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PHARMACEUTICAL ABSTRACTS

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ABSTRACTORS

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PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY (*Continued*)

Naphthalene Series—Anesthetic Substances in. Alkyl and alkylaminoalkyl esters of 1-amino-4-naphthoic acid have local anesthetic activity, the activity being greatest in the dialkylaminoalkyl esters. The β-diethylaminoethyl-, γ-diethyl-amino-β,β-dimethyl-*n*-propyl-, β-diethylamino-α-methyl-ethyl and γ-dimethyl-amino-α,β-dimethyl-*n*-propyl esters of 1-amino-4-naphthoic acid have been prepared and their hydrochlorides examined for local anesthetic activity and compared with cocaine hydrochloride. The hydrochloride of the β-diethylaminoethyl ester of 1-amino-4-naphthoic acid was similar in local anesthetic activity to cocaine hydrochloride.—S. I. SERGIEVSKAYA and V. V. NESVADIBA. *J. Gen. Chem.*, Moscow, 8 (1938), 924; through *Quart. J. Pharm. Pharmacol.*, 12 (1939), 145. (S. W. G.)

Octyl Nitrite. Octyl nitrite is still in the experimental stage, but the indications are that it may have a useful place in the treatment of effort angina. It is a volatile substance used on saturated pledgets of cotton in a convenient glass tube inhaler similar to the familiar pocket devices employed for the treatment of nasal catarrh. Chemically it is 2-ethyl-*n*-hexyl nitrite, the nitrous acid ester of one of the isomeric octyl alcohols, and is a liquid boiling at about 120° C. Results show that it is less potent than amyl nitrite and less volatile, that for a given degree of vasodilation the nitrite content of the blood is lower after this compound than after amyl nitrite, that there is less hemoglobin formed, and that its duration of action is considerably longer.—ANON. *Pharm. J.*, 142 (1939), 214. (W. B. B.)

Œstron—Action of, upon the Epididymis. The over enlargement of the male genital apparatus by œstron is already known. This was also demonstrated upon the epididymis of the castrated rat. Noncastrated young dogs show the same picture. This action is likewise seen upon the retarded development of the Wolffian duct.—I. S. SINDRAM, L. A. VAN DER WOERD and S. E. DE JONGH. *Arch. intern. pharmacodynamie*, 61 (1939), 380. (W. H. H.)

Phenolphthalein—Bioassay of, Using the Rhesus Monkey. Desiring a satisfactory method of evaluating laxatives, choice was made of the monkey as a test animal because the literature indicated least objection to them. Considerable detail is reported because of using an animal not commonly used. Consideration is given to the animals themselves, their housing and care, diet, technic and standardization of them. Results are shown by several tabulations and exact procedure is given. It is believed that the rhesus monkey is as near the ideal test animal for laxatives as it is possible to find as "mg. per Kg. doses required by the monkey when calculated on the basis of the human are practically identical." The method used was satisfactory. Individual monkeys require different threshold doses. It is thought the method may be applicable to other laxatives.—K. A. BARTLETT and R. H. HERBINE. *Jour. A. Ph. A.*, 28 (1939), 412. (Z. M. C.)

Picrotoxine—Botulinism and. Picrotoxine administered during the phase of stimulation in botulinal intoxication enhances the toxicity of the latter; but administered at intervals during the transition or the depressed phase in small amounts it antagonizes the toxic action of botulinus and delays the terminal event.—A. H. MALONEY. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 392. (A. E. M.)

Placento-Urinary Extracts—Biological Testing of Gonadotropic Activity of. The more precise method of testing consisted of determining the accurate weight of the immature female rat uterus, and the percentage of ovulation in the rabbit by referring to a standard as the activity between 3 and 5 gamma for the first method and of 1 gamma for the second. Commercial preparations are about 7 to 900 times more active.—R. CAHEN and P. ARDOIN. *Soc. de Biol.*, (March 11, 1939); through *Presse Medicale*, 22 (1939), 427. (W. H. H.)

Posterior Pituitary—Pathological Conditions Produced by Injections of. L. pointed out the lack of knowledge concerning the clinical symptoms resulting from a hyperfunction of the posterior pituitary gland. L. drew the following several conclusions from a detail review (48 references) of the published work concerning the pathological states produced by the administration of relatively large doses of the pressor principle of the posterior pituitary. *First*, although it has been shown that the liberal administration of this hormone results in gastric erosion, renal damage and changes in the blood picture, it is as yet impossible to state the clinical significance of these changes. *Second*, even though a hyperfunction of the posterior pituitary has been postulated as a basis for eclampsia, hypertension, anemia and achlorhydria, it has been impossible to definitely demonstrate the presence of the hormone in the body fluids of persons suffering from these diseases. *Third*, a solution of the problem was deemed unlikely until more is known concerning the identification of the active principle of the hormone.—SHIH-HAO LIU. *China Med. J.*, 55 (1939), 448–464. (W. T. S.)

Pyrazolone Compound—New. Good results are reported from the use of the new analgesic Temagin. According to data supplied by the firm preparing it, it contains phenylmethylcyclotetramethylenepyrazolone 0.15, *p*-acetophenetidine 0.25, caffeine 0.05 and diethylbromoacetylcarbamide 0.10.—H. BUSCH. *Fortschr. Therap.*, 13 (1937), 529; through *Chem. Abstr.*, 33 (1939), 7043. (F. J. S.)

Snake Venon. II. The experiments described tend to prove that the various neurotoxins of snake venoms have normal -S-S- groups which are of decisive importance for the activity of the venoms. The facts observed by Michel seem to confirm this hypothesis.—K. H. SLOTTA and H. L. FRAENKEL-CONRAT. *Ber. Deut. Chem. Ges.*, 71 (1938), 264–271; through *Chimie & Industrie*, 40 (1938), 530. (A. P.-C.)

Sodium Chloride Excretion—Denervation of Kidney and. An operation for exteriorization of the ureters in the dog is described. The effects of adding sodium chloride to the diet of dogs with one kidney denervated have been found to be in opposite directions in the unilaterally denervated dog as compared to the normal. After denervation the excretion of added salt occurs sooner than in the normal animal. The reversal of effects affects both kidneys in the unilateral denervated dog. There is evidently a coördinating mechanism of a humoral nature between the kidneys. This is associated with the renal nerve supply.—G. P. GRABFIELD and D. SWANSON. *Arch. intern. pharmacodynamie*, 61 (1939), 92. (W. H. H.)

Sulfapyridine—Absorption and Excretion of. Maximum concentrations of the drug in the blood were found 4 hours after ingestion, namely, 2.7 and 2.9 mg. %. The concentration fell off to 1.5 and 2.1 mg. at the end of 12 hours. Urinary excretion accounted for 60 to 65%. Approximately 75% of the drug found in the urine was in the conjugated form.—L. H. SCHMIDT and HETTIE B. HUGHES. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 409. (A. E. M.)

Testosterone and Prolane—Action of Zinc on the Effects of. Using testosterone propionate in rats,

3 mg. of zinc sulfate greatly increased the action of 16-mg. doses. A similar augmentation was shown with prolane.—ACH. URBAIN, R. CAHEN, M. A. PAWQUIER and J. NOUVES. *Compt. rend.*, 207 (1938), 941. (G. W. H.)

Testosterone Propionate—Production of Oligospermia in a Man by the Use of. Daily subcutaneous injections of 10 to 25 mg. of testosterone depressed, in repeated series of treatment, the spermatozoa count in a 67-year old man.—NORRIS J. HECKEL. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 658. (A. E. M.)

Thyroxin—Effect of, on Eruption of Teeth in Newborn Rats. The rate of incisor teeth eruption in newborn rats is markedly accelerated by thyroxin; time of eruption varying with the dosage used. The use of this observation as a method of standardization of thyrotropic hormone was unsuccessful.—D. KARNOFSKY and E. P. CRONKITE. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 568. (A. E. M.)

Vitamin K—Possible Effects of, on Prothrombin and Clotting Time in Newly Born Infants. In two infants an abnormally high prothrombin time and clotting time was strikingly reduced by administration of a concentrate rich in vitamin K.—WILLIAM W. WADDELL, JR., DUPONT GUERRY III, WILLIAM E. BRAY and ORVILLE R. KELLEY. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 432. (A. E. M.)

Watermelon Diuresis—Study of. The authors state that watermelon juice apparently contains a volatile diuretic constituent which is also present in distilled juice but which disappears upon aging of the melon. This volatile component exerts a slight diuretic activity, probably by its irritant action. The diuretic principle is not present in extracts of the juice and seeds. It was found further that vacuum distillates, alcohol and ether extracts of watermelon juice and the whole juice are not injurious to the canine kidney.—CHARLES ROBZ, JULES H. LAST and CARL PFEIFFER. *Am. J. Pharm.*, 111 (1939), 68. (R. R. F.)

TOXICOLOGY

Air Pollution. The problems of various industries are discussed.—A. C. MONKHOUSE. *Chemistry and Industry*, 58 (1939), 596–600. (E. G. V.)

Alkaloids of Lycopodia—Toxicity of the. The alkaloids of lycopodia can be grouped as follows: (1) annotine, clavatine, complanatine and inundatine; (2) selagine, which is similar in action to pillijanine. Selagine is approximately twenty times as toxic as the other alkaloids, from which it also differs through its power to contract the pupil.—P. OFICJALSKI. *Bull. sci. pharmacol.*, 44 (1937) 470–475; through *Chimie & Industrie*, 40 (1938), 936. (A. P.-C.)

Benzene Hemopathy—Study of Twenty-Six Cases of. The following conclusions are given: The series of examinations of benzene intoxications has led to conclusions which differ on certain points from the accepted views. The results indicate that leucopenia and granulopenia are not the first symptoms, but that thrombopenia with prolongation of the coagulation time is the first danger signal. The eosinophilia was noted as a relative and not an absolute eosinophilia. The anemias found in the severe cases were aplastic hyperchrome anemias. The bleeding times were found to be prolonged, with a proportional diminution as the hemogram returned to normal. Transfusion was found to be the best therapeutic treatment; while disastrous results were observed with arsenic treatments.—MIGNOLET. *J. pharm. Belg.*, 21 (1939), 107–111, 123–128, 141–144, 159–164, 179–183. (S. W. G.)

Cobalt and Nickel—Comparative Toxicities of. In animals cobalt is always less toxic than nickel, the latter causing the appearance of definite symptoms of intoxication much sooner than the former. The fatal doses in dogs are 10–20 mg. per Kg. for nickel, and 30 mg. per Kg. for cobalt. These doses were determined by intravenous injection of solutions of the chlorides into anesthetized animals. The histologic lesions of the liver and kidneys are more pronounced after administration of nickel than after equivalent quantities of cobalt. In equal doses, cobalt chloride activates the salivary and pancreatic amylases to a greater extent than does nickel chloride. The author suggests that where it is feasible cobalt should be utilized in catalyzed processes where nickel is now employed.—F. CAUJOLLE. *J. pharm. chim.*, 29 (1939), 410–413. (S. W. G.)

Congo Red—Toxicological Studies on. Long known as a reagent, in recent years it has been used therapeutically. Potency and toxicity of samples obtainable on the open market and reports of bad effects from intravenous injection led to a thorough investigation. Experiments on blood coagulation and toxicity for cats and mice were determined. Two things were determined: There is a striking difference in toxicity of various lots; toxicity is due partly to congo red molecule itself but it is increased by impurities. Experiments *in vitro* show that even in great dilution it hastens coagulation but strong concentrations may even keep the blood permanently fluid. Intravenous use should be with caution. Only the purest dye should be used. Safest concentration must be determined in each individual case. Combining with an anticoagulant might be considered.—DAVID I. MACHT, WILTON C. HARDEN and MARY L. GRUMBEIN. *Jour. A. Ph. A.*, 28 (1939), 495. (Z. M. C.)

Insecticide. Living organisms are destroyed by subjecting them to the action of a gas comprising 1 ounce of hydrocyanic acid and 8 ounces of methyl bromide per 1000 cubic feet of space.—VALDEMAR A. JOHNSON, dedicated to the free use of the People in the territory of the U. S. A. U. S. pat. 2,147,947, Feb. 21, 1939. (A. P.-C.)

Insecticide—New Vegetable. The insecticide in question consists of an infusion of bulbs of *Cyclamen elegans* Boiss. The toxic principle seems to be the saponin $C_{25}H_{42}O_{12}$. It can be prepared from either the fresh or the dry bulbs. It is very effective against fruit tree parasites such as the various *Paratetranychus.*—I. V. PYLNOV. *Sovet. Subtropiki*, (1938), No. 1, 83–87; through *Chimie & Industrie*, 40 (1938), 998. (A. P.-C.)

Ketene—Action of, on Gonococcus and Meningococcus. Acetylation with ketene reduced the toxicity of gonococcus and meningococcus cells temporarily to an appreciable degree.—ALDEN K. BOOR and C. PHILLIP MILLER. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 512. (A. E. M.)

Lead Poisoning. Figures for lead content of blood and excreta of twenty-nine cases of suspected lead poisoning, of which eleven were finally diagnosed as plumbism, are given. Some improvements in the method of estimation of lead are described. In ten of the cases of poisoning the blood lead was greater than 100 mg. per 100 cc. of blood and varied from 100 to 400 mg. Total daily excretion in urine and feces varied from 0.22 to 2.82 mg. and did not run parallel to the level in the blood. The remaining patient showed a blood lead of only 75 mg. but a daily excretion of 1.27 mg. It is suggested that more than 100 mg. of lead per 100 cc. of blood or a total daily excretion of 1 mg. or more of lead indicates lead poisoning.—S. L. TOMPSETT and A. B. ANDERSON. *Lancet*, 236 (1939), 559. (W. H. H.)

Liquid Chlorine. A Critical Review of Chlorine Specifications and Accidents. The general stipu-

lation in specifications "not less than 99.5% pure" is much too liberal as 0.2% impurities cause difficulty in feeding with a chlorinator. A method and apparatus for the gravimetric determination of total organic impurities in liquid chlorine is described. Ten liters of liquid chlorine are evaporated at atmospheric pressure (−34.6°/760 mm.) in a twelve-liter flask fitted with a reflux condenser refrigerated by brine cooled by evaporating solid carbon dioxide (−78.5°). When the volume is 400 cc. or less, it is transfered to a 500-cc. weighed flask and the remaining chlorine evaporated off through a reflux condenser and the impurities remaining in the flask are weighed. The chief impurities are ferric chloride, carbon tetrachloride, chloroform and C_2Cl_6 formed during the manufacture by the action of chlorine on packing, lubricants, resinous seaking compounds, etc.; by the new purification processes they are not more than 0.01 weight-%, which is found quite satisfactory for use in chlorinators for water purification. Accidents are discussed and preventive comments made. Disposal of leaky cylinders by throwing into water is useless unless the temperature is less than 9.3°, as chlorine is only sparingly soluble. Use of 1.25 pounds of calcium oxide or sodium hydroxide per 1 pound of chlorine is better.—L. L. HEDGEPETH and W. S. RIGGS. *J. Am. Water Works Assoc.*, 30 (1938), 1671–1683; through *J. Soc. Chem. Ind.*, 58 (1939), 36.
(E. G. V.)

Mineral Substances—Effect of Grinding on the Solubility of, and on the Toxic Character of the Resulting Dusts. The fact that long grinding of silica increases its solubility over that of crystalline silica may go far to account for the poisonous character of the dust. Silicotic lung tissue generally contains a large quantity of microcrystalline material, which cannot be identified. It is possibly silica in the crystalline condition, separated from the lung fluids, which have been in contact with the mechanically transformed silica, and so become supersaturated. The presence of the microcrystalline material has probably no connection with the toxic property of the silica.—M. W. TRAVERS. *Chemistry and Industry*, 58 (1939), 226.
(E. G. V.)

