positive reactions while sodium cacodylate, atoxyl, arsacetin and acetylamino-*p*-oxyphenylarsonic acid did not give the test.—L. ROSENTHALER. *Pharm. Acta Helv.*, 13 (1938), 2. (M. F. W. D.)

Arsenic—Determination of, in Analytical Reagents. A modified Gutzeit apparatus is shown, capable of detecting as little as 0.0001 mg. of arsenic. Only a small sample is needed. A color standard card is given for arsenic from 0.002 to 0.005 mg. of arsenic. A table is given of com-

mercial analytical reagents, with the arsenic tolerable limit of each.—C. BUSQUETS. *An. Soc. Española Fís. Quím.*, 34 (1936), 557–579; through *Chimie & Industrie*, 38 (1937), 662. (A. P.-C.)

Arsenic—Estimation of Small Quantities of, in Medico-Legal Work. The organic matter is destroyed by wet oxidation with nitric and sulfuric acids. The last traces of nitric acid, which would interfere in the subsequent procedure, are removed by heating with ammonium oxalate or urea. The electrolytic Marsh test is recommended after boiling the dilute sulfuric acid solution with pyrogallol and sulfur dioxide to reduce arsenate to arsenite.—D. N. CHATTERJI, K. R. GANGULY and M. Z. FARUQI. *J. Indian Chem. Soc.*, 13 (1936), 751–754; through *Chimie & Industrie*, 39 (1938), 53. (A. P.-C.)

Arsenic—Microdetermination of. A modified Gutzeit procedure capable of determining as little as 0.1 microgram of arsenic with a probable error of 5% and sensitive to 0.01 microgram of arsenic is described.—A. E. HOW. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 226–232. (E. G. V.)

Arsenious Oxide Content of Paris Green—Estimation of, Rapid Method for. A simple rapid and easily applicable method of analyzing samples of Paris Green is described and the apparatus and reagents required are listed. The results of ten analyses of one sample examined by the rapid method are given with the corresponding results where the standard method was used. An average error of + 0.4% is shown. Analytical results of examination by the method for the evaluation of the arsenious oxide content of six commercial samples are given and compared with the suppliers' guarantee certificate percentages.—E. MILFORD RICE and B. K. DATTA ROY. *J. Malaria Inst. India*, 1 (1938), 123. (A. C. DeD.)

***l*-Ascorbic Acid—Inactivated, Reduction of.** Alcoholic fermentation favors the reduction of included *l*-ascorbic acid, which has previously been inactivated by heat and air. This reduction is activated by peroxidase and catalase.—I. A. GOLJANICKIJ and I. S. BELONOSOV. *Compt. rend. acad. sci. U. R. S. S.*, 4 (1936), 15–16; through *Chimie & Industrie*, 38 (1937), 938. (A. P.-C.)

Barbiturics—Identification of Various, by Means of Millon's Reagent. To 0.05 Gm. of product dissolved in 4 cc. of acetone add 5 drops of Millon's reagent. Formation of a white precipitate or turbidity indicates the presence of veronal, dial, priminal, rutonal or evipan. A gray precipitate appearing after 15 to 30 seconds' heating indicates evipan, gardenal, phanodorm, soneryl or narcosol. Special reactions permit of identifying each of these compounds.—M. PAGET and TILLY. *J. pharm. chim.*, 25 (1937), 222–223; through *Chimie & Industrie*, 39 (1938), 55. (A. P.-C.)

Benzaldehyde and Hydrocyanic Acid from Bitter Kernels. The volatile products of hydrolysis of amygdalin, present in peach, apricot and bitter almond kernels, are absorbed by 1% potassium hydroxide; benzaldehyde may be recovered from the non-aqueous and potassium hydroxide from the aqueous layer.—I. VOLPER. *Prom. Org. Chim.*, 4 (1937), 522; through *J. Soc. Chem. Ind.*, 57 (1938), 252. (E. G. V.)

Biological Oxido-Reduction Phenomena—Study of. The following method is given for the determination of glutathione and cysteine in the same sample. Add 4.8 cc. of saturated sodium sulfate solution to 0.2 cc. of sample. Add 0.1 cc. of freshly prepared 2% sodium nitroprusside solution. Mix and examine colorimetrically by means of a photoelectric cell colorimeter. Record the value of the color of the mixture. Now add 5 drops of ammonia, mix, and read the value of the violet color, which appears instantly, before thirty seconds have elapsed. The difference between the two readings is (n). Repeat the above procedure, substituting a saturated solution of magnesium sulfate for the sodium sulfate solution. The difference between the two readings obtained in this case is (n'). The amount of glutathione and cysteine hydrochloride, in micromilligrams, present in the sample are calculated from the following equations: X represents glutathione. Y represents cysteine hydrochloride.

$$(1)\quad \frac{X}{6.79} + \frac{Y}{1.54} = n$$

$$(2)\quad \frac{X}{3.7} + \frac{Y}{2.9} = n'$$

From equation (1) $X = 6.79n - 4.41Y$. Transposing this into equation (2): $Y = 2.47n - \frac{n'}{0.74}$. Results obtained on tissue from liver, kidneys, suprarenals, heart and spleen are tabulated and discussed.—C. MENTZER. *J. pharm. chim.*, 27 (1938), 145–154. (S. W. G.)

Biological Process Control—Sampling Methods for. Directions are given for taking samples for the analytical purposes of wort, yeast, beer, brewing liquor, air, filter pulp and disinfectants, and for examining piping and transport vessels.—I. JANENSCH. *Wochschr. Brau.*, 55 (1938), 54–55, 59–62; through *J. Soc. Chem. Ind.*, 57 (1938), 430. (E. G. V.)

Bismuth—Determination of, in Organic Compounds by the Bomb Method. After the combustion, the bismuth is precipitated and weighed as the trisulfide.—C. L. TSENG and L. WANG. *J. Chinese Chem. Soc.*, 5 (1937), 3–5; through *Chimie & Industrie*, 38 (1937), 1083. (A. P.-C.)

Cadmium Iodide—Combination of, with Heterocyclic Nitrogen Bases. I. Pyramidon. Pyramidon, in aqueous solution, is precipitated by Marme's reagent (cadmium and potassium iodides), solution of cadmium iodide and solution of cadmium nitrate and potassium iodide. The compound obtained in each case is $CdI_2.C_{13}H_{17}N_3O$.—P. DUQUENOIS. *J. pharm. chim.*, 26 (1937), 353–360. (S. W. G.)

Caffeic Acid—Crystalline Precipitate of. Minute particles of caffeic acid give with baryta water-green crystals. The test is very sensitive. Heating caffeic acid with lime water gives, after cooling, colorless crystals.—L. ROSENTHALER. *Mikrochem.*, 21 (1937), 217; through *Chimie & Industrie*, 38 (1937), 1136. (A. P.-C.)

Camphor—Determination of. Reflux on the water bath at 75° for 2 hours a mixture of 0.6 to 0.8 Gm. of camphor, 1.2 Gm. of sodium bicarbonate and 21 cc. of hydroxylamine hydrochloride solution; dilute with water to 500 cc., filter and titrate a 25-cc. aliquot with fifth-normal hydrochloric acid in presence of methyl orange to a clearly visible pink, which should be the same as in a blank solution prepared simultaneously with the solution analyzed. The analytical error does not exceed 0.5%.—V. E. TICHTCHENKO and GREKHNEV. *J. Prikl. Khim.*, 9 (1936), 1700–1703; through *Chimie & Industrie*, 39 (1938), 118. (A. P.-C.)

Camphor—Determination of, in Alcoholic Solutions. The method consists in titrating the solution to be analyzed with water until there forms a turbidity due to the separation of camphor. This is first done with a standard 6% camphor solution, and then with the same solution after diluting with an equal volume of alcohol, and finally with the solution to be analyzed. If the amounts of water required in these 3 cases are a, a_1 and a_2, respectively, and C_1 is the initial concentration of the standard camphor solution, the concentration of camphor in the unknown solution is $C_1/\{1 + (a - a_1)/(a_2 - a_1)\}$; it should lie between C_1 and the concentration of the standard after diluting with alcohol. S. I. SPIRIDONOVA.—*J. Prikl. Khim.*, 10 (1937), 765–770; through *Chimie & Industrie*, 39 (1938), 328. (A. P.-C.)

Cannabis Indica—Identification and Assay of. The reactions of Beam (Wellcome Tropical Research Laboratory, April 1918) and of Ghamwray (*J. Egypt. Med. Assoc.*, 29 (1937), 193) are discussed. The following new color reactions serving to identify *Cannabis Indica* (I) and its preparations are described: 1. Three drops of perhydrol and 10 drops of concentrated sulfuric acid give a blood-red color; the reaction, however, is not sufficiently specific to permit a simple colorimetric determination. 2. A few drops of Dènigés reagent give upon warming on a water-bath a rose color; the same reaction is given by *m*-phenylenediamine. 3. Treat the residue in the cold with 2 cc. of alcoholic acetaldehyde solution (5%), 0.03 Gm. vanillin and 1–2 cc. of concentrated hydrochloric acid. Shake and a transit green color develops changing rapidly to a slate color, a stable indigo and finally slowly to a violet shade. This reaction is specific for I and may be used for a colorimetric determination. The following stock reagent is recommended for this determination: vanillin 0.4 Gm., acetaldehyde 0.06, 95% alcohol 20 cc. Preserve in a glass-stoppered bottle. Extract I or its preparation completely with petroleum ether; evaporate the extract on a water-bath and to the residue add exactly 2 cc. of the reagent and 1 cc. concentrated hydrochloric acid, agitate and examine after 10 minutes, comparing colorimetrically with a standard cannabinol solution under the same conditions.—P. DUQUÉNOIS and HASSAN NEGM MOUSTAPHA. *J. Egypt. Med. Assoc.*, 21 (1938), 224–227. (H. M. B.)

Carbon and Hydrogen—Estimation of. Investigations made during the last three years with regard to accuracy, reliability and sources of failure of the methods for the estimation of

carbon and hydrogen in small amounts of material are discussed, together with improvements.—F. B. STRAUSS. *Chemistry and Industry*, 57 (1938), 242. (E. G. V.)