Nickel—Toxicology of. Because of the reflex action of nickel salts causing evacuation of the material when introduced by stomach tube, all doses were administered by intravenous injection into the central extremity of the saphenous vein of the anesthetized dog. Known quantities of nickel salts were administered in isotonic solutions prepared with sodium chloride. The biliary and urinary excretions were examined for nickel by the following procedure: Destroy the organic matter by ignition at a low temperature, take up the nickel by exhausting with hydrochloric acid containing 5% of nitric acid. Concentrate the combined acid solutions on a water bath, add a large excess of ammonium hydroxide solution, filter to remove the precipitated ferric hydroxide, and wash carefully with ammonium hydroxide solution. Add an excess of lime water to the combined ammoniacal solutions then boil for half an hour. The precipitate that forms, and contains all the nickel, is redissolved in hydrochloric acid, the nickel is precipitated as the sulfide which is converted to the oxide by roasting in a muffle. The nickel oxide is dissolved in diluted hydrochloric acid; the solution is made slightly ammoniacal, then an excess of a 2% solution of dimethylglyoxime in alcohol is added. The precipitate is collected on a tared sintered glass filter, dried at 100–102°, and weighed. The localization of nickel was found to be electively effected at the level of the emunctories, and that they present an efficacy which is elevated as in the kidneys or restrained as in the liver. The fixation of nickel in the cerebral matter is very low; at any rate when the chloride is administered. Appreciable amounts of nickel are always fixed in the cardiac tissues. The endocrine glands retain small amounts of the metal. Nickel was observed to exhibit a high toxicity, 10–20 mg. of the metal per Kg. of animal being fatal. The following reactions were noted: spasms, vomiting, usually diarrheic evacuation, slobbering, the latter two are sometimes bloody. The respiratory nerve centers and those of the cardiac center are affected. Nickel is removed by all evacuating means, but as the action of the metal is intensified the elimination is slower and biliary elimination is almost completely blocked.—F. CAUJOLLE and G. CANAL. *J. pharm. chim.*, 29 (1939), 391–405. (S. W. G.)

Parsley—Contamination of, by Arsenic. Samples of fresh herb parsley were obtained for investigation of the arsenic content. Portions of leaf and stalk were found to contain 1 part of arsenic per million determined on the fresh material; portions of root stock with a little adhering earth were found to contain 1.5 parts per million. Fresh parsley normally loses on drying from 60 to 80% of its weight, so that the figures show that the arsenic in the dried sample is a constituent of the fresh material. These facts would seem to indicate the need for an investigation of the possibilities of assimilation of arsenic by this particular plant.—J. M. ROWSON and C. E. WATERHOUSE. *Pharm. J.*, 142 (1939), 329. (W. B. B.)

Pests and Parasites. A review, including progress of work on insecticides and spraying.—J. C. F. FRYER and H. W. MILES. *J. Roy. Agri. Soc.*, 99 (1938), 380–414; through *J. Soc. Chem. Ind.*, 58 (1939), 530. (E. G. V.)

Phenylpropylamines—Toxicity of the. Values are expressed as mg. per kilo for the guinea pig. α-Phenylpropylamine, $C_6H_5CH(NH_2)C_2H_5$, minimum lethal dose—intracardiac 50, subcutaneously 160, by stomach 330; the minimum toxic doses by the same routes are, respectively, 7.5, 50, 300. β-phenylpropylamine (benzedrine), $C_6H_5CH_2(NH_2)$-CH_3, minimum lethal doses—20, 20, 200; minimum toxic doses 5, 7.5 40. γ-Phenylpropylamine, $C_6H_5(CH_2)_3NH_2$, minimum lethal doses 30, 200, 1000; minimum toxic doses 5, 100, 1000.—A. LUMIÈRE and P. MEYER. *Compt. rend. soc. biol.*, 128 (1938), 680–682; through *Chimie & Industrie*, 40 (1938), 1143. (A. P.-C.)

Sulfanilamide, Phenothiazine and Thionol—Effects of, in Experimental Trichinosis. Sulfanilamide, given at a rate of 0.96 Gm. per Kg. weight daily for 6 weeks reduced the number of trichinella encysting in the muscles of rats by 55%. Phenothiazine given at one-tenth of that dosage caused a reduction by 74%. Thionol was of little efficacy.—JAMES B. MCNAUGHT, RODNEY R. BEARD and FLOYD DEEDS. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 17. (A. E. M.)

Sulfanilamide—Toxicity of. Single doses of a drug do not give a true indication of its toxicity. Sulfanilamide has a cumulative toxicity in rabbits. It was tolerated better on a cabbage diet than on an oat diet. In hens, neuromuscular weakness suggestive of—but not proved to be—eripheral neuritis, together with emaciation leading to death in one to four weeks, was produced. Disulfanilamide was less toxic in both rabbits and hens, but also had cumulative and delayed toxic effects. Relatively large doses (1/2 to 1 Gm. per kilo. for ten days) were given. Since no similar effects in man have been recorded, these experiments are not to be taken as having clinical implications. The histo-pathological changes in the various organs and tissues were studied in detail. Hens showed more marked

changes, namely, fatty liver, fat and hemosiderin deposits in the kidneys, hemosiderin and Kupfer cells in the spleen, peripheral neuritis and hypoplasia of the bone marrow. In rabbits the changes were similar but less marked. In rats only minor changes were seen. Only in one case (rabbit) was there a degenerative change in voluntary muscle. Changes in the central nervous system were rare in all animals.—S. M. ROSENTHAL. *Pub. Health Reports of U. S. A.*, 54 (1939), 95; through *Brit. Med. J.*, 4081 (1939), 656G. (W. H. H.)

Veratrum Viride and Veratrum Album—Physiological Evaluation of. I. Toxicity. The authors' summary and conclusions from this research are as follows: (1) A physiological method has been devised for the comparative evaluation of the toxicity of preparations of *Veratrum viride* and of *Veratrum album* using *Daphnia magna*, the transparent crustacean, as a test animal. (2) The action of the extracted veratrum principles upon the locomotion of standardized daphnia is so marked that the degree of impairment of this function (which is also related to the degree of internal depression) can be used quantitatively in comparing the potency of veratrum preparations. (3) This impairment of internal organs is shown most strikingly in the depression of the cardiac and respiratory systems, which is of equally important diagnostic importance. (4) Preparations of *Veratrum viride* made under like conditions from the same source of material show uniform potency. (5) A preparation of *Veratrum album* made under similar conditions revealed a potency of at least 2.5 times greater than the preparations made from *Veratrum viride*, and a potency of at least ten times that of a certain *V. viride* preparation made under different conditions. (6) This varying potency has been verified by toxicity tests made upon the albino rat, guinea pig and rabbit. (7) The depressant action of *Veratrum viride* and of *V. album* on the locomotory, cardiac and respiratory systems of *Daphnia magna* has been corroborated using the albino rat, guinea pig and rabbit. For the precise measurement of cardiac depression in the rat, the newly devised stethographone was used. —ARNO VIEHOEVER and ISADORE COHEN. *Am. J. Pharm.*, 111 (1939), 86. (R. R. F.)

THERAPEUTICS

Achlorhydria in Diabetics. Of one hundred and sixteen diabetics selected at random sixty-five (56.3%) showed achlorhydria after a coffee test meal; twenty (17.2%) showed hypochlorhydria; and the remainder hyperchlorhydria or a normal gastric juice. Untreated diabetics and those reacting to insulin were more frequently achlorhydric than those resistant to insulin. Of those diabetics who suffered from diarrhea 70.5 to 78% were achlorhydric. This suggests that the diarrhea of diabetics is of gastrogenic origin.—E. FENZ. *Wien. Arch. inn. Med.*, 32 (1938), 283; through *Brit. Med. J.*, 4080 (1939), 598H. (W. H. H.)

Allergy—Treatment of, with Potassium Chloride. The authors treated 61 cases of hay fever with potassium chloride given orally, and the great majority of the patients reported considerable relief. Other acute allergic conditions were also treated experimentally with this salt, and many obtained relief. The best results were obtained in acute conditions, and chronic allergic states did not show any benefit. Chronic asthma was practically unaffected by this type of treatment. The basis for this method of treating acute allergic conditions is a theory that many of the cases are due to a faulty metabolism of electrolytes by the body. Potassium is not normally used, and therefore must be supplied in increased amounts. The medication is given in 5-gr. doses, repeated to effect. In order to avoid gastric irritation, the salt should be dissolved in water before it is administered. Bloom (*J. A. M. A.*, 113, 1507) states that other workers who have tried this system have, however, not always had as satisfactory results as himself.—B. BLOOM and S. J. GAUMAN. *Southwestern Med.*, 23 (1939), 205; through *Abbott Abstract Service*, (1940), No. 563. (F. J. S.)

Aluminum Hydroxide (Colloidal) in the Treatment of Peptic Ulcer. Observations on a number of patients indicate that aluminum hydroxide gel is an effective substance for neutralizing the gastric contents, that it is a valuable adjuvant in the treatment of peptic ulcer, and that it is not liable to cause alkalosis.—T. I. BENNETT and A. M. GILL. *Lancet*, 236 (1939), 500. (W. H. H.)

Anemia and the Pharmacist. Diagnosis, classification and subsequent treatment of anemia are, to a large extent, dependent on the results of biochemical determinations. For success in the treatment of anemia it is first essential to obtain information about the number and size of the red blood cells and the concentration of hemoglobin in the blood. Analysis of gastric contents is of great diagnostical value in cases of suspected pernicious anemia. It has been shown that atrophy exists in cases of this type in all the coats of the stomach wall and is localized to the region of the mucosa. Urine tests are of much less importance than hematological or gastric estimations, nevertheless such tests are supplemental aids. The determination of the vitamin C excreted by the urine is helpful as a diagnostic aid of malnutritional and anemic conditions. The success of medicinal therapy of anemia with iron is said to depend on the ability of the preparation to yield free ions. Ferrous salts are used in preference as they are more readily ionized and less readily hydrolyzed than ferric salts, and remain longer in the circulation than such complex salts as iron and ammonium citrate. It was found that a solution containing 2.5% ferrous sulfate, 0.2% citric acid and 2% dilute sulfuric acid remained free of fungual growth. The intensity of the color, a pale green, was permanent, and the solution was found to be stable for at least four months.—H. W. TOMSKI and L. J. WALLER. *Pharm. J.*, 142 (1939), 239. (W. B. B.)

Anesthesia—Basal, Pentothal Sodium Administered Rectally in. Departing from the usual routine of using Pentothal Sodium intravenously as an anesthetic, the author dissolved the material in an aqueous medium and instilled the solution into the rectum as a basal anesthetic which was later supplemented with ethylene, ether cyclopropane or local anesthesia. The average dose was 1 Gm. for each 50 pounds of body weight. Weinstein found that this gave a satisfactory basal anesthesia; there was a complete absence of excitement; relaxation was increased and the need for a supplementary anesthetic was diminished. No depression of the blood pressure was observed, and respiration remained normal or became slightly depressed. The narcosis secured by this means was of short duration, and recovery took place rapidly and without excitement. Preoperative apprehension was reduced. This node of administration also finds a use in the treatment of alcoholic delirium and convulsive states requiring a depressant agent.—M. L. WEINSTEIN. *Anesthesia and Analgesia*, 18 (1939), 221; through *Abbott Abstract Service*, (1940), No. 557. (F. J. S.)

Antimalarial Drugs—Comparison of Their Effectiveness. C. has abstracted 30 representative reports from various parts of the world which gave an evaluation of the prophylactic and curative properties of the commonly used antimalarial drugs. From these reports it was gathered that the use of

drugs in the field is growing in importance with quinine or atebrin being the choice depending on the cost factor. Some of the reports were concerned with the therapeutic effectiveness of certain combinations of cinchona alkaloids, prontosil, plasmochin and several new synthetic antimalarials. Each report gave such pertinent information as to the type of malaria found, the name and dosage of the drug used and the results obtained therefrom.—HERMAN C. CLARK. *Southern Med. J.*, 32 (1939), 685–689. (W. T. S.)

Antimalarial Drugs—Effect of, on the Infectivity of Patients to Mosquitoes. II. Cilional. Cilional, a new drug manufactured by Bayer and Company did not prevent the development of crescents in *Anopheles stephensi* fed on patients under treatment with Cilional 0.02 Gm. plus atebrin 0.1 Gm. 3 times a day for 5 days.—R. N. CHOPRA and B. C. BASU. *J. Malaria Inst. India*, 1 (1938), 351–352; through *Chem. Abstr.*, 33 (1939), 2585. (E. G. V.)

Antimalarial Drugs—Action of Synthetic, on Indian Strains of Malaria. Cilional in the Treatment of "Crescent Carriers." Plasmochin is preferable to cilional (dialkylaminoalkylaminohydroxyquinoline).—R. N. CHOPRA, B. M. DAS GUPTA and B. SEN. *Indian Med. Gaz.*, 73 (1938), 667–669; through *Chem. Abstr.*, 33 (1939), 1818. (F. J. S.)

Antiseptic Compounds for the Treatment of Burns—Study of. The idea of reacting a local anesthetic with an antiseptic to get a compound combining anesthetic and antiseptic action was first reported by Thayer and the product, butesin picrate has been widely used in ointment as a treatment for burns. There is a brief historical review of picric acid and related compounds. Report is made of the preparation of benzocaine picrate. Details of experimental work are given and method of preparation suggested. The benzocaine picrate represents one mole each of benzocaine and picric acid. It is a yellow crystalline solid melting at 161–162° C. It differs from that of Thayer in the combining ratio. His was three moles of benzocaine to one of picric acid. Melting point was 120–121° C. Each of the compounds studied has an anesthetic action as indicated by the "rabbit's eye" test.—D. T. MEREDITH and C. O. LEE. *Jour. A. Ph. A.*, 28 (1939), 369. (Z. M. C.)

Arsono Compounds—Experimental Studies on the Toxicity and Therapeutic Action of. Both *p*-amino- and *p*-hydroxybenzenearsonic acids were effective against trypanosomes but not against spirochetes.—I. HAMADA. *Japan Z. Mikrobiol. Path.*, 32 (1938), 955–982; through *Chem. Abstr.*, 33 (1939), 1820. (F. J. S.)

Auro-Mercapto-Arsenic Compounds—Aromatic. While the introduction of metal into arsphenamines failed to increase the therapeutic efficiency in the treatment of syphilis, it was hoped the application of such complex gold compounds might be of value in tuberculosis. Accordingly the following compounds were prepared and tested: 4-auromercaptobenzenearsonic acid, 4-auromercapto-3-aminobenzenearsonic acid, 4-auromercapto-3-acetamidobenzenearsonic acid (which all three form brown amorphous powders and yield readily water-soluble sodium salts well suited to injection), and 4,4′-diaurodimercapto-3, 3′-diaminoarsenobenzene (likewise a brown powder, was injected in olive-oil suspension). The biological testing is reported elsewhere.—K. BURSCHKIES. *Arch. Pharm.*, 275 (1937), 503–506; through *Chimie & Industrie*, 40 (1938), 937. (A. P.-C.)

Benzedrine Sulfate—A Warning. The use of benzedrine sulfate has been expanded to anginal pain, seasickness and apathy and now it is being suggested for weight reduction as it produces loss of appetite. Benzedrine sulfate is contraindicated in cardiac conditions which frequently accompany obesity. This drug is still too new to be used indiscriminately.—EDITORIAL. *J. Am. Med. Assoc.*, 110 (1938), 901. (G. S. G.)

Blennorrhagia—"Superabortive" Treatment for. The general abortive treatment for very recent blennorrhagia, localized in the anterior ureter consists of injection into the ureter, morning and night, of 5 cc. of 20% silver vitellinate solution and retention for five minutes. This is repeated for three days. The author's "superaborative" treatment is as follows: *First Day.*—(1) Give 3 Gm. of sulfamide (1162 F). (2) Inject 5 cc. of silver vitellinate solution (5–20%) into the ureter and retain for five minutes. (3) Inject 1.5 cc. of antigonococcic vaccine (Pasteur Institute) intramuscularly. *Second Day.*—Same as first, but omit the vaccine. *Third Day.*—Same treatment as the first day. Theoretically the third day should end the treatment, but as a precaution the anterior ureter should be washed on the fourth and fifth days with 1:4000 mercury oxycyanide solution. This treatment should be used when the following conditions are met: (1) The blennorrhea has existed for 1 to 5 days. (2) Subacute: no pain in normal urinary passage, no edema or redness. (3) The condition is localized in the anterior ureter; the second glass of urine is clear.—BARBELLION. *Siecle Med.*, (Dec., 1938); through *J. pharm. Belg.*, 21 (1939), 44. (S. W. G.)

Bulgarian Belladonna. Treatment with an extract of Bulgarian belladonna was used in one hundred and twenty-three cases of postencephalitic parkinsonism, over a period of one and one-quarter years. The results were remarkably good in the majority of cases and no relapse was recorded. The preparation has now been standardized and gave better results in its new form. Equally good results can be obtained if the English belladonna root is substituted for the Bulgarian. Only in six cases was there a difference in action. Toxic reactions result from the administration of high doses and can be avoided by beginning with small doses and gradually increasing them until the individuals optimum is found. The treatment is contraindicated and useless in cases of chronic encephalitis lethargica.—F. J. NEUWAHL. *Lancet*, 236 (1939), 693. (W. H. H.)

Calamine Lotions—Preliminary Report of the Clinical Study of. Observations are reported on native American calamine lotion (N. F. VI formula), the official lotion and an improved lotion containing 2.5% bentonite and rose water instead of the lime water as called for in the official formula.—BERNARD FANTUS and H. A. DYNIEWICZ. *Bull. Natl. Formulary Committee*, 7 (1938), 49–51. (H. M. B.)

Calcium Acetylsalicylate and Its Uses. A detailed study of the chemistry and therapeutics of calcium acetylsalicylate has been made by the authors who have drawn the following conclusions from their work. Calcium acetylsalicylate, which is readily soluble in water, is suitable for the purposes of injection. It is more readily adsorbed than ordinary aspirin, but is more slowly eliminated. It is also more rapidly hydrolyzed by the body fluids. Its action is therefore quicker and lasts longer. Ordinary aspirin, being an acid substance, tends to disturb the acid-base equilibrium of the body, and is liable to withdraw systemic calcium and other bases. Calcium acetylsalicylate is a neutral salt and does not exhibit these harmful tendencies. The drug is a good source of a useful amount (10%) of easily assimilable calcium. This is an important consideration for women during pregnancy and

lactation, for growing children, senile cases and in arthritic patients where conditions indicate salicylate therapy. Unlike aspirin, which possesses these tendencies, calcium acetylsalicylate does not provoke constipation, nausea or digestive disturbances, nor does it exert any irritating effect on the kidneys and bladder. It is considerably less toxic than ordinary aspirin and much larger doses can safely be used when required. It is not contraindicated in cases of cardiac weakness, and is especially suitable in conditions which are known to be unfavorably sensitive to ordinary salicylate medication. The substance is analgesic, antipyretic, diaphoretic, sedative and antirheumatic. It is markedly superior to ordinary aspirin in the treatment of chorea in children. It shows a pronounced sedative action and an appreciable reduction in the total control period of the disease. Gastroscopic observation before and after administration of ordinary aspirin shows that it is an irritant of the gastric mucosa and may cause acute indigestion, chronic gastritis and even sub-mucous hemorrhage. Calcium acetylsalicylate of good quality does not exhibit these harmful properties. Unstable brands of calcium acetylsalicylate are unsatisfactory and do not afford the clinical advantages of a good brand. Chemical examination of the various brands of calcium acetylsalicylate show that the most stable brand available and that having also the least amount of initial free salicylic acid is the one containing a suitable proportion of calcium chloride, which acts as a stabilizing agent.—COPLANS, GELLMAN and GREEN. *Medical Press and Circular* (September 6, 1939), page 199; through *Chemist and Druggist*, 131 (1939), 397. (A. C. DeD.)

Calomel Ointment—Use of Colloidal, in Dermatology. A proposed calomel ointment is found to be specific for the rapid cure of empetigo and superior to ammoniated mercury ointment. It is also recommended in ecthyma when the crust has been removed, in superficial erythematous dermatitis, infected ulcers due to secondary pyogenic infections, early psoriasis and other superficial infections of the skin. It afforded little relief in fungus infections, boils and carbuncles. Two graphs are given.—THEODORE CORNBLEET, ALBERT H. SLEPYAN and MICHAEL H. EBERT. *Bull. Natl. Formulary Committee*, 7 (1939), 216–219. (H. M. B.)

Ceadon—Experiences with, in Gynecology and Obstetrics.—FRITZ STEINBOCK. *Wien med. Wochschr.*, 89 (1939), 24–25; through *Chem. Abstr.*, 33 (1939), 2584. (E. G. V.)

Chancroid—Use of Sulfanilamide in Treatment of. The University Clinic at the University of Georgia School of Medicine had, in the past, the usual experience in the treatment of chancroid infections; the infections ran a long and unsatisfactory course apparently uninfluenced very much by the various therapeutic agents which were applied. It was therefore with interest that the authors began to experiment with sulfanilamide, which had been reported elsewhere to have a beneficial effect upon this disease. At the time of writing, they had had a chance to treat 113 cases with sulfanilamide, giving a total dosage of 400 to 500 grs. of the drug over a period of one or two weeks. No surgical measures were adopted other than aspiration of pus from fluctuating buboes. The therapeutic results for the most part were so good that the drug is now regarded almost as a specific for this disease; patients improved following treatment with sulfanilamide though they had previously shown no response to vaccine treatment.—R. B. GREENBLATT and E. S. SANDERSON. *Am. J. Syphilis, Gonorrhea Venereal Diseases*, 23 (1939), 605; through *Abbott Abstract Service*, (1940), No. 561. (F. J. S.)

Chemotherapy—Discussion of Some Problems in. In a lecture delivered at the Wellcome Research Institution the author comprehensively reviewed a number of problems encountered by researchers in chemotherapy and referred to some of the progress which has been made in this field. Since chemotherapeutic investigation is concerned with, among other things, the instigation, preparation, degree of absorption and mode of action of chemotherapeutic agents, the investigator shoudn't, it was cautioned, specialize too narrowly. The importance of the stability and technical administration of potent drugs was pointed out.—WERNER SCHULEMANN. *Ann. Trop. Med. Parasit.*, 33 (1939), 171–192. (W. T. S.)

Chemotherapy in Acute Surgical Infections with Prontosil and Allied Drugs. Prontosil red preparations are more effective than other sulfanilamide preparations. Various streptococcal infections yielded to a treatment by intramuscular injections (5 cc. of 5% prontosil solution, twice daily) combined with oral administration of prontosil red tablets (5 Gm. in 3–4 doses after meals, with glucose given freely). In anorexia or vomiting (6% of cases) after prontosil red is taken, prontosil album may be given. It is better tolerated. Anthracene and saline purgatives, sulfur-containing preparations and aniline derivatives are contraindicated during prontosil therapy. As a pre-operative measure in cases of utmost gravity, prontosil can hardly be surpassed.—P. N. RAY, K. S. ALAM and B. K. GHOSE. *Indian Med. Gaz.*, 73 (1938), 649–654; through *Chem. Abstr.*, 33 (1939), 1818. (E. G. V.)

Chemotherapy in Pneumonia. A review of the work which has been published on the use of M. & B. 693 (2-sulfanilylaminopyridine) in the treatment of pneumonia since October 1938. All reports cited were generally favorable and some especially so.—ANON. *Indian Med. Gaz.*, 74 (1939), 289–290. (W. T. S.)

Chemotherapy—Outline of. VII. Bacterial Infections: The Sulfonamides. Many hundreds of derivatives of sulfanilamide have been prepared. From the work done on these compounds, certain generalizations can be made. Replacement of the amino group *para* to the sulfonamide group leads to inactive compounds; substitution of the hydrogens of this amino group by the —$COCH_3$ group, by the CH_3 and —$COCH_3$, or by $(CH_3)_2$ decreases activity. Many compounds in which one or both of these hydrogens are replaced by other groupings, such as $C_6H_5CH_2$—, and the more complicated group "soluseptasine," have been obtained which exert high activity. The sulfonamido group appears to be essential for the development of full activity, although the corresponding sulfonic acid possesses some activity and a nitrogen in the *para* position is indispensable. A further development of this field concerned the discovery that the diphenylsulfones are very active. The derivative best suited for the treatment of pneumonia (streptococcal) is M. & B. 693, which is even better than prontosil and sulfanilamide in this connection. A chart is given which shows the structures of some of the important derivatives of sulfanilamide. Some of the therapeutic actions of the derivatives is discussed.—ANON. *Pharm. J.*, 142 (1939), 443. (W. B. B.)

Chemotherapy—Outline of. VI. Organic Arsenicals and Antimalarials. There is a certain amount of evidence that the active agent in trypanosomiasis (sleeping sickness) is not the pentavalent arsenic compound, but that this is first reduced to the corresponding arsenic oxide, and that the trivalent arseno-compounds, like arsphenamine, are oxidized to arsenic acid. The number of com-

pounds in use for this disease is comparatively small, tryparsamide and arsanine representing the pentavalent arsenic compounds. A table is given to show how their constitution is derived. Acetarsol, a pentavalent arsenic compound, can be standardized chemically and exerts its activity when taken by mouth; for these reasons it has attracted much attention. Little success has been obtained with synthetic substances based upon the pattern of cinchona alkaloids; they would be very difficult to obtain. The nearest synthetic substance of this nature is said to be Plasmoquin, which is derived from the quinoline nucleus.—ANON. *Pharm. J.*, 142 (1939), 331. (W. B. B.)

Chemotherapy—Studies on. XVII. Action of Undecane Diamidine in Malaria. It has been established that certain diamidines, and more particularly undecane diamidine, possess trypanocidal activity. As their constitution is entirely different from that of the usual trypanocidal agents, this observation is of exceptional interest. In the course of new investigations individuals suffering from malaria were treated, and the almost complete disappearance of attacks was observed quite regularly; the parasites slowly disappear from the blood, the asexuate forms before the gametocytes.—F. GLYN-HUGHES, E. M. LOURIE and W. YORKE. *Ann. Trop. Med. Parasit.*, 32 (1938), 103–107; through *Chimie & Industrie*, 40 (1938), 940. (A. P.-C.)

Cobra Toxin. The experience of three and a half years shows that pain is relieved in a number of cases and the neurological findings revert to normal. The method is combined with other treatment, including the administration of bismuth and arsenic.—A. ROTTMANN. *Wien. med. Wochnschr.*, 88 (1938), 1257; through *Brit. Med. J.*, 4080 (1939), 598D. (W. H. H.)

Cod Liver Oil. Note on Its Successful Use in the Treatment of a Lacerated Septic Wound. A case is described in which the application of cod liver oil was found to completely heal a badly infected lacerated wound of the tongue after two other commonly used methods of treatment had failed to bring about any improvement.—J. C. DUTTA. *Indian Med. Gaz.*, 74 (1939), 351. (W. T. S.)

Cod Liver Oil—Note on the Use of, in the Treatment of a Carbuncle and Two Ulcers. The author described and showed photographs of two extensive leg ulcers and one large carbuncle which were completely healed within three weeks by applications of cod liver oil. No other therapeutic measures were used during the treatment. Several distinct advantages of cod liver oil as an antiseptic dressing were pointed out.—B. M. ROY. *Indian Med. Gaz.*, 74 (1939), 93. (W. T. S.)

Corneal Ulcer—Treatment of, with Sulfanilamide. The authors administered sulfanilamide in doses sufficient to maintain a blood level of 10 to 15 mg. per 100 cc. to nine patients suffering from severe corneal ulcers resulting from chemical burns or injuries. Long before the ulcers were healed these patients experienced complete relief from the severe pain which had formerly been present as a result of the corneal lesions. This effect was so striking that the authors are tempted to assume that sulfanilamide has an analgesic action which has not previously been noted. Even when the sensitive fibrils in the cornea were freely exposed, the patients declared they were comfortable, whereas previously the pain had been severe. The structure of the sulfanilamide molecule lends some support to the theory that it may have an analgesic action, since it resembles certain other compounds known to have this effect. Rather high doses would have to be administered in order to bring out this action.—J. H. BRAILEY and E. SASKIN. *Arch. Ophthalmol.*, 22 (1939), 89; through *Abbott Abstract Service*, (1940), No. 556. (F. J. S.)

Coronary Thrombosis—Points in Treatment of. The principles of treatment of acute coronary thrombosis are well known, but here they are systematically reviewed. The accepted primary requirement is rest of the most thorough sort possible in order that the damaged myocardium may not have to do any more work than is absolutely necessary. Morphine may be needed for the relief of pain, and oxygen may be given if anoxemia is pronounced. The gravest cases may show hyperexcitability of the myocardium which may be manifested by extra systoles, and may even progress to a very dangerous tachycardia. Digitalis, however, is not the safest drug to use in cases of this sort. Supportive treatment is important, and among other adjunctive measures the administration of aminoacetic acid in doses of 20 grs. two or three times daily sometimes relieves the feeling of extreme exhaustion which often follows in the wake of an acute attack of coronary thrombosis.—G. R. HERRMANN and G. M. DECHERD. *Southern Med. J.*, 32 (1939), 696; through *Abbott Abstract Service*, (1940), No. 567. (F. J. S.)

6-Desoxy-*l*-Ascorbic Acid—Antiscorbic Activity of. A daily dose of 3 mg. of 6-desoxy-*l*-ascorbic acid is as effective as 1 mg. of *l*-ascorbic acid in healing experimental scurvy, but no increase of the reducing value of the adrenal tissue is observed though the 1 mg. of *l*-ascorbic acid produces a definite reserve in the adrenal tissue.—V. DEMOLE. *Helv. Chim. Acta*, 21 (1938), 277–279; through *Chimie & Industrie*, 40 (1938), 941. (A. P.-C.)

Diphtheria—Treatment of, with Refined Antitoxin. Among two hundred patients treated with refined diphtheria antitoxin (Pope) the death rate was only 2.5%. No serum rashes were recorded, and immediate reactions after intravenous injection were few. The small bulk of the serum caused less discomfort to the patient than ordinary concentrated serum. The percentage of gravis diphtheria in the Glasgow area seems to be on the upgrade. Chewing gum appears to be useful in adenitis, apparently causing massage of the cervical glands by the action of the jaw in chewing.—A. HUTCHISON. *Brit. Med. J.*, 4077 (1939), 384 (W. H. H.)

Drugs Used in the Treatment of Wounds. A discussion of plant drugs and constituents, animal products and a large number of chemicals used in the treatment of wounds.—ERICH HERRMANN. *Deut. Apoth. Ztg.*, 54 (1939), 609–616. (H. M. B.)

Endocarditis—Subacute Bacterial, Sulfanilamide in the Treatment of. Previous reports on the treatment of subacute bacterial endocarditis with sulfanilamide have been uniformly discouraging, and some have gone so far as to say that the very nature of the lesion in this disease is such that no chemotherapeutic agent could possibly have any effect upon the progress of the malady. In this connection the present report is of interest since it indicates that in some cases the features of bacteremia can be controlled by the use of the drug. The authors treated 12 cases with sulfanilamide, and in some of these the circulating blood was rendered free of organisms. In all except two patients this effect was transitory and depended upon the constant administration of the drug. In two patients, however, a definite improvement in the disease followed sulfanilamide treatment, but no great hope is held out. The chief value of the drug will be as a prophylactic for persons with valvular lesions who are obliged to submit to dental extractions, etc.—W. W. SPINK and F. H. CRAGO. *Arch. Internal Med.*, 64

(1939), 228; through *Abbott Abstract Service*, (1940), No. 553. (F. J. S.)

Ephedrine and Atropine in Postoperative Thrombosis. A series of four hundred and six cases of accidental trauma and operation were treated with hypodermic injections of ephedrine and atropine as a prophylactic against thrombosis and pulmonary embolism, the injections being given on the fifth, seventh and ninth days after accident or operation. The incidence of thrombosis and embolism was approximately the same as in a control series of 1265 cases.—R. PILCHER. *Lancet*, 236 (1939), 752. (W. H. H.)