Chemistry of Perfumes—Problems on the. Details of the preparation of tertiary benzaldehyde (I) by two procedures are given: (1) toluol + tertiary butyl chloride → tertiary butyl toluol + oxygen (manganese dioxide + sulfuric acid) → I; and (2) butyl benzol + formaldehyde + hydrochloric acid + methename → I.—A. LEWINSON. *Riechstoff-Ind. Kosmetik*, 13 (1938), 81–83. (H. M. B.)

Chloride—Gasometric Microdetermination of. When a chloride in solution is shaken with powdered silver iodate, silver chloride and sodium iodate are formed. This equilibrium reaction goes almost to completion in one minute, owing to silver chloride being so much more insoluble than the iodate. The sodium iodate can be estimated gasometrically by the instantaneous liberation of nitrogen from alkaline hydrazine (1.5 moles of N_2 from 1 equivalent of chloride), no standardized solutions being required. The procedure can be applied not only to salt solutions, urine and deproteinized plasma and blood, but also to untreated plasma and serum. Very full experimental details are given for carrying out the determination on the macro, micro and ultramicro scale with these biological fluids. The diluted solution at p_H 2 to 3 with phosphoric acid is shaken with silver iodate and the centrifugate treated with hydrazine in the Van Slyke and Neill manometric apparatus. Fourteen consecutive determinations can be made in an hour with duplicates seldom differing by more than 1 part in 200; while as little as 0.02 cc. of serum or plasma will serve. Tables of factors and temperature corrections are given. Calcium, oxalate, citrate, uric acid, glucose and some amino acids were without effect in concentrations much higher than those likely to be encountered. Bromide and iodide can be determined in the same way as chloride, though with iodide the p_H is best kept at 4.5. Recoveries of added chloride extremely close to the theoretical were found, except with low-chloride (nephritic) urines, where the average error was 3%, due to the presence of some substance that slowly destroys iodate.—J. SENDROY, JR. *J. Biol. Chem.*, 120 (1937), 335; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 135. (S. W. G.)

Citric Acid Industry. A discussion of properties, uses, natural and mycological production and the future of the industry.—P. A. WELLS and H. T. HERRICK. *Ind. Eng. Chem.*, 30 (1938), 255–256. (E. G. V.)

Citronellal—Determination of. The methods of determination of citronellal in citronella oil are critically reviewed. The method of Stillman and Reed is preferred generally, but that of Rowaan and Koolhaas gives equally good results with Java citronella oil.—*Soc. Anon. Recherches*, No. 4 (Dec. 1937), 132–137; through *J. Soc. Chem. Ind.*, 57 (1938), 320. (E. G. V.)

Copper Peroxidase Reaction—Blue Needles in. The blue crystal-like product in positive Sato-Sekiya's copper peroxidase reaction may be different from blue substance on peroxidase-positive granules of leucocytes, yet it is noteworthy that it never occurs in peroxidase-negative cells in well-treated blood films. The production of crystals runs parallel with the intensity of peroxidase reaction of leucocytes, and the appearance of crystals signifies that the peroxidase reaction occurred strongly. The production of crystals is a characteristic feature of Sato-Sekiya's copper oxidase reaction, though it is not specific for the latter.—T. SUZUKI. *Tôhoku J. Exptl. Med.*, 33 (1938), 321. (A. C. DeD.)

Creatinine and Creatine—Determination of, in Urine and Blood. The most reliable results for the determination of urinary creatine were obtained at boiling temperature and acidification of the urine with one-half its volume of twice normal hydrochloric acid. Blood creatine, after dealbuminization with trichloroacetic acid, was also determined in acid medium at a boiling temperature.—C. SEGHINI. *Diagnostica tec. lab.*, 7 (1936), 734–742; through *Chimie & Industrie*, 39 (1938), 54–55. (A. P.-C.)

Dehydroabietic Acid and Pine Resin Acids—Concerning the Structure of. The purpose of the work recorded was to explore the possibility of utilizing the abundantly available abietic acid as a starting material for the preparation of compounds related closely in structure to various naturally occurring physiologically active compounds of the phenanthrene group, *e. g.*, sex hormones and morphine-like compounds.—LOUIS F. FIESER and WILLIAM P. CAMPBELL. *J. Am. Chem. Soc.*, 60 (1938), 159. (E. B. S.)

Dithizone—Symbol Dz to Signify. The wide use of diphenylthiocarbazone as an analytical reagent has caused it to be contracted to dithizone. The author proposes the symbol Dz rather than D, to represent dithizone, since D is the symbol for deuterium.—P. L. HIBBARD. *Ind. Eng Chem., Anal. Ed.*, 30 (1938), 179. (E. G. V.)

Ergot—Assay of, and Its Liquid Extract for Ergometrine. The following procedure for the liquid extract is recommended: Transfer 10 cc. of the sample to a separator, add 1 cc. of dilute ammonia and 25 cc. of methylene chloride. Shake well, allow to separate and transfer the lower layer to another separator; repeat the extraction with six quantities each of 25 cc. of methylene chloride. Test the last extraction for alkaloids by evaporating a portion to dryness, dissolving any residue in 1 cc. of aqueous solution of tartaric acid and adding 2 cc. of *p*-dimethylaminobenzaldehyde reagent (0.125% w/v of compound + 65% w/v sulfuric acid + 0.005% w/v ferric chloride). Transfer the combined extractions into a flask and distil off the solvent, avoiding unnecessary heating. Dry the residue by adding 5 cc. of acetone and evaporating to dryness by gentle heating; repeat this treatment. Dissolve the residue in 25 cc. of specially prepared chloroform containing 1.0% by volume of alcohol and filter through a small pledget of cotton into a 100-cc. beaker containing 25 cc. of the special chloroform and 5 cc. of a 2% w/v chloroformic solution of antimony trichloride (prepared by diluting the reagent of Carr and Price eleven times with the special chloroform). Stir the contents of the beaker and wash the flask and cotton with a further 20 cc. of the special chloroform in small portions. Allow to stand for one hour and collect the precipitate in a Gooch crucible; wash the beaker and precipitate with about 20 cc. of a 0.2% w/v solution of antimony trichloride in the special chloroform and dry the precipitate by suction. Return the crucible to the beaker, triturate the precipitate and asbestos with 2 cc. of 95% alcohol, add about 30 cc. of 15% w/v aqueous solution of tartaric acid previously warmed to 40° and allow to stand about half an hour; transfer the liquid to a stoppered cylinder, dilute with water to 50 cc. (or other suitable volume) and allow the asbestos to settle. To 1 cc. of the clear supernatant liquid add 2 cc. of the *p*-dimethylaminobenzaldehyde reagent, mix, allow to stand 5 minutes, transfer the colored mixture to a 1-cm. all glass cell and measure the color by means of a Lovibond tintometer (0.05 mg. of pure solvent-free ergometrine yields a color having a blue component of 7.6 units). Alternatively, compare the color in a suitable colorimeter with that produced by treating 1 cc. of a 0.012% w/v solution of ergotoxine ethanesulfonate in a 1% w/v solution of tartaric acid in water (0.05 mg. of ergometrine gives a color equal to that produced by 0.093 mg. of ergotoxine base). The following procedure is recommended for the drug: Extract 10 Gm. in No. 60 powder by percolation with cold benzin (b. p. 40–50°) until the fat is completely removed. Dry the fat-free drug at a temperature not exceeding 40° and transfer to a mortar. Add slowly with constant trituration 7.5 cc. of strong solution of lead subacetate and continue to triturate the drug for five minutes after all the lead subacetate solution has been added. Transfer the drug to a percolator having a diameter of approximately 2.5 cm. and containing a plug of cotton weighing 1 Gm. Percolate the drug continuously with a mixed solvent consisting of 9 volumes of ether and 1 volume of methylene chloride. The ether must be of AnalaR quality or the anesthetic variety freed from carbon dioxide. During percolation pack the ergot carefully by means of a rod having a flattened end. When about 200 cc. of percolate has been collected, test for complete extraction by evaporating about 2 cc. of percolate to dryness and dissolving any residue in 1 cc. of aqueous solution of tartaric acid and adding 2 cc. of *p*-dimethylaminobenzaldehyde reagent. Evaporate the percolate to dryness, avoiding any unnecessary heating and complete the assay as directed for the liquid extract of ergot commencing with the words "Dry the residue by adding 5 cc. of acetone. . . . . " It may be necessary to dilute the solution of the precipitate in aqueous tartaric acid to a volume between 100 and 200 cc. according to the ergometrine content of the sample.—N. L. ALLPORT and G. V. PORTER. *Quart. J. Pharm. Pharmacol.*, 11 (1938), 96–109. (S. W. G.)

Ethylene Oxide—Determination of. Weigh the ethylene oxide into a sealed tube, transfer to a 1-liter flask which is then slightly evacuated; add calcium chloride solution (prepared by dissolving 1205 Gm. of calcium chloride crystals in 200 cc. of water and mixing with 110 cc. of ten times normal hydrochloric acid), shake with the oxide in the closed vessel for 3 minutes, dilute with water and titrate with normal sodium hydroxide to a phenolphthalein end-point. Run a blank. The difference between the 2 titrations × 0.04403 = Gm. of ethylene oxide.—F. W. KERCKOW. *Z. anal. Chem.*, 108 (1937), 249–254; through *Chimie & Industrie*, 39 (1938), 51. (A. P.-C.)

Ethylvanillin (Bourbonal)—Detection of. Ferric chloride gives a blue coloration in the cold with both vanillin and bourbonal; on heating to 60° C. the color persists in the case of vanillin, but turns yellow in the case of bourbonal. Hydrazine sulfate and hydrochloric acid produce a voluminous yellow precipitate with vanillin, while with bourbonal they give rise to the slow formation of crystals. With bourbonal *p*-nitrophenylhydrazine gives characteristic brown crystals which are easily identified under the microscope. When 2 cc. of bourbonal solution is mixed with 1 drop of about 1% sodium nitrite solution and 2 to 3 drops of concentrated nitric acid is added, after heating to boiling and cooling, a white precipitate separates out. Vanillin does not give this reaction.—P. STADLER and K. WAGNER. *Z. anal. Chem.*, 108 (1937), 161–167; through *Chimie & Industrie*, 39 (1938), 315. (A. P.-C.)

Flask Drying Apparatus—Tested. The author describes a drying apparatus in which flasks can be quickly and conveniently dried. A diagram of the apparatus accompanies the article.—C. HERMANN. *Schweiz. Apoth.-Ztg.*, 76 (1938), 214. (M. F. W. D.)