Estrogens—Carcinoma of Cervix in Mice Receiving. Eighteen tumors were observed in, or around, cervices of mice having received large amounts of estrogens (estrone benzoate or estradiol benzoate), over extended periods. Most of these tumors were not apparent in living animal, and some were discovered only after sectioning and microscopic study. Recently a large cervical tumor with metastases, developed in a mouse receiving estradiol benzoate, and was successfully transplanted into male and female mice of same strain, growing rapidly without further estrogen stimulation. Smaller invading epithelial growths are probably precancerous, or early cancerous.—W. U. GARDNER, *et al.* *J. Am. Med. Assoc.*, 110 (1938), 1182. (G. S. G.)

Estrogens—Treatment of Gonococcal Vaginitis with. To evaluate the estrogenic treatment of gonococcal vaginitis, a study was undertaken at a large clinic in New York. One hundred patients, varying in age from 3 weeks to 14 years, were treated with vaginal suppositories containing 1000 International units of estrogen. One suppository was placed in the vagina each night. Of the 100, 92 patients appeared to be cured after a period of treatment lasting from 14 to 435 days. However, 24 of these patients relapsed in an average time of 109 days after being apparently cured. Sixteen patients were never cured by this treatment. This leaves 68 patients apparently permanently cured as far as the authors' observations extended. Several widely-repeated axioms concerning estrogenic treatment are called into question: *e. g.*, the gonococci were found abundantly in very acid secretions at times; the theory that estrogens act by increasing the layers of the stratified vaginal epithelium fails to take cervical infection into account.—A. JACOBY, D. E. MADONIA, S. M. TILL and T. H. WOOD. *Amer. J. Obst. Gynecol.*, 38 (1939), 140; through *Abbott Abstract Service*, (1940), No. 572. (F. J. S.)

Ficus Trees—Latex of, as an Anthelmintic. The milk of certain fig trees was successfully used as a vermifuge in South America as early as the Eighteenth Century. This and other historical data comprise an extensive review (37 references) which the author has prepared on the use of the latex from a number of different species of the *Ficus* as an anthelmintic in humans and domestic animals.—L. F. THOMEN. *Ann. J. Trop. Med.*, 19 (1939), 409–418. (W. T. S.)

Fowler's Solution—Use of, in the Treatment of Chorea. During several years of experience in treating chorea with Fowler's Solution R. found that it was useful in the majority of cases and in a few cases it was brilliantly successful. The precautions to be observed in its use were briefly discussed and three cases in which it was successfully used were described in detail.—K. G. RAMABHADRAN. *Indian Med. Gaz.*, 74 (1939), 161–162. (W. T. S.)

German Specialties—Review of 1938 with Special Reference to the New. A review which includes the advances in fatty acid synthesis, in the treatment of hoof and mouth disease, catarrh and disorders of the genito-urinary tract, the serums and vaccines, spasmolytizers, hypnotics, agents acting on the circulation, methods of testing vitamins and sterilization of parenteral solutions. Four illustrations and forty-two references are given.—KONRAD SCHULZE. *Scientia Pharm.*, 10 (1939), 21–33. (H. M. B.)

Glycerin—Use of, as an Aid to Antiseptics. The authors mentioned several antiseptic solutions which have been used to irrigate the mucosa in treating gonorrheal urethritis and emphasized the fact that this condition cannot be very satisfactorily treated by the above method nor by the oral administration of antiseptics. The importance of mechanical effect such as frequent urination was admitted and since the osmotic effect of glycerin has proved effective in the local treatment of uterine sepsis the authors thought that glycerin might also well be used in conjunction with antiseptic irrigation for treating urethral sepsis. The method used to investigate this supposition was described.—R. L. RAYMOND, K. K. DE and U. SOENYUM. *Indian Med. Gaz.*, 78 (1938); through *J. Trop. Med. Hyg.*, 42 (1939), 95. (W. T. S.)

Gold Therapy—Evolution of, in Phthisis. The author has written a review of the history, chemistry and pharmacology of gold therapy in phthisis. Especial attention was paid to the development and use of gold compounds since the work of Robert Koch along this line in 1890. The author makes reference to his own work in this field and cites nine additional reports.—S. K. DAS. *Indian Med. Gaz.*, 74 (1939), 277–281. (W. T. S.)

Gold Therapy in Phthisis. D. stated that the choice of a case is the keystone to success in gold therapy for phthisis and then went on to outline the precautions to be taken in selecting such cases. He stated what he considered to be the best preparation of gold for the treatment of these cases and discussed the dosage and manner in which it should be administered. A number of unfavorable reactions from gold therapy were described along with a treatment for each.—S. K. DAS. *Indian Med. Gaz.*, 74 (1939), 326–334. (W. T. S.)

Gonadotropic Hormones—Efficacy of, in the Treatment of Whooping Cough. V. and R. cite the high incidence of whooping cough in children and give other data which indicates that the activity of the sex glands is a significant factor in the incidence of this disease. That such significance exists was strongly indicated by the results of the authors' experiments in which they found that the administration of a charcoal absorbate of gonadotropic hormones or Antuitrin 'S' yielded satisfactory results in 80% of 136 cases of whooping cough in children. The drug was also effective as a prophylactic agent.—K. VENKATACHALAM and A. N. RATNAGIRISWARAN. *Indian Med. Gaz.*, 74 (1939), 271–273. (W. T. S.)

Healing Agents—Examination of Some. Twenty-six products are discussed.—G. DULTZ. *Deut. Apoth. Ztg.*, 54 (1939), 298–299. (H. M. B.)

Helium—Value of, as an Adjunct in General Anesthesia. Helium is recommended for inhalation anesthesia and occasionally in spinal anesthesia where respiration is labored. Together with oxygen it is an excellent mixture with which to aerate the lungs at the close of anesthesia.—R. F. BONHAM. *Anesthesia and Analgesia*, 18 (1939), 37–47; through *Chem. Abstr.*, 33 (1939), 2585. (E. G. V.)

Hemorrhagic Aleukia—Two Cases of, after the Oral Administration of Stovarsol.—P. E. WEIL, H. MENETRIER and CHARLES POLAK. *Bull. mém. soc. méd. hôp. Paris*, 53 (1937), 109–113; through *Chem. Abstr.*, 33 (1939), 2584. (E. G. V.)

Hemorrhagic Syndrome with Agranulocytosis in a Case of Chronic Diarrhea Treated with a Quinquevalent Arsenic Preparation (Stovarsol).—J. CAROLI and J. MALLARME. *Bull. mém. soc. méd. hôp. Paris*, 53 (1937), 129–134; through *Chem. Abstr.*, 33 (1939), 2584. (E. G. V.)

Histone Insulin. Histone insulin is a combination of insulin with histone, the latter being a protein extracted from the thymus and distinguished from the protamines by the large number of amino acids which enter into its composition. Unlike protamine insulin with zinc, histone insulin contains no zinc unless it be the slight trace found in the ordinary insulin with which it is manufactured. It is an insoluble insulin presented as a cloudy liquid. Almost unknown in France, it has been the subject of researches in the Argentine and the United States. As in the case of protamine insulin, histone insulin can be administered in a single injection, before breakfast. In certain cases of grave diabetes the division of the daily dose has been recommended, one injection of 3/4 of the dose in the morning, the remaining quarter of the dose in the evening. Ordinary insulin may be transformed temporarily or regularly into histone insulin. It is considered that histone insulin is a distinct advance on ordinary insulin, because the glycosuria and glycemia are better controlled with few injections. It is not equal, however, except in a few instances, to protamine insulin with zinc. Its interest lies chiefly in the fact that in certain countries it is easier to procure histone, than protamine used in the preparation of protamine insulin with zinc.—ANON. *Union Pharm.*, (1939), 105; through *Chemist and Druggist*, 130 (1939), 654. (A. C. DeD.)

Hermone Treatment in Vulvular Pruritis of Menopause. Vulvular pruritis of menopause is usually due to hypofunction of the ovaries, with diminished follicular secretion, therefore, administration of follicular hormone brings relief. Experience demonstrates administration of large doses produces rapid improvement and complete cures, and that injections are well tolerated.—NOTAS PRATICAS. *Lab. Clinico*, 18 (1938), 32. (G. S. G.)

Hypertonic Solutions—Rôle of, in the Treatment of Migraine. Intravenous injections of hypertonic serum (10–20%) at the height of migraine relieved 5 out of 7 patients completely in 20–40 minutes. Salted serum increases the osmotic pressure of serum, creating a demand for water in the blood, thereby relieving the intracranial pressure, which is one of the essential factors in migraine. Thus, at the crisis, vasoconstriction is reduced to vasodilation, which brings relief.—G. VILLEY, J. F. BUVAT and MME. BUVAT-POCHON. *Rev. neurol.*, 70 (1938), 32–39; through *Chem. Abstr.*, 33 (1939), 2587. (E. G. V.)

Inhalant—Therapeutic. An aqueous solution is used containing a vasoconstrictive substance such as an ephedrine salt, dextrose in amount not substantially less than that sufficient to make an isotonic solution, and a germicidal agent such as chlorobutanol in an amount sufficient to inhibit bacterial and fungus growth in the solution.—FRANK O. TAYLOR and HARVERY M. MERKER, assignors to PARKE, DAVIS & CO. U. S. pat. 2,134,463, Oct. 25, 1938. (A. P.-C.)

Insulin—Absorption of, by Nasal Passages. Since there are certain well-known inconveniences associated with the subcutaneous injection of insulin and since attempts to administer this drug by other routes have not proven successful, the authors undertook to determine whether insulin would be absorbed through the nasal mucosa. In 12 diabetic patients the insulin was found to be absorbed by this route readily enough as evidenced by a reduction in blood sugar. However, relatively large amounts of a concentrated solution were required to obtain the requisite dosage which would add to the expense of the treatment. The results of the study were tabulated.—F. W. ALLINSON and S. PAUL. *Indian Med. Gaz.*, 74 (1939), 267–268. (W. T. S.)

Insulin Shock—Therapeutic Action of, in Tetanus.—G. PELLEGRINI and C. TRABATTONI. *Boll. soc. ital. biol. sper.*, 13 (1938), 1111–1114; through *Chem. Abstr.*, 33 (1939), 1817. (F. J. S.)

Insulin Therapy for Schizophrenia in an English Clinic. Cases of schizophrenia were treated with insulin, often combined with cardiazole. No difference was noted between the action of crystalline insulin and the glandular extract. The dose to produce coma varied, even in the same individual as patients often increase their resistance to insulin. The duration of the daily insulin coma was gradually prolonged, the patient being revived by syrup given by stomach tube, or by intravenous injections of 20–33% glucose solution. The treatment lasted from 26 to 118 days. Complete or partial recovery was obtained in 61 cases, but no amelioration in 57 cases. The patients in the latter group were all cases of long standing.—G. W. B. JAMES, R. FREUDENBERG and TANDY CANNON. *J. belge neurol. psychiat.*, 38 (1938), 604–612; through *Chem. Abstr.*, 33 (1939), 2586. (E. G. V.)

Iodized Oil—Use of, in Bronchial Asthma. Contrary to the findings of other investigators, Criep found that the intranasal or intratracheal administration of iodized oil to intractable asthmatics benefited them to only a slight degree. Indeed Criep credited the transitory relief obtained in a few cases not to any pharmacological action of iodized oil but rather to its mechanical action since a comparable degree of relief could be obtained by administrating sterile peanut oil. Untoward reactions as severe coughs and dyspnea were found to occur following the administration of iodized oil. Ten typical cases were described in some detail.—LEO CRIEP. *Southern Med. J.*, 32 (1939), 704–708. (W. T. S.)

M. & B. 693—Satisfactory Treatment of Pneumonia with. A study of 50 cases of pneumonia which were treated with M. & B. 693 and a like number of controls revealed that the oral administration of 0.5 Gm. of this drug decreased the mortality rate from 18% in untreated cases to 10% in the treated. Another striking result of the treatment was a decrease in the number of days of raised temperature and hence the duration of hospitalization. The complications which were encountered are described and reference is made to six previous reports concerning the activity of this drug.—AMIR CHAND and NOND LALL CHITKARA. *Indian Med. Gaz.*, 74 (1939), 257–260. (W. T. S.)

Mandelic Acid, Etc.—Comparison of, in Urinary Tract Infections. The treatment of such infections of the urinary tract as are amenable to drugs may profit greatly by the advances that have been made recently in the development of new therapeutic agents, but the maximum benefit can be obtained in these cases only when the nature of the causative organism is accurately determined. This knowledge permits a much more effective choice of the therapeutic agent. The reaction of the medium in which the agent must act is another item of great importance, and should be known all through the course of treatment. In general, all Gram.-negative bacilli may be destroyed with mandelic acid or sulfanilamide. Though mandelic acid may be more difficult of administration, preliminary reduction in dosage and variation of the mode of giving the drug in pill or liquid form usually permits its adequate administration. This drug may be used with much less danger of untoward reaction than sulfanilamide, if renal function is normal.—E. N. COOK and E. B.

SUTTON. *J. Urol.*, 42 (1939), 880; through *Abbott Abstract Service*, (1940), No. 574. (F. J. S.)

Melancholia—Involutional, Treatment of, with Estrogens. Involutional melancholia, because it occurs in the menopause, when the natural production of estrogenic hormone undergoes a marked fall, may rationally be treated with estrogenic substances. This was done by the author in seven patients afflicted with this mental state. Doses large enough to give definite changes in the character of the vaginal epithelium, as determined by examining vaginal smears, were given repeatedly. The clinical improvement which followed could be definitely correlated with the estrogenic effect as detected in the smear in all the cases except two. In two cases the treatment failed, but the others were definitely benefited. No untoward actions were observed. In conclusion, the author expresses the opinion that it is impossible to foretell which cases of involutional melancholia will be helped by estrogenic treatment, but that all patients should be given the benefit of the trial with this substance because of the possible good effect.—J. B. DYNES. *Arch. Neurol. Psychiat.*, 42 (1939), 248; through *Abbott Abstract Service*, (1940), No. 558. (F. J. S.)

Nicotinic Acid—Failure of, to Combat Anemia from Sulfanilamide. Nicotinic acid has been advocated for use with sulfanilamide to alleviate some of the reactions which occur following the administration of the latter drug. The theory on which this is based is as follows: nicotinic acid has been demonstrated to cause a diminution in the porphyrinuria of pellagra and the porphyrinuria of certain types of poisoning as well. There is usually a porphyrinuria accompanying the use of sulfanilamide in therapeutic doses. One or two reports have appeared stating that the use of nicotinic acid diminished some of the minor toxic symptoms arising from sulfanilamide. The authors fed rats doses of sulfanilamide sufficient to produce anemia, and to some of the animals they also gave nicotinic acid. Blood counts and hemoglobin determinations on the animals failed to show any preventive effect of nicotinic acid on the anemia which occurred regularly in the experimental animals.—G. M. HIGGINS and T. E. MACHELLA. *Proc. Staff Meetings Mayo Clinic*, 14 (1939), 692; through *Abbott Abstract Service*, (1940), No. 582. (F. J. S.)

Nicotinic Acid—First Report on Its Use in China for Pellagra. A study of 4 cases of pellagra revealed that this disease could be effectively treated by the oral or parenteral administration of nicotinic acid in a daily dose of 200 to 400 mg. The history of 3 cases was given in detail and several photographs were included to show the condition of the patient's skin before and after the treatment. (Attention was called to the rarity of pellagra among the Chinese.)—H. C. HOU. *Chinese Med. J.*, 55 (1939), 528–536. (W. T. S.)

Opium Habit—Treatment for. R. confirmed a report of Chopra and Chopra by showing that the opium habit may be very successfully treated with lecithin and glucose. The method of treatment is outlined and the symptoms observed during the treatment are described. The coöperative spirit of the 38 patients receiving treatment was very noticeable.—S. C. GUHA RAY. *Indian Med. Gaz.*, 74 (1939), 265–266. (W. T. S.)

Orthosiphon Stamineus Benth—Therapeutic Action of. The plant has been used by the Javanese in the treatment of renal and visceral ailments. *Orthosiphon stamineus* or Java tea is used as an infusion, prepared with 5 Gm. of drug and 1 liter of water, or as a powder (dose 2–5 Gm.), or as an extract (dose 0.4 Gm.) taken two to four times a day. It increases the daily urinary flow, and elevates the urea and chlorides excreted, and raises the uric acid content of the urine. It lowers the total blood urea, the Ambard urea secretory constant, and the arterial pressure. The threshold dose is around 0.125 mg. per Kg., and no toxic effect is noted with twenty times this amount. Mastication of the dried leaves causes practically no action. The dried extract is recommended for use as giving constant and maximum action. Salts of calcium, oxalates and cholesterol are suggested as chemical antidotes. Administration of officinal infusion of sage is antagonistic when Java tea is used. This is also true of adrenaline, total pituitary extract, hepatic extracts and biliary salts.—ANON. *Union pharm.*, (Dec., 1938); through *J. pharm. Belg.*, 21 (1939), 199. (S. W. G.)

Pneumonia—Clinical Use of Sulfapyridine in. The article sums up experience of the past year gained in treating 139 adult patients having pneumococcal pneumonia with sulfapyridine. The experimental and clinical findings of others are discussed in the light of this experience. Compared with sulfanilamide, sulfapyridine is less well absorbed, and great variations in absorption are found; it is also more slowly excreted. Like sulfanilamide, sulfapyridine is conjugated in the body to an acetyl derivative, and penetrates to all tissues of the body. It is superior to sulfanilamide in its effect on infections due to pneumococci and possibly also on those due to Friedlander's bacillus. The authors were unable to confirm the statement made by others that the administration of sulfapyridine changes the "Quellung" reaction of pneumococci, rendering them difficult to type. Among the patients treated with the drug, the mortality rate was 7.2% a low figure compared with that obtained previously with other agents.—P. H. LONG and W. B. WOOD. *Ann. Internal Med.*, 13 (1939), 487; through *Abbott Abstract Service*, (1940), No. 565. (F. J. S.)

Postdiphtheritic Paralysis Treated with Vitamin B_1. Out of 1590 cases of diphtheria reviewed by the author, there were 100 cases of postdiphtheritic paralysis, but only sixty of these could be observed throughout their entire course. Out of the 60, thirty were treated with vitamin B_1, while the other 30 received no treatment of this kind and served as controls. When the results of the two procedures were compared it was found that the patients who received vitamin B_1 had an average duration of paralytic symptoms of 29 days, whereas the other group had an average duration of 49 days. The system of treatment was as follows: 1 mg. of a preparation of thiamin chloride was given orally each second day, while on the alternate days the patients received intramuscular injections of a vitamin B_1-containing preparation having a potency of 4000 pigeon units per dose. Thus the vitamin B_1 seemed to exert a beneficial effect in postdiphtheritic paralysis, though the mechanism of action may be quite obscure.—P. FEIGE. *Fortschritte der Therapie*, 15 (1939), 333; through *Abbott Abstract Service*, (1940), No. 559. (F. J. S.)

Potassium Chlorate—Use of, in Poliomyelitis. A dose of 0.1 Gm. per Kg. of body weight is well tolerated when given in twelve fractional doses administered every two hours over a twenty-four-hour period.—F. DEBAT. *J. pharm. Belg.*, 21 (1939), 593–597. (S. W. G.)

Progynon C and Proluton C—Menstruation Obtained by Oral Route with. The article is written in commendation of these two products, one derived from the folliculin hormone, Progynon C, and the other, derived from the lutenizing hormone, Proluton C, which when given by oral route give interesting results. Progynon C provokes an increase in the uterus of the phases of proliferation of

the uterine mucosa and of signs of growing of the tube. The administration of Proluton C, after taking Progynon C by mouth, causes phases of secretory transformation of the uterine mucosa and of true menstruations. In the case of proliferated glandular cystic hyperplasia of the uterine mucosa, one obtains modifications which end in the secretory phase with a decided reaction. If one compares the ingested doses with those of the injected, one is able to give doses of two to three times the strength with Progynon and six times more of Proluton.—C. CLAUBERG and Z. UESTUEIR. *Zentr. Gynækol.*, 62 (1938), 1745; through *Presse Medicale*, 13 (1939), 36. (W. H. H.)

Prontosil Rubrum (Bayer)—Successful Administration of, to a Six-Day Old Child. A female child, age 6 days, suffering from erysipelas received one prontosil rubrum tablet divided in 12 doses, over a period of 3 days, without showing untoward symptoms. The drug speedily reduced the child's fever and checked the spreading margin of the disease. Recovery was uneventful.—S. C. ROY. *Indian Med. Gaz.*, 74 (1939), 288. (W. T. S.)

Prontosil Rubrum Tablets—Urticaria Following Oral Administration of. A case is described in which the oral administration of prontosil rubrum tablets in three different instances resulted in a distinct development of urticaria which disappeared when the administration of the drug was stopped. The same patient showed no sensitiveness to prontosil album tablets.—R. L. SONI. *Indian Med. Gaz.*, 74 (1939), 157. (W. T. S.)

Prontosil—Use of, against Indian Strains of Malarial Parasites. The authors stated that even though atabrine and plasmochin have held the field as antimalarials both of these compounds have enough disadvantages to warrant making a search for other antimalarial drugs. In view of the conflicting reports concerning the effectiveness of sulfanilamide and related compounds as antimalarials, the authors made a study of the effectiveness of prontosil in this respect. Nineteen malarial patients who did not show a tendency to spontaneous recovery were given prontosil orally or intramuscularly. Prontosil in 3 to 4 Gm. daily doses for 5 days was found to destroy both asexual and sexual forms of *P. vivax* and *P. malaria* but only the asexual forms of *P. falciparum* and that at the same time controlled the symptoms of the malaria. With smaller dosage the symptoms of the disease abated and the parasites disappeared from the peripheral blood, but recrudescence of the disease occurred in a fortnight.—R. N. CHOPRA, B. M. DAS GUPTA, B. SEN and R. T. M. HAYTER. *Indian Med. Gaz.*, 74 (1939), 321–324. (W. T. S.)

Prothrombin in Newborn—Factors Influencing Levels of. Blood samples were taken from a number of premature infants and from their mothers. As a comparison, the blood of 19 full-term infants and their mothers was also taken. All samples were tests for prothrombin level by the method of Smith and his collaborators. It was found that premature infants had extremely low prothrombin levels as compared to full-term infants, though the prothrombin levels of the mothers were not markedly different from those of women giving birth to full-term babies. In some premature infants the levels were so low that they fell into the range reported for patients with hemorrhagic disease. One died from multiple hemorrhages. Two mothers were fed vitamin K for 16 days prior to delivery, and their prothrombin levels rose appreciable. They gave birth to infants with about three times the amount of prothrombin found in "normal" full-term infants. This may have a relation to intracranial hemorrhage in the newborn.—L. M. HELLMAN and L. B. SHETTLES. *Bull. Johns Hopkins Hosp.*, 65 (1939), 138; through *Abbott Abstract Service*, (1940), No. 566. (F. J. S.)

Pruritis Ani—Simple and Efficient Treatment of. The parts were cleansed with a non-flammable grease solvent and the fissures were filled with a bland substance such as zinc oxide ointment. A thick coating of zinc oxide ointment was applied before each evacuation. Cleanse once a week with soap and water and continue with the zinc oxide ointment until no recurrence.—HOWARD LILIENTHAL. *J. Am. Med. Assoc.*, 110 (1938), 509. (G. S. G.)

Pulmonary Tuberculosis—New Chemotherapy of. Under treatment with 10% magnesium thiosulfate tuberculous caseation changed to a necrosis in guinea pigs.—A. TANAKA, K. UTIDA, S. SIROTA and M. TKEBE. *Trans. Soc. Path. Japon.*, 28 (1938), 368–371; through *Chem. Abstr.*, 33 (1939), 1820. (F. J. S.)

Purulent Meningitis—Cure of Acute, with Spinal Injections of Electrocolloidal Silver.—E. MOLINARI. *Acta Paediat.*, 22 (1937), 461–463; through *Chem. Abstr.*, 33 (1939), 2584. (E. G. V.)

Quinine as a Five-Day Treatment for Malaria. From a study made in a malarial section of southern Louisiana, it was concluded that 10–20 grs. daily doses of quinine were just as quickly effective against malaria and much more agreeable than doses four times as large. Of 349 malarial patients treated with 20 grs. of quinine daily for 5 days an estimated 25 to 45% relapsed within a year. After referring to other published work on the comparative effectiveness of quinine and quinidine in controlling malaria the authors reported that both drugs were very satisfactory against such strains of malarial parasites as are found in southern Louisiana and southeastern Texas, where malaria is not endemic.—J. P. SANDERS and W. T. DAWSON. *Southern Med. J.*, 32 (1939), 693–696. (W. T. S.)

Radiation Therapy in Ovarian Dysfunctions. Bogart found, as have others, that radiation therapy applied over the ovary or to the pituitary area was a useful procedure in controlling the menopausal syndrome and also in treating carefully selected cases of amenorrhea, dysmenorrhea and menorrhagia. In all cases only brief exposures to the X-ray were used and a method for employing the irradiation was outlined. The small dosage used was found to be perfectly harmless to the patient and to any child which might be produced by a future pregnancy; however, a warning was given not to irradiate the pelvis during pregnancy.—FRANKLIN B. BOGART. *Southern Med. J.*, 32 (1939), 708–712. (W. T. S.)

Rheumatic and Neuralgic Pains—Drugs Used Especially for the Treatment of. The therapeutic agents discussed fall into 4 groups: (1) rubbing agents (liniments) of volatile oils and other volatile materials irritating the skin (11 prescriptions), (2) rubbing agents with bee poisons, (3) those with anesthetics and (4) those with salicylic acid and its derivatives as well as other acids (5 prescriptions). Fourteen references are given.—ERICH HERRMANN. *Deut. Apoth. Ztg.*, 53 (1938), 1414–1416, 1431–1434. (H. M. B.)

Salyrgan Diuresis—Gout Following. Five cases of congestive cardiac failure are described in which attacks of gout followed diuresis produced by salyrgan. All five cases gave a history of previous gout. The development of gout in a patient receiving salyrgan indicates a bad prognosis. The attacks of gout appear to be due to the diuresis rather than to the level of the blood uric acid, and it is suggested that the associated disturbance of electrolyte balance is of considerable importance

in their causation.—N. L. PRICE. *Lancet*, 236 (1939), 22. (W. H. H.)

Sanamid—Value of, in Treating Gonorrhea. Sanamid (*p*-aminobenzenesulfonamide) seems to have a chemotherapeutic effect only if simultaneously the organism also has a protective activity. In some cases exanthema appeared as a secondary effect but disappeared quickly.—P. JOBST. *Orvosi Hetilap*, 82 (1938), 1163–1166; through *Chem. Abstr.*, 33 (1939), 1815. (F. J. S.)

Simian Malaria—Action of Synthetic Drugs on. Sulfonamide Derivatives. Prontosil soluble in heavy doses (3 cc.) has a definite action on plasmadial infections, but has no advantages over quinine and other known drugs.—B. M. DAS GUPTA and R. N. CHOPRA. *Indian Med. Gaz.*, 73 (1938), 665–667; through *Chem. Abstr.*, 33 (1939), 1818. (F. J. S.)

Snakebite—Plants Used in Treatment of. The author discusses the manner in which the usefulness of plants was discovered and developed. In India, where the danger from cobra bites is very great, the number of plants used is large. The Indians use a mass which they place on the wound; the mass supposedly absorbs the venom, causes the pain to stop and falls off when all the venom is absorbed. The principal plants employed are: Embuia-angelica, cheirosa-aratiquum from the prairies, caissara, St. Ann's herb, Ipana-guaco-pao Pereira, etc. The procedures followed and the parts of the plants employed vary greatly: some are used externally and others are taken internally; while certain specific plants are used when the variety of serpent is well established. The natives believe that these plants contain a counter-poison which kills the poison and the serpent itself if it bites the plant. In order to test the action of a plant, the natives will try to approach the serpent and throw the branches of the plant to it and then observe the reaction if the serpent bites them.—P. VALLE. *Rev. flora med.*, 6 (1938), No. 2; through *J. pharm. Belg.*, 21 (1939), 326. (S. W. G.)

Snake Poison and Malaria—General Investigation of a Plant Used by the Indians in the Treatment of. The plant under investigation, bush-like in character, was identified as *Rauwolfia heterophylla*, the aboriginal name being "chalchupa." Control tests of certain extracts from the wood, bark and leaves (as also of the cherry-like fruit) of this plant showed actual efficiency in treating both malaria and snake bites. Among the other plant constituents reported, the most important appear to be the alkaloids "chalchupine A," $C_{14}H_{21}N_3O_{12}$, melting point about 170° C., and "chalchupine B," $C_{15}H_{24}O_{11}N_6$.—E. C. DEGER. *Arch. pharm.*, 275 (1937), 496–503; through *Chimie & Industrie*, 40 (1938), 936-937. (A. P.-C.)

Sodium Thiosulfate and Elimination of Arsenic. Sodium thiosulfate was used in the treatment of arsenical dermatitis. Investigation proves that the action was due to increased elimination of arsenic in urine due to injections of sodium thiosulfate. Report is given on 49 patients with dermatoses presumably of arsenical origin. The urine was tested before and after administration and it showed that an increase in excretion of urinary arsenic usually follows injection of sodium thiosulfate.—SAMUEL AYRES and NELSON PAUL ANDERSON. *J. Am. Med. Assoc.*, 110 (1938), 886. (G. S. G.)

Solar Dermatitis. The effects of sunlight, the times and types of exposure necessary to obtain these, and the methods of standardizing the sunburn products especially by the biological or "Erythemal Reaction" are discussed. Nine references.—L. STAMBOVSKY. *Drug and Cosmetic Ind.*, 44 (1939), 426–429, 433, 440. (H. M. B.)

Staphylococcic Meningitis. Report of case of 17-day-old infant developing staphylococcic meningitis. Antimeningococcic serum was injected and sulfanilamide was given orally for 27 days and intrathecally for 8 days, a total of 158 grs. (10 Gm.). Fever subsided on ninth day. Superficial skin infection of meningocele subsided with dressings of warm boric acid solution. Convalescence was uneventful.—HARRY BLOCH and B. L. PACELLE. *J. Am. Med. Assoc.*, 110 (1938), 508. (G. S. G.)

Status Asthmaticus—Method of Treatment of. The treatment of status asthmaticus is of great importance, since this state is one which may end fatally. In a paper on the subject, the author covers the general medical treatment of this condition, and those participating in the discussion bring out their opinions of many special agents. One of the principal needs of the patient suffering from this condition is for fluid, and this should be given intravenously. Apomorphine and potassium iodide should also be tried since they promote the secretion of fluid into the bronchi and help in the expulsion of tenacious mucus. In certain cases the diuretics of the xanthine group have a very striking effect, the mechanism of which is unexplained. Few of the specialists present had had the opportunity to use helium and oxygen, but it was agreed that this method of treatment is theoretically sound. Both morphine and atropine are strongly contraindicated in this state, and general anesthesia, especially as a last resort, is very hazardous.—G. PINESS. *J. Allergy*, 10 (1939), 270; through *Abbott Abstract Service*, (1940), No. 562. (F. J. S.)

Stomatitis—Aphthous, Treatment of, with Sulfanilamide. Sulfanilamide has been reported at various times to have been used locally in the treatment of infections, but this particular aspect of the drug has not received a great deal of attention. The authors were first led to apply sulfanilamide locally in a case of ulcerative stomatitis which failed to respond to other treatment, and were surprised at the prompt effects which resulted from the application of powdered sulfanilamide to the ulcerated areas. Another case was encountered in which extensive ulcerations of the same type were found involving the pharynx. The powder was applied to the affected region, and the treatment was supplemented by having the patient dissolve a tablet of sulfanilamide on the tongue three or four times daily. In this case also the healing took place rather promptly. It seems possible that in certain infections of this type highly invasive streptococci may play a part, and this factor would appear to explain the beneficial action of sulfanilamide.—J. L. LANE and P. P. VINSON. *Virginia Med. Monthly*, 66 (1939), 528; through *Abbott Abstract Service*, (1940), No. 560. (F. J. S.)