Formaldehyde and Benzaldehyde—Use of Chloramine T for the Determination of. Chloramine T can be used in place of iodine solution in the determination of formaldehyde and benzaldehyde. The oxidation of benzaldehyde takes place rapidly, whereas if iodine is used, over 24 hours are required to complete the reaction. Take about 0.1 to 0.2 Gm. of the aldehyde, add 4 to 5 cc. of 10% potassium iodide solution and 50 cc. of decinormal chloramine-T solution. Make alkaline with sodium hydroxide and after 30 minutes acidify with hydrochloric acid and titrate the liberated iodine with sodium thiosulfate. The results are excellent.—B. CARLI and R. AIROLDI. *Ann. chim. applicata*, 27 (1937), 56–59; through *Chimie & Industrie*, 38 (1937), 1083. (A. P.-C.)

Gorlic Acid—Isolation and Properties of. Gorlic acid, an optically active liquid fatty acid was obtained in pure form from two chaulmoogra oils, *Carpotroche brasiliensis* and *Oncoba echinata*, and its properties studied. Its formula corresponds to that of chaulmoogric acid with one extra double bond in the side chain. It has a specific rotation $[\alpha]_D^{25}$ + 60.7; b. p., ° C. 232.5; m. p., ° C. 6.—HOWARD IRVING COLE and HUMBERTO T. CARDOSO. *J. Am. Chem. Soc.*, 60 (1938), 612. (E. B. S.)

Hydrazoate and Halogen Ions—Extinction of the Fluorescence of Quinine by. The author reports that 10 cc. of a 1% solution of quinine sulfate, containing 0.2 cc. of sulfuric acid per 100 cc. of solution, required the following amounts of 1*N* solutions to cause disappearance of the fluorescence: potassium or sodium chloride 2.5 cc.; sodium hydrazoate 2.1 cc.; potassium or sodium bromide 1.1 cc.; potassium or sodium iodide 0.7 cc.; sodium fluoride 80.0 cc. When the number of cc. is multiplied by the gram ionic weight per cc. of 1*N* solution the following products are obtained: chloride 0.0887 Gm.; hydrazoate 0.0882 Gm.; bromide 0.0880 Gm.; iodide 0.0889 Gm.; fluoride 1.520 Gm. The analogous behavior of the hydrazoate ion and the halogen ions other than fluoride is stressed.—GEORGES DÈNIGÉS. *Bull. trav. soc. pharm. Bordeaux*, 76 (1938), 65–68. (S. W. G.)

Hydrazoate Ion—Microchemistry of. The crystals formed by sodium hydrazoate with solutions of tellurium acetate (5%), lead acetate (5%), ammoniacal mercuric sulfate (prepared by adding an equal volume of ammonia T.S. to a solution of 5 Gm. of mercuric oxide in a mixture of 20 cc. of sulfuric acid and 100 cc. of water), and a solution prepared by adding half its volume of ammonia T.S. to 3% silver ammonia nitrate are described and illustrated.—GEORGES DÈNIGÉS. *Bull. trav. soc. pharm. Bordeaux*, 76 (1938), 69–72. (S. W. G.)

Iodhydrol. The author points out that sterhydrol, which is issued for use as a water sterilizer to the Italian army, has to be imported, and recommends that iodhydrol, which is made in Italy, should be used instead. The originators suggested that the formula for this compound is $KICl_4O_2$, but others have suggested that it is $KICl_4,2H_2O$ or $KICl_4,H_2O_2$. The author claims to show, by treating the substance with sulfuric acid and then titrating with permanganate, that the first formula is the correct one. He determined the halogens gravimetrically and volumetrically to confirm this and also came to the conclusion that sterhydrol is the same as chloramine.—G. LUSIGNANI. *Boll. chim.-farm.*, 76 (1937), 504; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 154. (S. W. G.)

Iodine—Determination of, in Iodochloroxyquinoline (Vioform) and in Colloidal Silver Iodide (Neoprotosil). In the Carius and the Baubigny-Chavannes methods for the determination of halogens, the silver iodide can contain certain impurities and a trace of reduced silver. It is

preferable to take up the precipitate and liberate the iodine by hydrogenation with zinc in sulfuric acid solution. Reflux the silver iodide for 30 minutes with 3 Gm. of zinc and 50 to 60 cc. of 20% sulfuric acid; after cooling, filter, wash and dilute to 500 cc. To an aliquot add 20 to 30 cc. of sodium hypochlorite solution, 15 cc. of 20% sulfuric acid and 0.5 Gm. of talc, dilute to about 400 cc., boil 30 minutes, cool, add 2 to 3 Gm. of potassium iodide, let stand 5 minutes and titrate the liberated iodine with decinormal sodium thiosulfate.—C. STAINIER and L. LECLERCQ. *Bull. acad. roy. med. Belg.*, 1 (1936), 348–354; through *Chimie & Industrie*, 39 (1938), 118. (A. P.-C.)

Iodine—Microdetermination of. Some refinements in the authors' methods for microdetermination of iodine are presented. It is practicable to extract iodide from an aqueous solution containing potassium carbonate by three extractions with alcohol (93%). The methods of Sandell and Kolthoff and of Saifer and Hughes and of Endres and Kaufmann are criticized. The use of formic acid (Viebock and Brecher) to remove bromine, leads to errors when nitrite has to be destroyed with sodium azide. Hydrazine is useful for reduction of iodate, the reaction proceeding to the extent of about 90%; since, at most, one-sixth of the iodine will be present as iodate after absorption in alkali, the error cannot exceed 2%. No detectable amount of iodate is formed on heating a mixture of iodide, nitrate and carbonate. A cheap bronze block furnace is described for heating dishes to 550°; it enables porcelain instead of platinum dishes to be used. Drinking water can be analyzed after heating the residue with excess of nitrate, which can destroy small amounts of organic matter without significant loss of iodide.—J. F. REITH and C. P. VAN DIJK. *Biochem. J.*, 31 (1937), 2128; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 135. (S. W. G.)

Iron—Determination of, in Biological Media. The methods depend on the reduction of the solution of the ash with liquid cadmium amalgam, oxidation with an excess of ceric sulfate and titration of the excess ceric ion with a solution of ferrous ammonium sulfate to an end-point with phenanthroline indicator. The method can determine 0.002 to 0.015 mg. of iron. The experimental error averages about 1 to 2%, and in the case of blood it does not exceed 4%.—P. L. KIRK and G. T. BENTLEY. *Mikrochem.*, 21 (1937), 250–259; through *Chimie & Industrie*, 39 (1938), 56. (A. P.-C.)

Isopropyl and Orthopropyl Alcohols—Differentiation between, by Mercuric Sulfate. Add 4 drops of the sample to 2 cc. of mercuric sulfate reagent in a tube having a diameter of 16–18 mm. Place the tube and contents in a boiling water-bath. After about one and a half minutes a heavy white precipitate suddenly forms if isopropyl alcohol is present. Orthopropanol yields only a slight precipitate after heating as above for 4–5 minutes. The crystalline structures obtained with the two alcohols are different.—GEORGES DENIGÈS. *Bull. trav. soc. pharm. Bordeaux*, 76 (1938), 72–77. (S. W. G.)

Lactic Acid—Determination of, in Presence of Methylglyoxal. The method of Fürth and Charnass is modified to eliminate the error due to the presence of methylglyoxal. This aldehyde is detroyed by boiling with excess of hydrogen peroxide for 5 minutes in the manganese sulfate sulfuric acid solution used in the determination of lactic acid. Most of the excess of hydrogen peroxide is removed after cooling in ice water by addition of 25 cc. of twentieth-normal potassium permanganate. In tungstic acid filtrates, the latter is not necessary, very little hydrogen peroxide remaining. Boiling for 20 minutes with hydrogen peroxide does not cause loss of lactic acid.—E. BAUER and F. ZIEGLER. *Hoppe-Seyler's Z. physiol. Chem.*, 247 (1937), 1–5; through *Chimie & Industrie*, 39 (1938), 254. (A. P.-C.)

Lansium Domesticum, Correa—Note on Chemical Study of Seed of. Fruit well known and eaten by natives in Siam; rind used in Philippines as fumigant against mosquitoes; juice used for "sore eyes." Seeds used for inflammation of ear and as vermifuge and antipyretic, but nothing definitely known of its pharmacologic properties. Preliminary chemical tests indicated probable presence of alkaloids. Attempt to isolate alkaloids by alcohol and water extraction produced crystalline substance too little for further investigation. Resin of residue analyzed for acid, saponification and ester values, giving results somewhat higher than resin of the rind.—KHASEM PANGSRIVONGSE. *Rev. Filip. Med. Farm.*, 29 (1938), 9. (G. S. G.)

Lead Arsenate—Method for Making, in Finely Divided Form. Lead arsenate is dissolved in an acid solution of metaphosphoric acid compounds, and the solution is neutralized, thereby precipitating the lead arsenate in dispersed form.—VICTOR E. SPEAS and NATHAN M. MNOOKIN, assignors to SPEAS MFG. CO. U. S. pat. 2,108,553, Feb. 15, 1938. (A. P.-C.)

Mercury Purification System—Complete. The assembly described provides for washing, drying and distillation with optional aeration.—W. A. CARLSON and L. F. BORCHARDT. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 94–96. (E. G. V.)

Mercury Vapors—Determination of, in the Atmosphere. To 4 cc. of a solution obtained by absorption of the air under examination, add 3 cc. of a solution consisting of: 1 volume of 7% cuprous chloride, 2 volumes of approximately two and a half-normal sodium sulfite and 1.5 volumes of 8% sodium bicarbonate solution; shake, and after 10 minutes compare colorimetrically with a set of standards. The absorbing solution is prepared by dissolving 2.5 Gm. of iodine and 30 Gm. of potassium iodide in a small volume of distilled water and diluting to 1 liter.—N. G. POLEJAEV. *Hig. Truda*, 14 (1936), 86; through *Chimie & Industrie*, 39 (1938), 74. (A. P.-C.)

Methanol-Ether-Water Mixtures—Analysis of. By measuring the refractive index and specific gravity of solutions of methanol-ether-water, a triangular diagram of percentage composition of the three components at each temperature was constructed. The sensitiveness of the method depends on the fact that though the refractive indices of water and methanol are quite close, their specific gravities differ considerably; and though the specific gravity of ether is close to that of methanol, their refractive indices are quite different.—S. DOLDI. *Chim. e. Ind. (Milan)*, 19 (1937), No. 1, 6–9; through *Chimie & Industrie*, 38 (1937), 1127. (A. P.-C.)