Sulfanilamide and Related Compounds. A review of the literature of sulfanilamide, prontylin, prontosil soluble and rubiasol is given. The uses of sulfanilamide as a specific for hemolytic streptococcus and as a bacteriostatic in certain cases involving meningococcus, gonococcus and pneumococcus are reiterated. The drug is toxic in varying amounts to some individuals and requires careful observation. It is not a panacea but is to be accepted as a therapeutic agent for the treatment of infections due to hemolytic streptococcus of Lancefield group A.—NICKS. *Escuela Farm.*, 1 (1938), 43. (G. S. G.)

Sulfanilamide—Anerobic Beta Hemolytic Streptomeningitis of Otitic Origin Treated with, and Culminating in Complete Recovery. Many patients have recovered from meningitis caused by beta hemolytic streptococcus after treatment with sulfanilamide. An unusual case of anerobic form of organism also reported recovering. Oral sulfanil-

amide was given exclusively, except the first two days, when prontosil was given intramuscularly. FRED W. SMITH, *et al. J. Am. Med. Assoc.*, 110 (1938), 887. (G. S. G.)

Sulfanilamide—Clinical Experiences with. Sulfanilamide was administered in 50 cases of gonorrhea and 96 cases of other types of urogenital infections. It was concluded that the drug is helpful in pyelonephritis (especially where no anatomic changes are present) and aids in clearing the urine after prostatic resection. Results with sulfanilamide in gonorrhea were not as permanently effective as those reported by other investigators.—W. N. WISHARD, H. G. HAMER, H. O. MERTZ and R. C. RAUSCHER. *J. Indiana State Med. Assoc.*, 32 (1939), 19–20; through *Chem. Abstr.*, 33 (1939), 1818. (F. J. S.)

Sulfanilamide Content of the Eye in Infections of. Sulfanilamide is being increasingly applied to the treatment of infections of the eye, and the fate of the drug in other parts of the body has been adequately studied. Therefore, it was of interest to determine how much of the drug occurred in different parts of the eye following its local application to the conjunctival sac and its administration by mouth. Others have demonstrated that when sulfamilamide is given orally it rapidly enters the blood stream and diffuses readily to all the water-containing tissues of the body. The present paper demonstrates that ordinary doses of sulfanilamide given orally are able to produce concentrations of 1.5 to 3.2 mg. per 100 cc. in the aqueous and vitreous humors. When, however, the drug was placed in the conjunctival sac it was noted that absorption seemed to be quite poor, and that only traces could be discovered in the deeper structures of the eye. The author believes that the drug should be of value in infections caused by sulfanilamide-susceptible organisms.—W. G. MENGEL. *Arch. Ophthalmol.*, 113 (1939), 1598; through *Abbott Abstract Service*, (1940), No. 554. (F. J. S.)

Sulfanilamide—Derivatives of, Used in Gonorrhea. The authors have made a comprehensive study of the chemotherapy of gonorrhea with sulfanilamide derivatives by treating 439 cases of this disease with 5 different drugs belonging to the sulfanilamide group. The cases were discussed from the standpoints of the age and sex of the patients, complications involved and tests by which cures were judged. The five drugs were discussed from the standpoints of proper dosage, effectiveness and toxicity. Several synergists of these drugs were mentioned.—R. V. RAJAM, R. V. RANGIAH and T. MASILAMANI. *Indian Med. Gaz.*, 74 (1939), 202–209. (W. T. S.)

Sulfanilamide Derivatives. Review is made of the development of therapy with sulfanilamide derivatives. Beginning with the work of Ehrlich and the following development of azo dyestuffs with bactericide action, the author points to the discovery by Horlein in 1909 of a compound closely related to Prontosil but used only as a dyestuff. He then considers Domagk's work in 1933, on Prontosil and Prontosil Soluble, which Domagk first reported to be markedly streptococcocidal. In 1935 the work of Fourneau, Trefouel and their coworkers, showed sulfanilamide to be the active component grouping, and this was soon confirmed by Buttle and Colebrooke. Sulfanilamide has borne various names: 1162 F, Prontylin, Prontosil Album, Stramid, Sulfonamid P and Streptamid. In 1937 it was assigned the name, Sulfanilamide, by the Council on Pharmacy and Chemistry of the American Medical Association. This name has also been chosen by the Danish Apothecaries' Control Laboratory as official in Denmark. Preparation of sulfanilamide can be effected by acetylating aniline, forming acetanilid; chlor-sulfonic acid reacts with acetanilid to form 4-acetamino-benzolsulfo-chloride, which, on reaction with ammonia gives the corresponding sulfamide. The latter is then hydrolyzed with acid, splitting off the acetyl group and yielding sulfanilamide. Coupling sulfanilamide with 1,3-phenylenediamine yields the azo dyestuff, Prontosil. If the diazotized sulfanilamide is coupled with *N*-acetylated hydroxyaminonaphthalene-disulfonic acid, Prontosil Soluble, is obtained. Various other derivatives are described and their comparative streptococcocidal activities are cited. Proseptacine, discovered by Grossedet and co-workers, is also considered: $C_6H_5CH_2N.C_6H_4SO_2NH_2$; also the variant structures made by Domagk, Diseptal C, Diseptal B and Uliron. Uliron was the first chemotherapeutic agent used in treating gonorrhea. Albucid is an acetylated sulfanilamide: $H_2N\ C_6H_4SO_2NHOCCH_3$. Sulfapyridine was introduced by May and Baker, an English firm. It is made by treating 4-acetaminobenzol-sulfo-chloride with 2-aminopyridine, then hydrolyzing off the acetyl group. This was named "Dagenan" from the town where the May and Baker works are located, Dagenham, England. In trial it was known as M. & B. 693. In Germany it is known as Eubasinum. In Scandinavia it has been called Pyriamid, and the American A.M.A. Council name is Sulfapyridine. All the above preparations are difficultly soluble. A sulfanilamide derivative which is more soluble is issued in England under the name Soluseptasine, this is the di-sodium salt of 4-(γ-phenylpropylamino)benzolsulfonamide, α,γ-disulfonic acid. In making it, a condensation product of sulfanilamide and cinnamic aldehyde is treated with sodium bisulfite. Streptasol is another soluble derivative made by treating 4-acetaminobenzolsulfo chloride with aminoacetic acid. In Sweden a soluble preparation called Streptal Soluble is made by condensing sulfanilamide with α,β-pyridinedicarboxylic acid (quinolinic acid). The author considers briefly the technic of testing the streptococcocidal activity of sulfanilamide derivatives in mice and rats. Twenty references are cited.—H. BAGGESGAARD-RASMUSSEN. *Arch. Pharm. Chemi*, 46 (1939), 127. (C. S. L.)

Sulfanilamide in Undulant Fever. A case of undulant fever is reported which showed an apparently specific response to sulfanilamide. The diagnosis was verified by a positive agglutination test and a positive blood culture.—E. C. BARTELS. *New Eng. J. Med.*, 219 (1938), 988. (W. H. H.)

Sulfanilamide—Rationale of, in Gonococcic Urethritis. Sulfanilamide given by mouth was successful in combating gonorrhea in majority of cases. A study was made to determine the mode of action. Experimental male dogs were fed sulfanilamide; blood prostatic secretion and urine were analyzed for sulfanilamide content, and bactericidal action of the specimens was tested against staphylococci and colon bacilli. Prostatic secretions were also collected from dogs given sulfanilamide intravenously and were tested for bactericidal activity. When the kidney is normal, the drug is excreted in concentrations that are bactericidal. Secretions of posterior urethra, especially prostate, have similar effect, which effectually confines infection to the anterior urethra. Drug appears to act directly on infecting organisms in genito-urinary tract.—JAMES J. FARRELL. *J. Am. Med. Assoc.*, 110 (1938), 1176. (G. S. G.)

Sulfanilamide Therapy—Failure of, in Coliform and Gonococcal Infections. Contrary to other reports, the authors state that the administration of 3 Gm. of prontosil album daily for a period of 7 days failed to produce a single cure in 8 cases of coliform infection. The administration of same size doses of Uliron, another drug of the sulfanil-

amide group, to nine gonorrheal patients likewise failed to result in a cure.—F. R. W. K. ALLEN, G. L. SHARMA, I. B. BASU, C. M. JAMDAR and K. B. PANSE. *Indian Med. Gaz.*, 74 (1939), 209–210. (W. T. S.)

Sulfanilamide Treatment of Acute Suppurative Streptococcal Arthritis. Spink reports a case of acute suppurative arthritis of the knee which was found to be due to hemolytic streptococcus infection by culture of pus aspirated from the affected joint. The patient showed other serious effects of the infection, which had affected the function of the kidneys and had produced uremic symptoms. The knee joint at the time of admission to the hospital was swollen and fixed. The patient was given sulfanilamide as soon as the streptococcal nature of the infection was apparent, the dose being 40 grains daily in divided portions. The sulfanilamide content of the synovial fluid rose to 6.3 mg. per 100 cc. shortly after the treatment was begun, and later attained a level of 10.3 mg. per 100 cc.—somewhat higher than the blood level which was determined simultaneously. The patient eventually recovered, and when last seen had full motion in the affected joint. The diffusability of sulfanilamide is shown by the synovial fluid measurements.—W. W. SPINK. *Am. J. Med. Sci.*, 198 (1939), 35; through *Abbott Abstract Service*, (1940), No. 570. (F. J. S.)

Sulfanilamide—Treatment of Gonorrheal Vulvovaginitis with. A high prevalence of gonorrheal vulvovaginitis was found in institutional children and in children of poor families and was traceable to toilet facilities, towels and bed linens. The children are more susceptible than adults as they lack protective mechanism and structures. Treatments consisted mostly of local chemotherapy and silver nitrate was the most effective. A report is given of a series of 25 children who were given sulfanilamide orally in fruit juice, the dosage ranging from $^3/_4$ gr. per pound body weight to $^3/_8$ gr. over a period of 21 days. All, except two, were cured in two courses of treatment. Children tolerated sulfanilamide better than adults.—SAMUEL J. HOFFMAN, *et al.* *J. Am. Med. Assoc.*, 110 (1938), 1541. (G. S. G.)

Sulfanilamide —Treatment of Streptococcic Dermatosis with. There have been scattered reports in the literature, mainly of small groups of cases, in which sulfanilamide was apparently of benefit in bringing about improvement of skin lesions of various types. In almost all instances, the rationale for the administration of the drug was that streptococci were conjectured to play some part in the causation of the disease. The present authors describe six cases presenting lesions of varying morphology, all of which had certain pyodermic characteristics. Cultures from the lesions in each case yielded streptococci. Accordingly, the patients were given sulfanilamide in massive doses. The usual amounts administered were: 105 grs. the first day, 90 grs. the second day, 80 grs. the third day, 60 grs. the fourth to seventh day and 45 grs. daily thereafter until such time as the infection was under control. By removing the added element of streptococcal infection, in every case the sulfanilamide treatment enabled the underlying cause of dermatitis to be treated more successfully.—J. M. FLOOD and J. H. STOKES. *Brit. J. Dermat. and Syph.*, 51 (1939), 359; through *Abbott Abstract Service*, (1940), No. 585. (F. J. S.)

Sulfanilamide—Use of, in Otolaryngology. A review of the literature with 227 references.—H. P. SCHENCK. *Arch. Otolaryngol.*, 28 (1938), 689–747; through *Chem. Abstr.*, 33 (1939), 1819. (F. J. S.)

Sulfapyridine and Serum Therapy in Experimental Lobar Pneumonia of Rats. A combination of type-specific serum, administered intraperitoneally, and sulfapyridine, administered by stomach tube, was more efficacious in the treatment of experimental lobar pneumonia of rats than either alone, when treatment was begun within 4 hours after infection. After infection was well established, following intrabronchial insufflation of relatively large doses of pneumococci, serum was more efficacious than sulfapyridine in preserving life, but a combination of the two did not show a significant reduction of mortality even with smaller infecting doses.—MAXWELL KEPL and F. D. GUNN. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 529. (A. E. M.)

Sulfapyridine—Four Hundred Cases of Pneumonia Treated with. Sulfapyridine was used in the treatment of 400 cases of pneumococcic pneumonia, in all of which the type of the causative organism was determined. No other special treatment was used. The only patients excluded from the statistics are those who received the treatment less than 12 hours. The results of typing were in part as follows: 197 of the cases were harboring one of the first three types. The doses were: 2 Gm. on admission, followed by 1 Gm. every 4 hours until a total of 25 Gm. had been given (in some cases, seen late, a total of 15 Gm. was sufficient). The gross mortality in the whole series was 7%. Type I infections had a mortality of 5.8, type III, 16.4%. As a rule, the most striking effect of the treatment was a drop in temperature within the first 24 hours. Only 5 cases developed empyema, while 11 others had large pleural effusions which did not become infected. Toxic reactions included nausea and vomiting, hematuria (7%) and leukopenia (0.5%).—D. S. PEPPER, H. F. FLIPPIN, L. SCHWARTZ and J. S. LOCKWOOD. *Am. J. Med. Sci.*, 198 (1939), 22; through *Abbott Abstract Service*, (1940), No. 578. (F. J. S.)

Sulfapyridine Treatment—Control of Nausea in. Sulfapyridine is now being widely used in the treatment of pneumococcal pneumonia, with results which appear so far to be good. One of the serious difficulties encountered in administering this drug, however, is the nausea and vomiting which are often provoked by it. The author estimates that approximately half of all the patients who receive the drug will be found to suffer from this symptom to a greater or lesser extent, and sometimes the vomiting may be so severe as to make continuation of the treatment impossible. This minor reaction, however, is not a danger signal, and should not cause the physician to discontinue treatment. The author states that the nausea may often be minimized by administering the drug in milk, and may also be temporarily relieved by the inhalation of 100% oxygen, administered by means of a suitable apparatus, such as a face mask connected to a rebreathing bag and oxygen tank.—H. C. HINSHAW. *Med. Clinics N. America*, 23 (1939), 945; through *Abbott Abstract Service*, (1940), No. 577. (F. J. S.)

Syphilis—Intravenous Therapy for the Treatment of. A composition containing in a 30% aqueous glucose solution calcium chloride in the ratio of one-sixth to one-third of the glucose present, is used as a vehicle for the intravenous administration of remedial agents of the arsenical type.—DONA to P. GARCIA. U. S. pat. 2,145,869, Feb. 7, 1939. (A. P.-C.)

Tannic Acid—Soapy Tub Treatment of Burns Preferred to. This method is not claimed to be new. The treatment of the stage of initial shock consists in keeping the patient quiet, wrapped in a sterile sheet, and in administering fluids intravenously. Later, a transfusion is given. At this stage, the author departs from tradition by abandoning the use of morphine or other opiates entirely; he states

that they are not needed, since pain is not severe after the first few minutes. These drugs tend to tie up urinary excretion, and are never given until the patient is able to void. After primary shock has subsided, the patient is immersed in a tub of soapy water for 5 minutes, lifted out onto a sterile sheet, and the burns debrided. Wet dressings of dilute Burow's solution are then applied and kept moist until the next day, when the tubbing is repeated. Thereafter, the tub soaks are done several times a day, the burns being cleaned gently each time. It is claimed that this method of treatment is more humane and gives better results.—H. J. LAVENDER. *Am. J. Surg.*, 45 (1939), 534; through *Abbott Abstract Service*, (1940), No. 584. (F. J. S.)

Tannin-Bearing Drugs and Their Therapeutic Action—German. The native plants bearing tannins are discussed. Twelve prescriptions are recommended in which Tormentilla (*Potentilla silvestris*) rhizomes and its preparations are used. This drug which is unusually high in tannin has replaced American rhatany in the German Pharmacopœia.—W. PEYER. *Scientia Pharm.*, 10 (1939), 14–16. (H. M. B.)

Tetrachloroethylene. Study of Its Use in Hookworm Diseases with Special Reference to Toxicity. A review of the available literature disclosed that tetrachloroethylene is a relatively safe and effective anthelmintic against the hookworm of man and domestic animals. From a study of the anthelmintic activity of tetrachloroethylene in 111 patients ranging in age from 2 to 70 years the previous reports in the literature were confirmed and the following conclusion drawn. The most effective dose was 8 cc., following which no appreciable toxic action was found on the cardiovascular, respiratory, hepatic and renal organs. Doses of 4 to 5 cc. may be safely given to adult patients while children may be given tetrachloroethylene in doses in minims of four to five times the age. The report is replete with tables containing information pertaining to the study.—P. B. FERNANDO, MAURICE D'SILVA, G. K. B. STORK and GRACE R. SINNATAMBY. *Indian J. Med. Research*, 26 (1939), 759–783. (W. T. S.)

Therapeutic Preparation. A supersaturated solution of calcium glycerophosphate is stabilized by dissolving not less than 3 parts by weight each of calcium gluconate and calcium glycerophosphate in not more than 93 parts of hot water and in the presence of a soluble aluminum compound as a stabilizer.—FRANK BREED and LEWIS E. HARRIS, assignors to NORDEN LABORATORIES. U. S. pat. 2,144,830, Jan. 24, 1939. (A. P.-C.)

Thorium Compound—New Organic. Colloidal thorium dioxide, which possesses an appreciable degree of radioactivity, if injected, deposits in the liver and spleen particles of thorium dioxide which will remain for years. The authors found that sodium thorium tartrate, which is readily soluble in water, does not cause deposits of thorium particles in the liver, in the spleen or any other organ. The compound has a definite radioactivity which, however, is only half that of colloidal thorium dioxide. It was established that highly concentrated sugar solutions, such as 50% sucrose or dextrose, screened out some of the gamma rays of this radioactivity, and a 25% solution of sodium thorium tartrate in 50% sucrose seemed to possess sufficient density to prevent the X-rays from penetrating. Experiments showed that if a 25% solution of sodium thorium tartrate is given orally to rabbits in doses of 1 cc. and 10 cc. for a period of one or two months, the X-ray pictures of these rabbits do not show any change in bone structure, or any fluorescence under the fluoroscope. Ingestions of 10 cc. and 20 cc. of the solution in the stomach showed a distinct outline of the stomach and its rugæ. No radioactivity could be found in rabbits that have been treated with the thorium compound.—GREENBAUM and PETERS. *Chemist and Druggist*, 130 (1939), 604. (A. C. DeD.)

Ultraviolet Light Erythema and Its Prevention. Besides the coumarins the following substances were found to be useful for the external protection of the skin against ultraviolet light irradiation: isosafrole, stilbene, benzalacetophenone and dibenzalacetone in alcohol and in petrolatum. In order to afford good protection a substance must have a favorable absorption curve, cause no skin irritation and must be soluble in alcohol or capable of incorporation in petrolatum.—JOSEF KIMMIG and ROBERT DUKER. *Strahlentherapie*, 65 (1939), 315–329; through *Chem. Abstr.*, 33 (1939), 8911. (F. J. S.)

Ultraviruses—Therapeutic Activity of Sulfur-Containing Benzene Derivatives in Diseases Due to. The drugs were given in maximum tolerated oral doses to infected guinea pigs or mice. *p*-Aminophenylsulfonamide, chrysoidinesulfonamide, 4-nitro-4′-aminodiphenyl sulfone and 4-nitro-4′-aminodiphenyl sulfoxide had no beneficial effect in choriomeningitis, encephalitis (culture of Webster and Fite), influenza or aphthous fever. Sodium 4′-sulfamylphenylazo-3, 5-diaminobenzoate and chrysoidinesulfonamide had possibly some slight action in aphthous fever. *p*-Aminophenyl-sulfonamide and sodium 4′-sulfamylphenylazo-3,5-diaminobenzoate, but none of the other compounds, seemed to have some ameliorating action in inguinal lymphogranulomatosis.—C. LEVADITI. *Compt. rend. soc. biol.*, 127 (1938), 958–960; through *Chimie & Industrie*, 40 (1938), 531. (A. P.-C.)

Undulant Fever—Treatment of, with Sulfanilamide. A report of three patients with clinically and serologically established undulant fever who were treated with sulfanilamide in tablet form, with prompt clinical cure of the disease. Maximum dose of 60, 80, 40, 20-grs. course appeared to be necessary.—ROBERT STERN and KEN W. BLAKE. *J. Am. Med. Assoc.*, 110 (1938), 1550. (G. S. G.)

Venom Therapy—Moccasin. Moccasin venom in a 1:3000 solution, has been found of value in many types of cases associated with hemorrhage, where the etiologic factor lies in the blood vessel wall, rather than in the blood. Its value has been most fully established in thrombocytopenic purpura and in chronic nasal and uterine bleeding. It is of little value or no value in hemophilia and in certain purpuric conditions associated with infection. It may be of some value in certain skin affections associated with vesicular or bullous eruptions.—T. S. GITHENS. *Clin. Med. Surg.*, 46 (1939), 167. (W. H. H.)

Vinyl Ether (Vinethene)—Use and Application of, in Surgery of the Mouth. A review—L. M. SAGHIRIAN. *Anesthesia and Analgesia* 18 (1939), 10–15; through *Chem. Abstr.*, 33 (1939), 2585. (E. G. V.)

Vitamin C—Therapeutic Value of. A discussion on the use of vitamin C in lung affections, acute articular rheumatic fever, nephritis, colitis and hemorrhagic diseases.—M. RAVETTA and G. RETTANNI. *Gazz. ospedali clin.*, 69 (1938), 771–786; through *Chem. Abstr.*, 33 (1939), 2565. (E. G. V.)

Vitamin C with Calcium—Use of, in the Treatment of Acne. The author states that one of the commonest symptoms in patients suffering from scurvy is an acne-like eruption. This observation was not connected with the treatment of acne until the author gave a series of 25 acne patients intramuscular injections of ascorbic acid in a 10% solution of calcium gluconate, merely as a general effort to better their nutritional status. He was surprised to note an improvement in the skin lesions; the

general state of the patients improved; they gained weight; the number of lesions was reduced, and the old lesions began to heal. The skin became more opaque and less oily, the secretions of sweat and sebum being reduced in amount. The vitamin C was given in doses of 25 to 50 mg., either in simple aqueous solution, or in a solution of calcium gluconate, 10%, using 10 cc. to dissolve 50 mg. of the ascorbic acid. Both the intravenous and intramuscular routes were used.—M. LOZZA. *Minerva med.*, 30 (1939), 235; through *Abbott Abstract Service*, (1940), No. 583. (F. J. S.)

Vitamin K—Use of, in the Treatment of Hemorrhagic Diathesis. Bringing additional data as to the efficacy of vitamin K in preventing hemorrhage in operations on jaundiced patients, the present paper reports 10 cases of obstructive jaundice treated with vitamin K and bile salts. All of these patients showed a delayed clotting time at first, but in nine of them the clotting time returned to normal after administration of vitamin K and bile salts. There are certain jaundiced patients who do not show any prolongation of clotting time preoperatively, but the authors believe that they should be given the vitamin treatment regardless, since loss of blood during operation may sufficiently lower the prothrombin level to place the patient in danger of hemorrhage. One of the causes for the lack of vitamin K in patients with biliary tract disease may well be the low-fat diet which is almost routinely prescribed for such patients for extended periods before they finally come for operative procedure.—S. R. TOWNSEND and E. S. MILLS. *Can. Med. Assoc. J.*, 41 (1939), 111; through *Abbott Abstract Service*, (1940), No. 576. (F. J. S.)

Vitamin Therapy—Use of, in Ophthalmic Practice. The author has presented a general review of the vitamins A, B, C and D with particular reference to their uses in ophthalmic diseases. The sources and something of the chemistry of these vitamins were discussed with considerable attention being paid to the symptoms observed by the ophthalmic practitioner in patients whose diet is deficient in any one or all of these 4 vitamins.—JOSEPH LAVAL. *Am. J. Ophthalmol.*, 22 (1939), 33; through *Indian Med. Gaz.*, 74 (1939), 305-307. (W. T. S.)

Vomiting of Pregnancy. The vomiting may be caused by a spasm of the duodenum and when this is relaxed by inhalation of amyl nitrite, relief occurs. Vomiting is also controlled by glyceryl trinitrate $^1/_{100}$ gr. placed under tongue three times daily, preferably before meals.—JOHN M. MCGOWAN.—*J. Am. Med. Assoc.*, 110 (1938), 498. (G. S. G.)

NEW REMEDIES

SYNTHETICS

Alepsin (The Crookes Laboratories, London) is sodium diphenyl-hydantoinate. It is used in cases of convulsive disorders. The dose is given in the special literature. It is supplied as tablets containing 0.1 Gm. of the substance, in tubes of 25 and 100.—*Australasian J. Pharm.*, 20 (1939), 987. (A. C. DeD.)

Cardiazol-Ephedrine (Knoll A.-G., Chemical Works, Ludwigshafen-On-Rhine) possesses central and peripheral action and is marketed in the form of tablets, in the liquid form (drops) and in ampuls. Cardiazol-Ephedrine is recommended in the treatment of circulatory inefficiency, hypotonia and collapse while its spasmolytic properties and high degree of tolerance render it valuable in relieving asthma.—*Indian Med. Gaz.*, 74 (1939), 64. (W. T. S.)

Cortenil (Bayer Products Ltd., London) is a synthetic suprarenal cortical preparation. It is used in Addison's disease and asthenia. Each ampul contains 5 mg. desoxycorticosterone acetate. They are supplied in boxes of 3 and 15 x 1 cc.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

E. O. B. A. Sclerosant (Wyleys Ltd., Coventry, Eng.) is a stable sterile aqueous solution of monoethanolamine oleate 5% with benzyl alcohol 2%. It is used for the obliterative treatment of varicose veins and for general use as a sclerosing agent. It is marketed in 15- and 30-cc. rubber-capped bottles and 2-cc. Wylettes.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Lutogyl (Roussel Laboratories Ltd., London) contains crystalline progesterone in oily solution for intramuscular injection. It is used for all conditions characterized by lack of corpus luteum hormones or an excess of follicular hormone œstradiol; dysmenorrhagia, sterility, threatened and habitual abortions. It is supplied in 5 and 10 mg. in 1-cc. ampuls.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Moogrul (Burroughs Wellcome and Co., Sydney) is a mixture of esters of acids of the chaulmoogric series. It is used in cases of leprosy. It is given by intramuscular injection. It is supplied in 25-cc., 100-cc. and 1-liter bottles.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Nicamide (Burroughs Wellcome and Co., London and Sydney) is nicotinic acid diethylamide. It is a respiratory and circulatory stimulant. The dose of the solution, by mouth is 1 to 2 cc.; "Hypoloid" Nicamide, 1 to 5 cc. intravenously and intramuscularly. The solution is packed in bottles of 15 cc., with pipette, and bottle of 100 cc., the "Hypoloid" product in boxes of 6 ampuls of 2 cc. and 5 cc.—*Australasian J. Pharm.*, 20 (1939), 988. (A. C. DeD.)

Nicotinic Acid Amide, (Hoffmann LaRoche) is prepared synthetically from nicotinic acid, $C_6H_5O_2N$, by conversion of the carboxyl group, COOH into $CONH_2$ and it seems to correspond to the antipellagra vitamin B. It is found in nature in liver, yeast, muscle, milk, etc. One Kg. of beef liver contains about 3.5 mg. The dose is 0.05–0.1 Gm. three times a day in canine pellagra, known also as black tongue.—*Pharm. Weekblad*, 76 (1939), 582. (E. H. W.)

Orgakinine (N. V. Orgachemia, Oss) is quinine-di-ascorbinate that contains 48% quinine and 52% ascorbic acid. This combination makes it possible to prepare an aqueous quinine solution of high concentration with a p_H suitable for parenteral use. Experiments show the quinine-di-ascorbinate to be less toxic than quinine-phenyldimethylpyrazolone and also that it is well tolerated. Two-cc. ampuls are indicated for parenteral use. These contain 520 mg. Orgakinine, while the dragées contain 75 mg.—*Pharm. Weekblad*, 76 (1939), 582. (E. H. W.)

Ovocycline (Gesellschaft für chemische Industrie, Basel) is œstradioldipropionate, a chemically pure body that may be obtained from the follicle hormone, œstron, or may be isolated from the urine of pregnant women or from œstradiol isolated by Doisy from the ovaries of hogs and which is a combination of œstron with two esterified hydrogen atoms. Of several esters prepared in the Ciba laboratories it appeared that the dipropionate was the most efficient. Œstradiol and not the ester is indicated for internal use. Ovocycline is found on the market in 1-cc. ampuls with 1 mg. Ovocycline-P, in ampuls with 5 mg. Ovocycline-P and in tablets containing 0.1 mg. and 1 mg. of Ovocycline (Œstradiol).—*Pharm. Weekblad*, 76 (1939), 583. (E. H. W.)

Pervitin (Temmler-Werke, Berlin) is 1-phenyl-2-methylaminopropane hydrochloride. In doses of 2 mg. it acts as a stimulant to the central nervous system and increases the normal blood pressure. For this reason it is used in hypotension and general fatigue. It is found on the market in tablets containing 3 mg.—*Pharm. Weekblad*, 76 (1939), 583. (E. H. W.)

Phrenazol (Boots Pure Drug Co. Ltd., Nottingham, England) is pentamethylenetetrazol solution, containing 1% sodium phosphate. It is used as a cardiac and respiratory stimulant; also for the shock (convulsive) treatment of schizophrenia. It is supplied as 1-cc., 3-cc. and 5-cc. ampuls, in boxes of 3 and 6; 1/2 fl. oz. bottles; 25-cc. rubber-capped vials; powder, 1/4 oz.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Progestoral (Organon Laboratories, London) is synthetic anhydro-oxy-progesterone. It is used for the oral therapy of all conditions in which progestin is normally administered. Each tablet contains 5 or 10 mg.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Protamine-Zinc-Insulin (N. V. Organon) will from now on be found on the market in the usual insulin-bottles as a milky suspension, ready for use and is to be kept in a cool place and used before the expiration date given on the package.—*Pharm. Weekblad*, 76 (1939), 583. (E. H. W.)

Revasan Pastilles (I. G. Farbenindustrie) contains as the active principle the same ingredient found in the strongly bactericidal antiseptic (Surfeen) for external use.—*Pharm. Weekblad*, 76 (1939), 584. (E. H. W.)

Spirocid (Bayer Product Ltd., London) is 4-oxy-3-acetyl-amino-phenyl-arsinic acid. It is used in congential syphilis, relapsing, fever, yaws, anemia, amœbic dysentery, Vincent's angina, rabbit fever, warts. The dose: for 3 days, 2, 3 and 3 tablets, then three days' interval; dose and interval repeated to a total of 56 tablets. Children, correspondingly less. For amœbic dysentery: 4 tablets daily for four days; interval of four days; then repeat dosage. It is supplied as 4-gr. tablets in bottles of 30; 0.15-gr. tablets in bottles of 50.—*Australasian J. Pharm.*, 20 (1939), 988. (A. C. DeD.)

Theocin Sodium Acetate (Bayer Products Ltd., London) is di-methyl-xanthin-sodium-acetate. It is used as a diuretic, cardiac and renal œdema, angina pectoris, chronic asthma. The dose is 1 1/2 to 5 grs. dissolved in water, twice daily, after meals. The powder is supplied in 1/2- and 1-ounce bottles and the tablets 1 1/2 grs. (0.1 Gm.) in tubes of 20.—*Australasian J. Pharm.*, 20 (1939), 1174. (A. C. DeD.)

Valyl Perles (Bayer Products Ltd., London) is valeryl-diethyl-amide. It is used in hysteria, neurasthenia, climacteric disorders, menstrual disturbances. The dose is two to three perles during or after meals. It is supplied as 2-gr. perles in bottles of 25.—*Australasian J. Pharm.*, 20 (1939), 988. (A. C. DeD.)