Microchemical Laboratory of the American Medical Association. The American Medical Association microchemical laboratory and its air conditioning system are described. A list of apparatus and procedures useful in pharmaceutical analysis is given. Literature references for forensic work, especially for identification of barbiturates, are included.—J. B. PETERSON and E. W. SCHOEFFEL. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 172–174. (E. G. V.)

Micro-Kjeldahl Digestions—Fume Tube for. An air aspirator, used in connection with a glass-fume tube, is described. The apparatus is made of Pyrex and uses compressed air to force the fumes from digestion out into the open air.—J. S. BLAIR. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 112. (E. G. V.)

Microrefractometer of Simple Design. The construction of the microrefractometer, using readily available apparatus, is described. The instrument requires about 0.01 cc. and is quite accurate.—A. E. EDWARDS and C. E. OTTO. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 225–226. (E. G. V.)

Morphine—Improved Lime Method for the Estimation of, in Opium and Its Preparations. In estimating morphine according to Mannich, codeine is carried down by the precipitating morphine-ether; thus, the morphine values are too high. An improved lime method is described in which ammonium sulfate is used instead of ammonium chloride; it is simple, economical and dependable. By introduction in the Mannich procedure of an ether extraction, there can be obtained a codeine-free morphine-ether, which is smaller in amount and accordingly in value corresponds with that obtained by the authors' procedure.—K. WINTERFELD, E. DÖRLE and C. RAUCH. *Arch. Pharm.*, 275 (1937), 445–455; through *Chimie & Industrie*, 39 (1938), 313. (A. P.-C.)

Morphine—New Method for the Detection of, in the Urine of Opium Addicts. Acidify 50 cc. of urine with tartaric acid, evaporate, mix with 5 to 6 Gm. of sand and continue the evaporation to dryness. Extract the residue with 3 × 30 cc. of warm alcohol, after evaporation of the alcohol add water and neutralize the mixture with 25% sodium hydroxide in a separatory funnel. Add 1 cc. of phosphoric acid, remove impurities by extracting with 10 cc. of amyl alcohol, make the aqueous solution alkaline with ammonia, treat again with amyl alcohol, then extract with 9:1 chloroform-alcohol mixture and test the extract for morphine by the Froede, Froede-Buckingham and Marquis tests. The method is sensitive to 0.005 mg. of morphine in 50 cc. of urine, which is equivalent to the smallest amount of opium intake by opium smokers.—C. K. LIANG. *Chinese Med. J.*, 51 (1937), 211–216; through *Chimie & Industrie*, 39 (1938), 56. (A. P.-C.)

Morphine and Derivatives—Color Reaction of. Dissolve 1–2 Cg. of morphine or its salt in 2 cc. of sulfuric acid by gentle shaking, add 2 drops of a 10% solution of potassium bromide and place the mixture in a boiling water-bath for three minutes. Cool, then add cautiously 20 cc. of water. An emerald-green color develops. The coloring matter is insoluble in water and is gradually deposited, it is soluble in xylol, chloroform, ether, benzene and other organic solvents. From a hot saturated solution in ethyl alcohol it can be crystallized in fine needles. With narcotine, narceine, apomorphine, papaverine and many other alkaloids and with some glycosides, although

a color may be produced on warming with the bromide, no green color is obtained when the mixture is diluted with the 20 cc. of water.—M. PESEZ. *J. pharm. chim.*, 25 (1937), 504. (S. W. G.)

Morphine and Oxydimorphine—Vanillin-Hydrochloric Acid Reaction with. Action of Other Aromatic Aldehydes. Vanillin in hydrochloric acid solution, which is used as a reagent for morphine, gives a color reaction with oxydimorphine. With morphine a non-specific red or violet-red is obtained, but oxydimorphine gives a definite green or blue-green color. Tests with organic acids, alcohols and aldehydes, showed that only the aldehydes, substituted or not, give color reactions with these two alkaloids. The colors obtained are tabulated.—B. DREVON. *J. pharm. chim.*, 26 (1937), 292–299. (S. W. G.)

Naphthol Compounds—Use of, as Fluorescent Indicators. Many sodium salts of naphthol compounds have been found to modify their fluorescence with variations in p_H. The author gives a series of compounds exhibiting fluorescence in Wood's light and having a sharp color change.—M. DÉRIBÉRÉ. *Ann. chim. anal. chim. appl.* (Oct. 15, 1937); through *J. pharm. Belg.*, 20 (1938), 91. (S. W. G.)

α-Naphthol in β-Naphthol—Detection of. The test is carried out as follows: 0.5 cc. of the solution to be tested is treated in 5 cc. of sodium hydroxide solution with 1 cc. of saturated alcoholic solution of *p*-aminosalicylic acid. One part of α-naphthol in 1000 parts β-naphthol gives a blue color changing to a violet. The reaction cannot be used to detect the presence of α-naphthol in other phenols.—L. ROSENTHALER. *Pharm. Acta Helv.*, 13 (1938), 3. (M. F. W. D.)

Nicotine—Fluorescence of. Aqueous solutions containing 0.1 mg. of (fresh) nicotine (I) per cc. display a deep blue fluorescence, technical I fluorescing blue to reddish. The fluorescence is not affected by addition of alkali.—E. A. KOCSIS and F. NEMETH. *Z. anal. Chem.*, 111 (1937), 188–190; through *J. Soc. Chem. Ind.*, 57 (1938), 319. (E. G. V.)

Nitrogen—Qualitative Test for, in Organic Substances. In a narrow combustion tube place 0.02 Gm. of the substance to be tested, followed by an approximately equal volume of iron powder and finally 0.04 Gm. of sodium or potassium. Heat carefully to the melting point of the alkali (about 3 minutes) and then with the full flame of a Bunsen burner. Immerse the tube in 10 cc. of water in a mortar, crush, filter, add 1 cc. of concentrated ferrous sulfate solution, one drop of ferric chloride solution and two drops of soda solution, boil 2 minutes, cool and acidify. When tried out on various materials, the test gave a positive ferrocyanide reaction with nitrogen contents of about 0.05% or more.—J. B. ROBERTSON. *J. South African Chem. Inst.*, 20 (1937), No. 1, 17–20; through *Chimie & Industrie*, 39 (1938), 246. (A. P.-C.)

2-Nitroindan-dione-1,3—Reagent for Bases. The reagent gives difficultly soluble precipitates with quinine, strychnine and brucine but no precipitate with coniine, nicotine, codeine and morphine. However, it can be used to detect certain bases by observing the crystals under the microscope when the solid reagent is brought into an aqueous solution of the base or its salt or when the base is added to a 5% aqueous solution of the reagent. The following bases may be determined as indicated: alypin in concentrations down to 1%, berberine down to 1 to 1000, brucine to 1 to 1000, piperazine to 1 to 10,000 and for distinguishing ephetonin from ephedrine and *d*-ψ-ephedrine, eucaine A from eucaine B, and theophylline from theobromine (the theophylline precipitate is more soluble and forms more slowly).—L. ROSENTHALER. *Scientia Pharm.*, 9 (1938), 6. (M. F. W. D.)

Opium Alkaloids—Hydrochlorides of, Argentometric Determination of. Official methods are reviewed and the following method outlined: Weigh into a 100-cc. flask exactly 0.15–0.20 Gm. of the substance, dissolve in 20 cc. water, acidify with a few cc. nitric acid (chloride free) and add from a microburette 10 cc. 0.1*N* silver nitrate. Heat on a water-bath or direct flame until the silver chloride, which by artificial light is white, has agglomerated (almost to boiling), cool thoroughly, and add a few cc. of iron ammonium alum solution (8% and chloride free). Determine the excess silver with 0.1*N* ammonium thiocyanate. The end-point may be determined to one drop and the reddish color will not disappear after several hours. This method was found to be applicable to the hydrochlorides of methyl, ethyl and diacetyl-morphines and narcotine but could not be used for morphine hydrochloride (I) because of the peculiar properties of the alkaloid; however, a series of eight experiments are described whereby the chloride content of I may be determined gravimetrically (Winkler's procedure), later argentometrically by slight modifications of the Volhard method. The base should be precipitated with sodium bicarbonate,

acidified and the excess silver nitrate determined in the filtrate or the silver chloride filtered off and then determine the excess silver. The direct procedure was found to give high values and therefore, requires more study.—P. ROM. *Pharm. Monatsh.*, 19 (1938), 45–49. (H. M. B.)

Organic Qualitative Analysis—Microtechnic of. The procedure is based on the system of Kamm. Methods for preliminary examination, determination of physical constants, elementary analysis and determination of solubility behavior are given.—D. G. FOULKE and F. SCHNEIDER. *Ind. Eng. Chem., Anal. Ed.*, 30 (1938), 104–107. (E. G. V.)

Oxalic Acid—a Sensitive Reaction for. The addition of a few drops of glycerol to residues containing 6γ of oxalic acid treated with resorcinol and sulfuric acid causes the production of a violet color changing to blue under conditions in which the test is insensitive and inconstant in the absence of glycerol.—O. CARLETTI. *Boll. chim.-farm.*, 75 (1936), 498–499; through *Chimie & Industrie*, 38 (1937), 1079. (A. P.-C.)

Phosphate—Microdetermination of. An extremely sensitive micro-method for phosphate determination has been devised, which gives 5 to 10 times the blue color obtained with the methods in current use. The phosphate is converted into phosphomolybdate which gives a highly insoluble precipitate with 8-hydroxyquinoline in acid solutions. The precipitate, after washing, is dissolved in alkali and the 8-hydroxyquinoline in the solution is made to develop the blue color characteristic of phenols with the reagent of Folin and Ciocalteu. The color is proportional to phosphate taken, and good recoveries of added phosphate were obtained from serum and blood plasma. Organic phosphorus can be determined after digestion with perchloric acid.—E. J. KING and G. E. DELORY. *Biochem. J.*, 31 (1937), 2046; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 136. (S. W. G.)

Phosphoric Compounds—Inosite. Organic phosphoric compounds localized in aleuronic seeds. Extensive reference to work of Posternak. Composition and structure of phosphoro-organic acid found in seeds of plants is $C_6H_9O_9P_2$, compound called anhydroxymethyllenodiphosphoric acid. Phytin is a mixture of magnesium and calcium salts of phosphoric inosite.—S. OTOLSKI. *Tribuna Farm.*, 6 (1938), 1. (G. S. G.)

Phosphorus—Organic Determination of, by the Parr Calorimetric Bomb Method. Organic phosphorus can easily be determined by fusing the sample in a Parr bomb and direct oxidation of the melt. To this end the melt is dissolved in water, acidified with nitric acid and evaporated to a volume of less than 100 cc. There is then added a mixture of 30 cc. of 6 times normal nitric acid, 20 cc. of water, and 50 cc. of ammonium molybdate solution: after heating 1 hour at 60° to 65° C. the yellow precipitate is filtered through a tared Gooch crucible, washed, dried at 160° C. and weighed.—C. L. TSENG and F. WEI. *Sci. Reports Nat. Univ. Peking*, 2 (1937), No. 1, 15–16; through *Chimie & Industrie*, 39 (1938), 251. (A. P.-C.)

Picric Acid—Use of, in Qualitative Microchemical Analysis. Experiments with 21 cations, among those most frequently encountered in qualitative analysis, showed that by the action of a saturated solution of picric acid, precipitates which had a characteristic appearance under the microscope could be obtained with: ammonium, sodium, magnesium, barium, strontium, lead, zinc, nickel, mono- and di-valent mercury and silver.—A. F. ORLENKO and N. G. FESSENKO. *Z. anal. Chem.*, 107 (1936), 411–417; through *Chimie & Industrie*, 39 (1938), 49. (A. P.-C.)

Precipitation Reactions of Substances Containing the —CO—NH— Group. With barbituric acid, magnesia mixture gives needles and rods, either individual or arranged star-shape; with dialuric acid it gives small stars formed of needles. With saccharin, lead acetate gives fans, skeletons, plates. Ammoniacal thallium acetate gives with allantoin needles and agglomerations. With alloxane, cupro-pyridine solution gives elongated prisms; with dialuric acid it gives agglomerations, stars and yellow needles, and with barbituric acid it gives prismatic and polyhedral crystals and rods. With succinimide, iodine and sodium carbonate give stars and brown rods and plates; under the same conditions allantoin gives separate colorless needles.—L. ROSENTHALER. *Mikrochem.*, 21 (1937), 220–222; through *Chimie & Industrie*, 39 (1938), 51. (A. P.-C.)

Salicylic Acid—Reaction of, with Ferric Ions and Its Detection in Acetylsalicylic Acid. Tests carried out with a view to improving the usual technic of the test showed that it is advantageous to operate as follows: in a 50- or 100-cc. cylinder place 1 cc. of a 0.01% salicylic acid solution, 19 cc. of distilled water and 5 cc. of alcohol; in a second similar cylinder place 0.1 Gm. of acetylsalicylic acid, 5 cc. of alcohol and 20 cc. of water; to the contents of each cylinder add 1 cc. of ferric alum solution (0.2 Gm. of ferric ammonium solvent and 1 cc. of normal hydrochloric acid

per 100 cc.) mix, and compare the colors of the solution; that of the acetylsalicylic acid solution should not be deeper than that of the salicylic acid solution.—A. BANCHETTI. *Ricerca sci.*, 1 (1937), 290–294; through *Chimie & Industrie*, 39 (1938), 313. (A. P.-C.)

Silver—Colorimetric Determination of, as Colloidal Sulfide. Solutions containing 5×10^{-5} to 5×10^{-4} Gm.-atoms per liter can be used for the colorimetric determination of silver as silver sulfide in the presence of gelatin as a protective colloid. In the work described, particular attention was paid to the purity of the reagents and a device is shown by which a suitable solution of hydrogen sulfide can be prepared from saturated sodium sulfide solution and concentrated hydrochloric acid and preserved. Into each of the two cups of the colorimeter, 2.5 cc. of the hydrogen sulfide solution were introduced. To one of these the unknown solution was added and to the other the standard solution. It is best to have the solution contain 0.03 to 0.13 Gm. of hydrogen ions per liter. Most of the results were accurate within 2%.—LUCIA DE BROUCKÈRE and R. PETIT. *Bull. soc. chim. Belg.*, 45 (1936), 717–725; through *Chimie & Industrie*, 39 (1938), 45–46. (A. P.-C.)

Silver Proteinates—Rapid Method for the Assay of. The U. S. P. method is time-consuming, requires the use of four containers and the transfer of the sample four times. The new method uses sulfuric acid and fuming nitric acid and a 250-cc. wide-mouthed Erlenmeyer flask. The method was checked against that of the Association of Official Agricultural Chemists. Six different preparations of proteinates, representing several different types, were used. The method has three advantages over the U. S. P. and other methods reported in the literature: "it gives the same or slightly higher percentage of silver; the oxidation is complete in from one-tenth to one-third the time; the complete analysis is made in one container."—MARGARET C. SWISHER. *J. Am. Pharm. Assoc.*, 27 (1938), 306. (Z. M. C.)

Sorbitol—Detection of, by the Schotten-Baumann Reaction. The method of Litterscheid is preferred to that of Werder or to the Schotten-Baumann reaction for detection of sorbitol in wines.—W. KRASZEWSKI and R. JUDELOWICZOWNA. *Przemysl Chem.*, 21 (1937), 308–310; through *J. Soc. Chem. Ind.*, 57 (1938), 349. (E. G. V.)

Spot-Plate Tests—Use of, in the Examination of Drugs. A sensitive aldehyde test is described which is based on the formation of colored Schiff bases by reaction with *o*-anisidine. The results obtained with the test and the reaction limits are tabulated for 34 aldehydes and the colors are described. The reaction is very sensitive and as little as 0.02γ of furfural responds. An analogous reaction between furfural and anthranilic acid can be used as a spot test. Because of the sensitivity of the furfural test and the fact that the color produced is different from that obtained with all the other aldehydes studied, the test will be useful in studying sugars and carbohydrates. The test was applied to numerous volatile oils and the quantity necessary to give a positive test was determined.—R. WASICKY and O. FREHDEN. *Mikrochim. Acta*, 1 (1937), No. 1, 55–63; through *Chimie & Industrie*, 39 (1938), 314. (A. P.-C.)

Sterols. XXVIII. Pregnanetriols from Pregnancy Urine. The report deals with the isolation and a chemical study of two isomeric triols having the empirical formula $C_{21}H_{36}O_3$ and designated as pregnanetriol -A and -B, from the nonphenolic sterol fraction of mares' pregnancy urine.—RUSSELL E. MARKER, *et al.* *J. Am. Chem. Soc.*, 60 (1938), 210. (E. B. S.)

Tablets of Belladonna Extract—Assay Method for. U. S. P. XI method for extract is not applicable to tablets because of manipulative difficulties. Preliminary extraction of alkaloids according to U. S. P. X method is more workable. Details of procedure are given and data tabulated. It involved reducing the size of assay sample. The first ether extraction, made in acid medium, removed much of the chlorophyl. Unless removed it masks color of the indicator so that the end-point cannot be determined. This ether extract has been found to give negative results in tests for alkaloids. Alkaloids are removed by ammoniacal ether extraction.—DALE T. WILSON. *J. Am. Pharm. Assoc.*, 27 (1938), 398. (Z. M. C.)

Thiocyanates—Bromometric Determination of. A modification of the Treadwell and Mayr method of determining thiocyanates, consisting in oxidizing by means of bromine in strongly acid medium. The reaction of nascent bromine with thiocyanates is instantaneous and the time which elapses between the addition of bromate and the titration of the excess of bromine exerts an unfavorable influence on the accuracy and convenience of the method. By adding potassium iodide immediately, very accurate results are obtained, which permit of adapting the method to the determination of quantities of thiocyanate of the order of 0.1 mg.—E. KAHANE and R. COUPE-

CHOUX. *Bull. soc. chim. France*, 3 (1936), 1588–1595; through *Chimie & Industrie*, 38 (1937), 664. (A. P.-C.)

Trichloroethylene—Detection of. Trichloroethylene (not less than 0.025–0.05%) is detected in fats, etc. (2 cc.), by addition of a few drops of 2% α-naphthol in ethyl alcohol and 2 cc. of sulfuric acid. The mixture is shaken before and after addition of 1–2 cc. of water and, on keeping, the lower layer is red in color (yellowish brown when trichloroethylene is absent).—M. TESTONI. *Ann. chim. applicata*, 27 (1937), 497–499; through *J. Soc. Chem. Ind.*, 57 (1938), 135. (E. G. V.)

Ultraviolet Analysis—Aid for. The use of ultraviolet light to detect the adulteration of substances is increasing. An addition which consists essentially of a filter glass which appears dark to the eyes (a nickel oxide glass) when it is placed in front of an ultraviolet lamp, filters out all visible light allowing only the fluorescence produced by the substance to be seen. It has many applications. A photograph of the apparatus accompanies the article.—F. H. W. L. *Schweiz. Apoth.-Ztg.*, 76 (1938), 212. (M. F. W. D.)

Uric Acid—Total, Determination of. In the colorimetric determination of uric acid by means of Folin and Denis' reagent, the blue coloration produced retains its maximum intensity for only a very short time; after 10 minutes, and sometimes less, there appears an interfering white precipitate. It is therefore preferable to use for comparison of the colors a standard solution containing 5 Gm. of copper acetate crystals, 3 Gm. of cobalt sulfate crystals and 3.3 Gm. of glacial acetic acid per 125 cc. This solution is mixed with a solution of 2.5 Gm. of cobalt sulfate crystals per 100 cc., and variable amounts of distilled water are added.—G. VERGEZ. *Bull. trav. soc. pharm. Bordeaux*, 75 (1937), 83–86; through *Chimie & Industrie*, 39 (1938), 55–56. (A. P.-C.)

Vitamin C in Philippine Vegetables—Determination of, by Dye Method. Chemical determination of vitamin C by use of 2,6-dichlorophenolindophenol following method of Bessey and King, on number of vegetables in local markets. Found unexpectedly high vitamin C values in cauliflower, libato, mahungay leaves, unsoy, kinchay, sili, togue. Mahungay, unsoy, alugbati, sili (sweet pepper) also contain rich sources of calcium. Storage and boiling have marked effect on vitamin C content.—I. CONCEPCION and M. L. GARGARITANO. *Rev. Filip. Med. Farm.*, 29 (1938), 21. (G. S. G.)

Volatile and Fatty Oils as Well as Synthetic Aromatics—Some Color Reactions of. *Bezssonoff's Reagent.*—The reagent (I) consists of phospho-molybdic-tungstic acid ($MoO_3.WO_3.(P_2O_5)_{17}.2H_2O$) dissolved in water containing 5% sulfuric acid and gives colors in the cold with vitamin C, hydrazin, phenylhydrazine, zinc chloride, copper chloride, sodium bisulfite, ferrous sulfate, etc., and may also be used for the detection of certain double-bond compounds by warming for five minutes on a water-bath some drops of the unsaturated compound with 0.5–1 cc. of I; and yields a blue color which is made more distinct by the addition of some water and is positive with cyclohexene, benzylidene-acetone, linalool, ionone, aqualen, limonene, citronellol, and its acetate, geraniol and a large number of volatile oils and is negative with glycerol, cyclohexane, quintol, dihydroxycitronellol, benzyl alcohol, phenyl ethyl alcohol, octyl alcohol, terpineol, menthol, borneol and isoborneol and its acetate, tetrahydroxyionol, menthyl acetate, benzyl acetone and with hydrogenated bergamot and orange oils; 1-2-cyclohexanolone (adipoine) produces a blue color in the cold with I. Some simple phenols, which react positively with Dènigés Reagent do not react with I, including salicyl aldehyde, pseudo-butyl-phenol, methyl salicylate, etc. However, a specific, sensitive positive reaction is obtained with unsaturated phenols, such as eugenol and may serve to identify this substance in oils containing as low as 1% (Bulgarian rose oil) and is positive to oils containing azulene-forming sesquiterpenes.—S. SABETAY. *Riechstoff-Ind. Kosmetik*, 13 (1938), 84–85. (H. M. B.)

Water—Determination of, by Means of Aromatic Halogen Derivatives of Phosphine. Small quantities of water can be determined by reacting with difficultly volatile aromatic halogen derivatives of phosphine and titrating the resultant halogen acid after collecting in water. The most suitable reagent for this reaction is naphthyl-hydroxychlorophosphine. In order that the reaction may proceed smoothly, the phosphine should be used in the liquid state; but even in this condition the aryl dichlorophosphines do not give good results. Similarly, naphthalene tetrahalogenophosphines are unsuitable, as they give off chlorine and acid during the reaction. Phenyl-hydroxychlorophosphine, and perhaps also phenyl tetrachlorophosphine, could be used for the determination of water when a high degree of accuracy is not required.—J. LINDNER, W. WIRTH

and B. ZAUNBAUER. *Monatsh. Chem.*, 70 (1937), 1–19; through *Chimie & Industrie*, 39 (1938), 249. (A. P.-C.)

Wines—Determination of Total Acidity of. Change of p_H of wines on addition of sodium hydroxide is followed electrometrically. Phenolpthalein gives too high values for acidity of colored wine, but phenol-red is recommended as satisfactory.—S. LAUFER. *Am. Brewer*, 69 (1936), No. 1, 15–22, 24–25; through *J. Soc. Chem. Ind.*, 57 (1938), 430. (E. G. V.)

Zinc—Determination of, with the Aid of an Adsorption Indicator. When potassium ferrocyanide solution is added to a neutral solution containing zinc ions and some methyl red indicator, the precipitate that forms is colored pink but when sufficient ferrocyanide is added to precipitate all the zinc, the pink color of the precipitate disappears. An apparent end-point is sometimes reached too soon, so that to avoid error it is necessary to add more methyl red from time to time. As much as 15 drops of the usual indicator solution may be required in the titration of 10 cc. of a twentieth-molar zinc sulfate solution. Best results are obtained by titrating twentieth- to tenth-molar zinc solutions with ferrocyanide of the same strength. Under favorable conditions the results are within 1% of theoretical.—I. TANANAEW and M. GEORGOBIANI. *Z. anal. Chem.*, 107 (1936), 92–96; through *Chimie & Industrie*, 39 (1938), 49. (A. P.-C.)

PHARMACOGNOSY

VEGETABLE DRUGS

Algerian Olive Cultivation. The gathering of the olives commences in November and continues until March. Those gathered before complete maturity yield an oil of excellent quality, sweet, and of a greenish color. The very black olives yield a more abundant, yellower oil of stronger yet still delicate odor. Olives gathered by hand give a better oil than that obtained from fruits knocked down by means of poles. The method of obtaining the various types of the oil is given.—ANON. *Chemist and Druggist*, 128 (1938), 761. (A. C. DeD.)

Butea Superba—Note on. Belongs to family *Leguminosæ*. Gigantic climber with thick fibrous brown bark, thick stems. Reported used in India as remedy for poisonous bites of animals. Root used as "rejuvenating drug," also cure for diabetes. Pharmacology not definitely known. Chemical analysis indicates presence of glucosides.—KHASEM PANGSREVONGSE. *Rev. Filip. Med. Farm.*, 29 (1938), 12. (G. S. G.)

Capsicums—Observations on Three Louisiana. A number of peppers have been studied in order to determine identity, structure and suitability as additional sources of U. S. P. capsicum. The three investigated were "Louisiana Long," "Louisiana Sport" and "Tabasco." The report is well illustrated. In making pungency tests an African capsicum was used in control. The control and the Tabasco met the pungency requirement of the U. S. P. in the first series of tests, 2 out of 3 responding positively. When 25 people were used only the African met the test. When the 25 people were divided into groups of 3, there were different results. It has been shown previously that the variability of sensitivity of humans to the capsicum pungency test is 50:1. It is evident that because of this great variability, the test is not reliable as a means of evaluating it. The U. S. P. method should be revised by standardizing humans or a chemical test based on capsaicin be devised.—HEBER W. YOUNGKEN. *J. Am. Pharm. Assoc.*, 27 (1938), 323. (Z. M. C.)

Chicolate, the Camouflaged Opium. Chicolate or Mexican Poppy are common names for *Argemone mexicana* L. which the Chinese have found when grown in tropical climates in fields where only small amounts of opium poppy are found, mixes easily and the capsules produce a substance which gives a pleasant forgetfulness and complete loss of desire. Production and sale are discussed. Nine references.—VICTOR A. REKO. *Pharm. Monatsh.*, 19 (1938), 68–69. (H. M. B.)

Cinchona—Study of Two Barks of Historical Interest. Analyses were made on two samples of cinchona bark forming part of the material brought to Spain by the Ruiz and Pavon expedition on their return in 1788 and stored since that date in Madrid. It is shown that the sample of flat calisaya bark is of normal quality both as regards the total alkaloidal content (5.2%) and the relative proportions of the chief crystallizable cinchona alkaloids present. The sample of Loxa bark was found to be of poor quality (3.7% total alkaloids), and it is suggested that this is not due to deterioration as the result of long storage but was characteristic of the bark as collected.—J. A. GOODSON. *Quart. J. Pharm. Pharmacol.*, 11 (1938), 53–56. (S. W. G.)

Colocasia (Taro). The nature, cultivation, composition and nutrient value of the taro root, the characteristics of the starch grains, and the manufacture of poi are described.—S. G. WILLIMOTT. *Cyprus Agr. J.*, 31 (1936), 94–108; through *J. Soc. Chem. Ind.*, 57 (1938), 425. (E. G. V.)

Crystal Envelopes—Occurrence, Development and Micro-Chemistry of, with Special Reference to Medicinal Plants. Investigations have been made to determine the occurrence and nature of the crystal envelopes which occur in many plants, choosing more especially those which are of pharmaceutical interest. Crystal envelopes surrounding acicular raphides have been found in one instance only, *viz.*, *Veratrum*. The cluster crystals of *Punica* have no envelopes. The envelopes of cluster crystals are, generally speaking, colored yellow by iodine, but those of the cluster crystals of *Quercus* are exceptional in that they are lignified. The single prisms of *Veratrum* and of *Punica* have no envelopes. In *Arctostaphylos* the crystal envelopes, during the early stages of formation of the crystals, give a brown coloration with iodine and sulfuric acid; the older envelopes are colored blue by this reagent. In *Trifolium* and *Melilotus* crystal cells occur in the endodermis, the cells having lignified cell walls, while the envelopes are partly lignified. In *Trifolium* crystal cells are not associated with the phloem fibers. Single prisms occurring in cells accompanying phloem fibers are usually surrounded by envelopes which are partially lignified; the crystals are attached to the cell walls which are completely lignified. Even in very young crystal cells still possessing a nucleus, the crystal envelopes are lignified. Crystal cells of this type are found in *Populus, Salix, Rosa, Ononis* and *Melilotus*.—HENRY NILSSON. *Svensk Farm. Tid.*, 41 (1937), 470. (F. J. S.)

Guarana—Its Industrial and Medicinal Value.—J. WATZEL. *Bol. ministerio agr. (Brazil)*, 26 (1937), Nos. 4–6, 25–32; through *J. Soc. Chem. Ind.*, 57 (1938), 224. (E. G. V.)

Gum Tragacanth of Brazil. Description of a gum found fortuitously in Brazil, seeds possibly came as an admixture with seeds of other plants. Has adapted itself to environment and flourishes in Rio Grande. Has chemical characteristics similar to gum tragacanth. Has been given the name *Brachychiton populneum*, Family *Sterculaceæ*. Grows irregular clusters adhering to bark, slightly translucent and elastic. Soluble in cold water, producing thick mucilage; insoluble in alcohol and neutral solvent. Solution slightly acid and iridescent. Chemical analysis finds soluble gum, water, ash, oxidases and peroxidases, but no cellulose nor amides as in tragacanth. Recommends its further cultivation for medicinal use and commercial importance.—VIRGILIO LUCAS. *Rev. assoc. brasil farm.*, 18 (1937), 528. (G. S. G.)

Majoram—New Important Adulterations in. Two samples of seeds were found to be adulterated as follows: *Medicago lupulina* 28 and 32%, *Sinapis arvensis* 20 and 25%, *Polygonium aviculare* 2 and 5%, *Cirsium arvense* 2 and 3%, *Convolvulus arvensis* 1 and 2%, impurities such as maize fragments 1 and 0%, *Melilotus officinalis* 0 and 5%. *Majoram hortensis* and all of the adulterants are described and illustrated.—FRANZ BERGER. *Pharm. Monatsh.*, 19 (1938), 65–68. (H. M. B.)

Pharmacognosy—Recent Viewpoints and Methods in. A review with fifteen references.—R. WASICKY. *Pharm. Monatsh.*, 19 (1938), 61–65. (H. M. B.)

Saffron and Its Substitutes. Chloroform found useful in detecting adulterations in rhubarb. May also be employed to investigate impurities in saffron. Pepper sometimes used as adulterant, and urucu, because of its lower cost and innocuousness. Simple and sure test for adulterant, to shake out powdered saffron with chloroform. If pure, the chloroform has pale yellow color; if pepper or urucu are added, color is deep reddish yellow. If crocus is adulterant, benzine is used. In doubtful tests, chloroform extract is evaporated, if urucu is present it turns blue, then clear brown. If pure, turns deep blue then dark brown.—ELSIOR CONTINHO. *Rev. assoc. brasil. farm.*, 18 (1937), 531. (G. S. G.)

Sideritis Scardica, a New Drug from Bulgaria. The pharmacognosy of the drug also called "Puringertee" is given in detail; the decoction has a sage-like taste, the drug yields 0.04% bright brown-yellow oil and tannins; and is used as a substitute for Russian tea.—FRANZ BERGER. *Pharm. Monatsh.*, 19 (1938), 5–6. (H. M. B.)

Stone, Silver and Bud Linden. In order to distinguish the official varieties (I) *Tilia platyphyllos* Scop. and *T. cordata* Mill from an adulterant (II), (the silver linden, *T. tomentosa* Mnch.), the following observations are made: (1) the underside of the bract in I is bare and in II covered with small stellate hairs and if the underside is scraped with a sharp knife these hairs collect

in the form of a small heap, (2) the flowers of II are hairy and show a compact structure, (3) II has 5–10 staminodia and the anther filaments are always shorter than the corolla leaves and (4) the odor and taste of II is not as pleasant and mild as that of I.—J. HALMAI. *Pharm. Monatsh.*, 19 (1938), 32. (H. M. B.)

Sugar Alcohols. XIV. The Isolation of Polygalitol from Polygala Senega and the Physicochemical and Biological Properties of Polygalitol. Polygalitol has been isolated from other species but since European species were difficult to obtain, it was of interest to try local varieties and the official one was chosen because as such it was more readily obtainable. Experimental procedure is reported, plates show crystals from *P. senega* and *P. amara*. The effect of sugar alcohols on the dissociation of boric acid is shown. Biological experiments included glycogen storage in livers and tissues of rats after polygalitol diet, respiratory quotients during fasting and after polygalitol, influence of polygalitol on blood-sugar level of rabbits, influence of polygalitol in insulin shock in mice. The authors' conclusions are as follows: 1. Polygalitol, the 1–5 anhydride of mannitol, has been isolated from the fresh leaves and stem and from the dried root of *Polygala senega* in pure form. 2. This anhydride occurs in the fresh flowering plant to the extent of approximately 2%. Calculated on the basis of air-dried plant this concentration is considerably higher than that previously reported for other Polygala species. 3. The discovery of this anhydride in other Polygala species may be anticipated. 4. Polygalitol is one of the few anhydrides of the sugar alcohols that possesses a sweet taste. 5. Polygalitol, in accord with theory, does not potentiate the dissociation of boric acid. 6. Polygalitol is not utilized as a carbohydrate in the animal body and in this respect resembles the other anhydrides of mannitol. 7. Certain bacteria possess the ability to utilize polygalitol with the production of acid and gas but are unable to utilize the other anhydrides of mannitol.—C. JELLEFF CARR and JOHN C. KRANTZ, JR. *J. Am. Pharm. Assoc.*, 27 (1938), 318. (Z. M. C.)

Ultraviolet Rays—Analysis by. Solanaceous drugs are particularly interesting when examined under the ultraviolet ray lamp. Stramonium extracts give a coffee-colored fluorescence; belladonna leaf extracts, a grayish pink; and belladonna root extracts, an intense blue that rivals quinine sulfate in intensity. Hyoscyamus gives a color that can best be described as old-rose and very different from that of *Hyoscyamus muticus* or Egyptian Henbane, which is a pure gray. A large proportion of the samples of tincture and liquid extract of hyoscyamus examined have given this gray fluorescence, forcing one to the conclusion that Egyptian Henbane is frequently substituted for the B. P. drug.—ANON. *Pharm. J.*, 140 (1938), 214. (W. B. B.)

Vegetable Drugs—Effect of Comminution and of Some Reagents upon Quantitative Data of Tissues in. Unground senna leaf having an epidermal area of 276 sq. cm. per Gm. showed a reduction of area after powdering to a No. 90 powder. When a hand-mortar (iron) was used it became 253.5 sq. cm.; with a disintegrator 247.4 sq. cm. and with an end-runner mill 210 sq. cm. showing losses of 8.0, 10.5 and 24%, respectively, due to the destruction of some of the epidermal cells. A further sample, having in the unground condition an epidermal area of 250 sq. cm. per Gm., was powdered in an end-runner mill, and then showed an epidermal area of 216 sq. cm. per Gm., equivalent to a loss of 13.6%. It is suggested that, for senna, an allowance of 12% might be made in estimating the epidermal area per Gm. of a No. 90 powder from the area ascertained for the unground drug. By inference this figure might be extended to other leaves, until further direct evidence is available. The epidermal area per Gm. of senna leaflets increased by 13% when kept in a moist atmosphere for 24 hours and this was increased to 16% after soaking in water for 24 hours. Leaflets soaked in water showed a further increase of area amounting to 3.3% when soaked in chloral hydrate solution (5:2) and on transferring them to a fluid consisting of glycerin 2 volumes, mucilage of tragacanth 1 volume, and water 2 volumes, the area decreased to only 2.3% above that of the leaflets soaked in water. Potassium hydroxide is destructive to the epidermis and reduced the recognizable epidermis of a No. 90 powder by 23.4%.—A. H. SABER. *J. Egypt. Med. Assn.*, 20 (1937), 111; through *Quart. J. Pharm. Pharmacol.*, 11 (1938), 146. (S. W. G.)

Viburnum Tinus—Extraction of a Crystalline Principle from, Viburnitol. The leaves, fruits and small branches of the tin laurel contain a cyclohexane-pentol, crystallizing in small colorless needles, very slightly sweet, boiling at 180–181° and optically active. The specific rotation for the D line is −49.5°. The formula is $CH_2 - (CHOH)_5 + H_2O$. It is the third known representative of the 16 possible stereochemical isomers; quercitol ($\alpha_D = +24°$) from the oak acorn and another isomer ($\alpha_D = -73.9°$) extracted from *Gymnema sylvatica* have already been

described.—H. HÉRISSEY and G. POIROT. *J. pharm. chim.*, 26 (1937), 385–397; through *Schweiz. Apoth.-Ztg.*, 76 (1938), 206. (M. F. W. D.)

Witch Hazel. The production of witch hazel in the United States is described. The uses are listed with the method of applying the quantity of witch hazel to be used.—ANON. *Chemist and Druggist*, 128 (1938), 722. (A. C. DeD.)

PHARMACY

GALENICAL

Extractive Preparations—Alcohol Content of. Attention is directed to the custom of manufacturers of stating alcohol content in a single figure and the N. F. method of using a maximum and minimum figure. Experimental work undertaken covers shrinkage of aqueous-alcoholic mixtures, experimental error by the official method for alcohol-content determinations, effect of solutes on volume increase and alcohol-content decrease and effect of moisture in the drug. Summarizing it was found that 50 and 60% alcohols (aqueous-alcoholic mixtures) show a decrease in volume of 3.15% over theoretical. Figures are given for other proportions also. Determination of C_2H_5OH content by the official method always gave results below theoretical. Average displacement by addition of tannin, dextrose, gentian extract, resin of ipomea and sodium chloride is given. Moisture in pilular extract from weak percolate influences alcohol content. There is evidence that a considerable proportion of the decrease in C_2H_5OH content of extractive preparations as compared with C_2H_5OH content of menstruum from which they are prepared is due to loss of alcohol by evaporation during manufacturing.—E. G. KING, LOUIS GOLDBERG, E. C. BEELER, R. K. SNYDER and E. N. GATHERCOAL. *J. Am. Pharm. Assoc.*, 27 (1938), 295. (Z. M. C.)

Syrupus Guareæ, D. A. K. The Danish Apothecaries Control Laboratory announces a new formula for syrup of guarea containing 0.2% ethyl morphine hydrochloride in place of diacetyl morphine.—ANON. *Arch. Pharm. Chemi*, 45 (1938), 397. (C. S. L.)

Syrupus Lobeliæ Compositus, D. A. K. The Danish Apothecaries Control Laboratory announces a new formula for a compound syrup of lobelia containing 0.2% ethyl morphine hydrochloride in place of diacetyl morphine.—ANON. *Arch. Pharm. Chemi*, 45 (1938), 397. (C. S. L.)

Tablets—Sizes and Weights of. Standards have been selected for all of the tablets of the British Pharmaceutical Codex and of the National Formulary. Examples are given which include most of the frequently prescribed tablets from the two publications. In each case, the weight of each tablet (in grains) and the diameter of the punch are given.—ANON. *Pharm. J.*, 140 (1938), 212. (W. B. B.)

Vitamin D—Stability of. The stability of crystalline calciferol in five different oily solvents was studied by biological assay over periods of 15 to 20 months. The stability of three samples of cod liver oil and of three samples of halibut liver oil was also observed. Deterioration was slight in the few cases where any could be detected. In most cases no loss of activity was found. The stability of cod liver and halibut liver oils fortified with crystalline calciferol is of about the same order as that of the natural oils over periods of 15 to 20 months under the conditions of storage described. For practical purposes it may be concluded that no depreciation has taken place.—H. M. BRUCE, E. W. KASSNER and G. E. PHILLIPS. *Quart. J. Pharm. Pharmacol.*, 11 (1938), 46–52. (S. W. G.)

NON-OFFICIAL FORMULÆ

Agents Used for the Care of the Mouth. Composition of tooth pastes, creams and pastes are discussed and the raw materials classified into polishing agents, substances used to impart consistence, thickeners, emulsifiers, antiseptics, coloring agents, perfumes and special substances. Twenty-five formulæ are offered.—EKMANN. *Riechstoff-Ind. Kosmetik*, 13 (1938), 57–62. (H. M. B.)

Astringent Formulæ. Astringents are available as powders (I), solutions (skin tonics) (II) and creams (III). I consists of suitable talc bases with the powdered astringent (aluminum subacetate) being preferred; II contains alcohol (20–50%), water, perfume, color, glycerin (5–10%), a small amount of boric acid to stabilize the solution; III may consist of the o/w or w/o

types of creams. The following formulæ are given: (1) alcohol 25.0, zinc chloride 1.0, glycerin 8.0, water 65.5, perfume 0.5; (2) petrolatum 59.0, lanolin 25.0, glycerin 15.0, balsam Peru 0.5, perfume 0.5; (3) absorption base 50.0, mineral oil 5, aluminum acetate solution 20%, 25, water 19.5, perfume 0.5; (4) witch hazel 20.0, alcohol 10.0, water 68, boric acid 0.2, aluminum sulfate 1.5, perfume 0.3.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 42 (1938), 592–593. (H. M. B.)

Cosmetics for the Skin. Shaving Soaps. (*Cont.*) Methods and formulæ for the preparation of shaving soaps are described in detail.—H. JANISTYN. *Seifensieder-Ztg.*, 64; *Der Parfümeur*, 11 (1937), 577. (N. L.)

Lubricating Creams—Proved Methods for. A discussion with the following formulæ: (1) Glyceryl monostearate 12 parts, cetyl alcohol 7, lanolin 10, vegetable oil 10 and water 70.5; (2) Paraffin 10 parts, lanolin 35, mineral oil 15, vegetable oil 10, water 25. This yields a yellowish hard cream.—ANON. *Riechstoff-Ind. Kosmetik*, 13 (1938), 26. (H. M. B.)

Make-up for the Eyes. "Soap" and cream mascaras, eyebrow pencils and eyeshadows are discussed as to composition. The following formulæ are offered: *Mascara.*—Pigment 10, beeswax 36, carnauba wax 9, triethanolamine 13.5, stearic acid 31.5. *Eyebrow Pencil.*—Pigment 25, carnauba wax 35, beeswax 15, mineral oil 25. *Eyeshadow.*—Hydrogenated oil 45, mineral oil 10, beeswax 20, paraffin 5, ozokerite 5, color 15.—H. HILFER. *Drug and Cosmetic Ind.*, 42 (1938), 576–577, 585. (H. M. B.)

Tested Formulæ Dentifrices. A tooth powder should contain an abrasive and a detergent; a paste at least 40% abrasive material, soap or other detergent 20%, gum (tragacanth, karaya, Irish moss, etc.) or starch with glycerin and water as excipient, a small amount of mineral oil as a lubricant. The following tested formulæ are offered: *Tooth Powders.*—(1) Precipitated chalk 89.0, neutral powdered soap 10.5, flavor 0.5; (2) Precipitated chalk 75.3, magnesium carbonate 6.5, sodium bicarbonate 8.7, neutral powdered soap 9.0, flavor 0.5; (3) Tricalcium phosphate 58.0, dicalcium phosphate 34.0, neutral powdered soap 7.5, flavor 0.5; (4) Precipitated chalk 68.1, magnesium oxide 2.3, sodium bicarbonate 13.6, sodium chloride 15.5, flavor 0.5. *Tooth Pastes.*—(1) Dicalcium phosphate 60.0, tragacanth 0.6, karaya 1.2, mineral oil 1.0, glycerin 25.0, water 11.6, flavor 0.5, preservative 0.1; (2) Precipitated chalk 35.0, tricalcium phosphate 4.0, magnesium hydroxide 4.0, starch 4.5, tragacanth 0.1, powdered soap 1.1, glycerin 27.5, water 23.2, flavor 0.5, preservative 0.1; (3) Precipitated chalk 38.0, magnesium hydroxide 5.0, neutral powdered soap 5.0, starch 6.5, glycerin 30.0, water 14.8, flavor 0.5, preservative 0.1; (4) Precipitated chalk 51.9, magnesium carbonate 5.0, neutral powdered soap 5.0, tragacanth 1.5, glycerin 32.0, mineral oil 2.0, water 2.0, flavor 0.5, preservative 0.1. The tooth pastes are made by mixing the powder ingredients with the flavor separately; make a jelly of the gum, glycerin, soap and preservative by mixing the gum or starch with the glycerin, water and oil and heating to about 120° C. and stir until homogeneous and then grind the powder into the jelly when cold.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 42 (1938), 454–455. (H. M. B.)

Tested Formulæ Shampoos. The sodium, potassium and triethanolamine soaps were prepared from stearic, oleic and myristic acids, from the fatty acids of tallow, palm, coconut and olive oils and their properties are described. The potassium and sodium soaps showed p_H's from 8–10; the triethanolamine soaps about 7 when diluted. The latter soaps of myristic acid and the coconut and olive oil fatty acids may be used alone to give good shampoos. The best shampoo soap is one that will give a heavy lather quickly, is sufficiently soluble to give a clear solution and has a minimum p_H. The following tested formulæ are offered: (1) Coconut fatty acids 11.1, myristic acid 3.9, triethanolamine 10.0, water 75.0; (2) Coconut fatty acids 12.1, olive fatty acids 3.4, triethanolamine 9.7, water 74.8; (3) Coconut fatty acids 7.4, myristic acid 10.1, triethanolamine 5.1, potassium hydroxide 2.4, water 75.0; and (4) Coconut fatty acids 14.7, olive fatty acids 4.2, triethanolamine 2.0, potassium hydroxide 4.1 and water 75.0.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 42 (1938), 320–321. (H. M. B.)

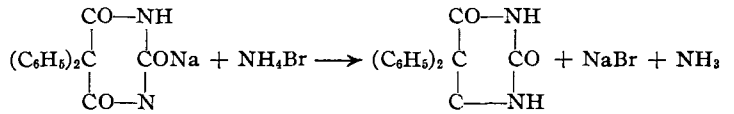
DISPENSING

Belladonna Root—Bulgarian. Decoction of Bulgarian belladonna root has been further discussed, and the rationale of its method of preparation reviewed. Two samples of the drug have been extracted in each of six different ways, all modifications of the original method, and the results compared with Belladonna Radix B. P. similarly extracted. Each preparation was assayed for its total alkaloidal content, using the B. P. method, suitably modified in each case to

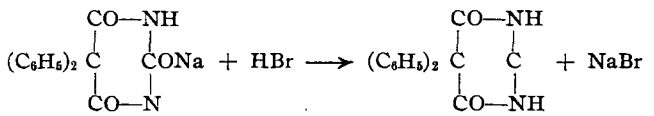
deal with the preparation under assay. Clinical trials (the results of which are not yet available for publication) suggest that patients suffering from the Parkinsonian syndrome can tolerate extremely large doses of belladonna alkaloids when these are administered in the form of a 5% extract in white wine or other similar menstruum. The alkaloids of the Bulgarian root appear to be identical with those of the other belladonna roots of commerce, and all of these roots yield extracts with similar properties, so far as can be judged by the experiments undertaken. It is suggested that simple maceration of the root for twenty-four hours, followed by filtration, yields a preparation which represents the maximum available amount of alkaloid from the root, is active and does not ferment or decompose when stored at ordinary temperatures for fairly long periods (several months). There is no need to store in a refrigerator if the extract is made by this method as no starch is taken into solution, and there is no loss of alcohol by boiling as there is in making the decoction. The white wine may possibly be advantageously replaced by 1% acetic acid, with the addition of a small proportion of alcohol or chloroform as preservative.—A. E. BAILEY. *Pharm. J.*, 140 (1938), 567. (W. B. B.)

Chromatographic Adsorption Analysis in Pharmacy. IV. Quantitative Investigation of Several Alkaloidal Pharmaceutical Preparations. The authors demonstrate the value of chromatography in the quantitative evaluation of various drugs for alkaloidal content. Advantages of this method over that of the D. A. B. VI are: economy of material, not more than 10 cc. of tincture or 0.1 to 0.5 Gm. of extract being required; economy of time, 25 minutes sufficing to complete the assay; no organic solvent other than 50 cc. of 70% alcohol is required; elimination of the irksome repeated extractions, filtrations and clarifications common to the D. A. B. methods. Chromatograms of the fractional extracts indicate that ten extractions exhaust a preparation of alkaloid completely, the principal quantity of alkaloid appearing in fractions four to six. Tabulations of repeated chromatographic analyses for tinctures or extracts of ipecac, nux vomica and cinchona illustrate how closely they are in agreement with the alkaloidal assays of the D. A. B. VI for these same preparations.—K. W. MERZ and R. FRANCK. *Arch. Pharm.*, 275 (1937), 345. (L. L. M.)

Dispensing Difficulties. Incompatibilities of soluble phenobarbitone seem to occur fairly frequently. They have been of two kinds, the soluble phenobarbitone being prescribed with ammonium bromide or in acid solution. The reaction between ammonium bromide and soluble phenobarbitone may be represented as follows:



and in the cases of an acid:



In aqueous mixtures phenobarbitone is precipitated when occurring in such examples as mentioned above since it is soluble in water only to the extent of about 1 in 1000. When ordered with ammonium bromide, permission should be sought to substitute sodium or potassium bromide. When prescribed with acid preparations a suspending agent, such as mucilage of tragacanth, may be used to ensure even distribution of the precipitate. About half a dozen other prescriptions are listed and the incompatibilities occurring therein discussed, and remedies suggested.—C. GUNN. *Pharm. J.*, 140 (1938), 212. (W. B. B.)

Posterior Pituitary and Its Preparations. A review with twenty-five references.—R. WASICKY. *Pharm. Monatsh.*, 19 (1938), 21–26, 41–45. (H. M. B.)

Silica Gel—Value of, as Excipient for Ointments. Sodium silicate is treated with hydrochloric acid to form a gel which is filtered on a Büchner filter, washed and mixed with glycerin to give a gel having the consistency of petrolatum. Formulæ are given for utilizing this gel as an ointment base. The ointment may be washed from the skin with water. No report is made on its therapeutic efficacy.—PERONNET and GENET. *J. pharm. chim.*, 26 (1937), 490–497. (S. W. G.)