SPECIALTIES

Akrotherm Ointment (Desitin Products Ltd., London) contains extracts of various organs chemically akin to histamine, acetylcholine and adenylphosphoric acid, with lanolin and basis. It is used for chilblains, cold and bluish red hands, feet and nose; Reynaud's disease, scleroderma, populo-necrotic tuberculides. It is supplied in tubes.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Allursin (Curta & Co., G. m. b. H., Berlin-Britz) is an extract of *Allium ursinum*, prepared from the fresh flowering plant. It is not odorless and is used in catarrh of the stomach, dyspepsia, arteriosclerosis and hypertension.—*Pharm. Weekblad*, 76 (1939), 581. (E. H. W.)

Antuitrine "S" or **Antroidine** (Parke, Davis and Co., London) is a solution of the gonadotropic hormone obtained from pregnancy urine with 100 or 500 rat units per cc. Injections cause premature puberty in female animals manifested by a ripening of the ovarian follicles and the formation of corpus luteum. It is used in women in the treatment of bleeding of the uterus, amenorrhea, oligomenorrhea, dysmenorrhea and in habitual or threatened abortion. In males it is used in cryptorchidism, aspermatism and impotence. In both sexes it is used in delayed puberty, sexual infantilism, Froehlich's syndrome, acne vulgaris and sterility. It is sold in 10-cc. bottles.—*Pharm. Weekblad*, 76 (1939), 581. (E. H. W.)

Barolac (Burroughs Wellcome and Co., London and Sydney) is a 30% suspension of "Wellcome" Brand barium sulfate. It is used in radiographic examination of the alimentary canal. It is marketed in winchester quarts.—*Australasian J. Pharm.*, 20 (1939), 987. (A. C. DeD.)

Bedermine (I. G. Farbenindustrie Bayer) is a mixture of ascaridol and the carbon tetrachloride preparation, secretin in the proportion of 1:6. It is found on the market in capsules of 0.6 Gm. and in 30-cc. bottles containing a 14% solution. It is used for ascaris, and also for hookworm.—*Pharm. Weekblad*, 76 (1939), 518. (E. H. W.)

Bicreol Brand Bismuth Cream (Burroughs Wellcome and Co., Sydney and London) contains 0.15 Gm. of metallic bismuth in 1 cc. in a creo-camph. base. It is used in the treatment of syphilis. It is given by intramuscular injection. The commencing dose is 1 cc. increased to 2 cc. It is supplied in glass jars, containing 1/2 ounce and 2 ounces.—*Australasian J. Pharm.*, 20 (1939), 1174. (A. C. DeD.)

Bluevita Liquidum (Lever Brothers & Unilever, Rotterdam) has now a higher concentration of vitamins, *i. e.*, 25,000 International units A and 3000 International units D.—*Pharm. Weekblad*, 76 (1939), 581. (E. H. W.)

Bromochine Dragées (Chemische Fabriek "Katwijk") contain per tablet 12.75 mg. of the sulfates of the cinchona alkaloids and 250 mg. of potassium bromide and sugar. Dose, 2 dragées three times a day.—*Pharm. Weekblad*, 76 (1939), 581. (E. H. W.)

B-Tropon (Troponwerke, Cologne-Mülheim) contain 8%, stabilized B Vitamin concentrate and 88% grape sugar.—*Pharm. Weekblad*, 76 (1939), 584. (E. H. W.)

Daboine (Laboratoire Gallier) is prepared from the snake poison of *Vipera Daboia*. This snake poison contains an hemostatic substance which coagulates the blood in hæmophilia within 17 seconds, which in normal circumstances requires 37 minutes for coagulation. The snake poison contains two ferments, serozyme and cytozyme which bring about normal coagulation. The coagulative property of the snake poison is increased through warming to 60°. A 10% solution of this snake poison in distilled water will coagulate a quantity of blood within one minute which normally does not coagulate for 20 minutes. This solution, Daboine, which is sterile is used to saturate tampons which are placed on the bleeding wound for from one to two minutes. Daboine is sold in 2-cc. ampuls and in 20-cc. dropping bottles.—*Pharm. Weekblad*, 76 (1939), 581. (E. H. W.)

Dibionta (E. Merck, Darmstadt) is designed as a preparation to supply vitamins according to the

modern view that the organism in order to maintain health must have a constant supply of vitamins particularly the water-soluble vitamins B_1 and C. Dibionta Merck consists of tablets which can easily be broken into twelve blocks along grooves. It has a pleasant taste and is used to amplify the diet. Three blocks contain 30 mg. Vitamin C and 1 mg. Vitamin B_1. Dose 1 block or more three times a day.—*Pharm. Weekblad*, 76 (1939), 582. (E. H. W.)

Entoral (Eli Lilly and Co., Ltd., Basingstoke and London) is an oral cold vaccine. The filled capsules, each containing killed bacterial cultures of pneumococci, 25,000 million; streptococci, 15,000 million. *H. influenzæ*, 5000 million; *M. catarrhalis*, 5000 million. The dose is one capsule daily for one week, then one twice a week throughout the period when upper respiratory infections are prevalent. Immunization should be repeated annually. It is supplied in bottles of 20 and 60 "Pulvules" brand filled capsules.—*Australasian J. Pharm.*, 20 (1939), 987. (A. C. DeD.)

Ephynal (Roche Products Ltd., Welwyn Garden City, Herts, Eng.) is α-tocopherol acetate-vitamin E. It is used in habitual and threatened abortion, sterility, certain cases of dysmenorrhea, vulvovaginitis, lactation. The dose is one tablet prophylactically; massive doses in threatened abortion. It is supplied in bottles of 30 tablets, each containing 3 mg.—*Australasian J. Pharm.*, 20 (1939), 987. (A. C. DeD.)

Euphydigtal (Chemische Werke, Byk) is a combination of euphyllinum and digitalis. Euphydigtal tablets contain 0.1 Gm. euphylline and 0.1 Gm. Folia Digitalis per tablet; each suppository contains 0.2 Gm. euphylline and 0.15 Gm. Folia Digitalis.—*Pharm. Weekblad*, 76 (1939), 582. (E. H. W.)

Infundrenalin (Evans, Sons, Lescher and Webb Ltd., Liverpool) is supplied in two ampuls, the contents of which, when mixed in a hypodermic syringe, give a solution containing pituitary posterior lobe extract 0.5 cc. and adrenaline 1 in 1500, 0.5 cc. It is used for asthma and hay fever. The dose is 0.5 to 1 cc. hypodermically. It is supplied in boxes of six twin ampuls.—*Australasian J. Pharm.*, 20 (1939), 1174. (A. C. DeD.)

Kaduran (also known as Dr. Kadza's durable bandage) is a latex bandage that may be boiled and sterilized and which after washing retains its full elasticity. The blue package is designed for the bandaging of fractures and varices while the red package is designed as a summer bandage in thrombosis. It is sold through N. V. Muller and Peters, Amsterdam.—*Pharm. Weekblad*, 76 (1939), 582. (E. H. W.)

Liquemin (Roche Products Ltd., Welwyn Garden City, Herts.) is a standardized preparation of heparin, the physiological anticoagulant of blood. It is used as an anticoagulant in blood transfusion and blood storage; prevention and treatment of thrombosis and embolism by intravenous injection; preservation of blood for pathological investigations. It is supplied in solution: 5-cc. rubber-capped phials, containing 10,000 A. C. U.; in powder: tubes of 100 mg., equal to 50,000 A. C. U.; and larger packings.—*Australasian J. Pharm.*, 20 (1939), 1174. (A. C. DeD.)

Milkoderm (Desetin Products Ltd., London) consists of extracts of milk and milk cream, with incorporated drugs. **Tar Milkoderm** is used for chronic eczema and lichen ruber; **Acne Milkoderm** (with sulfur ichthyol, resorcin) for acne rosacea, folliculitis barbæ. **Hydro Milkoderm** for hyperhydrosis and bromidrosis. The tar and acne is supplied in tube or jar; the hydro in tube or 1/2-lb., 1-lb. and 2-lb. tins.—*Australasian J. Pharm.*, 20 (1939), 1174. (A. C. DeD.)

Neo-Pepsac (Boots Pure Drug Co., Ltd., Nottingham) is a concentrated stomach substance. It is used in pernicious anemia. The dose is one or more cachets dipped in water and swallowed with water. It is supplied in boxes of 24 cachets.—*Australasian J. Pharm.*, 20 (1939), 1174. (A. C. DeD.)

Opo-Iodamelis (Logears) (Anglo-French Drug Co., Ltd., London) is a combination of iodine and hamamelidin with gland extracts. It is used in the treatment of endocrine deficiencies in man and woman. It is marketed in tablets in two forms, M. and F.—*Australasian J. Pharm.*, 20 (1939), 1091. (A. C. DeD.)

Oubain Arnaud (Laboratory Nativelle Ltd., London) is a pure glucoside from *Strophanthus gratus*. It is used in cardiac failure, particularly when pulse is regular or slow; left ventricular insufficiency, myocarditis. It is supplied as 5-mg. tablets and 2% solution for oral use and as ampuls of 1/4 and 1/2 mg. for intravenous injection.—*Australasian J. Pharm.*, 20 (1939), 988. (A. C. DeD.)

Priovit (Bayer Products Ltd., London) contains in each pellet: Vitamin B, 0.5 mg.; vitamin B_2, 0.25 mg.; vitamin C, 25.0 mg.; factor P (citrin), 5.0 mg. It is used in cases of febrile diseases, endocrine disorders, and generally in cases of vitamin deficiency. It is marketed in tubes of 20 pellets.—*Australasian J. Pharm.*, 20 (1939), 988. (A. C. DeD.)

Prontosil Rubrum is now also sold in powdered form for the preparation of solutions and ointments for external use. The following solution is recommended for external use: prontosil rubrum 2, alcohol 60, acetone 37, glycerin 1. More acetone must be added to the mixture when a stronger solution is desired. A concentration of 5% is recommended for ointments. It is used in foul and infected wounds, boils, carbuncles, panaris and pyodermia. Prontosil is also used rectally, but in a concentration no larger than that of Ampulla Recti, prepared by dissolving 3–6 Gm. in 50–80 cc. of warm Mucilago Amyli Oryzæ. For the removal of prontosil spots a solution of 2 Gm. of soda and 3 Gm. of sodium bisulfite in 1 liter of water, is used.—*Pharm. Weekblad*, 76 (1939), 583. (E. H. W.)

Roborton Dragées (Societeit voor Chemische Industrie, Katwijk) contain per tablet 60 mg. extract of cola sicc., 3 mg. manganous lactate, 0.08 mg. strychnine nitrate, 3 mg. sodium methylarsenate, 111 mg. sodium biphosphate. The tablets serve as roborant, tonic and nervine. The dose is one tablet 3 times a day, to be doubled after 7–10 days.—*Pharm. Weekblad*, 76 (1939), 584. (E. H. W.)

Serenol (Laboratoires Lobica, Paris and Rotterdam) contains peptone 0.03, hexamethylenetetramine 0.05, phenylethylmalonyl urea 0.01, tincture belladonna 0.02, Tinctura Cratægi Oxyacanthæ 0.1, Extr. Liquid Anemonis Pulsatillæ 0.05, Extr. Liquid Passifloræ Incarnatæ 0.1, Extr. Liquid Peumi Boldi 0.05 Gm. per coffee-spoon. It is found on the market in liquid form, in tablets and in suppositories and is used in nervous hypertonia.—*Pharm. Weekblad*, 76 (1939), 584. (E. H. W.)

BACTERIOLOGY

Acriflavine Emulsions—Study of the Antiseptic Value of. An investigation was undertaken to compare the antiseptic and germicidal properties of various oily preparations of acriflavine. It was concluded that (1) the present B. P. C. emulsion of acriflavine has little antiseptic value, (2) emulsions of the oil-in-water type seem to have far greater

bacteriostatic and germicidal properties than those of the water-in-oil type, (3) the activity of the water-in-oil emulsions is inversely proportional to their stability as an emulsion.—W. C. WOOD. *Pharm. J.*, 142 (1939), 327. (W. B. B.)

Ammonia-Silver—Experimental Laboratory Testing of. The disinfecting action of an ammoniacal silver preparation in distilled water, physiological salt solution, and in media containing blood was investigated. The effect did not differ from that of other silver compounds of the same degree of dissociation. The disinfecting action was not increased by excess ammonia. The preparation had little effect on experimentally produced purulent infections in rabbits and white mice and showed no advantage over the previously used silver nitrate.—L. A. GITTERMAN. *Sovet. Rachebnyi Zhur.*, 41 (1937), 1614–1623; through *Chem. Abstr.*, 33 (1939), 8916. (F. J. S.)

Ampuls—Sterility Tests on. Ampuls of bismuth subsalicylate, of mercuric salicylate, and bismuth and potassium tartrate were tested for sterility before sterilization, after sterilization at 15 pounds pressure and at 65° C., and after inoculation with *Staphylococcus aureus* followed by sterilization. If a large excess of contaminating organisms are added to the suspensions, followed by incubation, the suspensions do not self-sterilize. Process E of the N. F. does not effect sterilization after the suspensions have been grossly contaminated; process C of the N. F. effects sterilization even after gross contamination of the suspension and has no destructive effect on it.—REPT. AMER. PHARM. ASSOC. LAB., *Bull. Natl. Formulary Committee*, 7 (1939), 350–351. (H. M. B.)

Aniline Dyes—Bactericidal Efficiency of Certain. Data presented indicate that the addition of phenol or *o*-cresol to solutions of crystal violet or methyl violet 2B greatly increases their bactericidal efficiency against Gram-negative bacteria. There is little or no increase in efficiency against Gram-positive bacteria. The addition of phenol or *o*-cresol to solutions of brillant green or malachite green has little or no effect on their bactericidal efficiency. The addition of Na_2CO_3 to aqueous solutions of crystal violet markedly increases bactericidal efficiency but the addition of $Na_2B_4O_7$ or Na_2HPO_4 to such solutions has little or no effect. In contaminated hog-blood mixtures kept at incubator temperature, crystal violet with 0.02 molar Na_2CO_3 appears to be uniformly ineffective; with 0.02 molar Na_2HPO_4, usually effective; and with 0.02 molar $Na_2B_4O_7$, uniformly effective, in killing the contaminating bacteria.—F. W. TILLEY. *J. Agr. Research*, 58 (1939), 941–946; through *Chem. Abstr.*, 33 (1939), 9548. (F. J. S.)

Antibody—Optimal Conditions for Recovery of, from Immune Precipitate of Type I Pneumococcus. There is an optimal p_H for the recovery of antibody from immune precipitate of type I pneumococcus by treatment with dilute acid or alkali. In presence of NaCl, the percentage of recovery is increased.—SZU-CHIH LIU and HSIEN WU. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 144. (A. E. M.)

Antiserums—Combining Power of Concentrated and Unconcentrated. The firmness of the antitoxin-toxin union was studied *in vitro*, *in vivo* and by the dilution method. The result was practically the same for ordinary and concentrated tetanus and diphtheria serums. The methods of concentration commonly used do not affect the firmness with which the union takes place.—F. MODERN. *Rev. brasil. chim.* (São Paulo), 6 (1938), 195–197; through *Chem. Abstr.*, 33 (1939), 2579. (E. G. V.)

Antivenom Production in India. In a note on the antivenom production in India it was stated that there is an increasing demand for the product with some 8000 tubes having been used in 1937. The antivenom most often used is an improved bi-valent serum prepared against the venoms of the Indian cobra and Russell's Viper.—ANON. *Indian Med. Gaz.*, 74 (1939), 237. (W. T. S.)

Chemotherapy—Outline of. V. Antiseptics and Bactericides. Recently attention has been turned toward the chloro derivatives of cresols and xylenols as antiseptics and bactericides. Systematic examination of series of these chloro derivatives revealed the fact that they were always more active than the parent phenol even though the chlorine atom in such combinations is relatively inert. It is said that a mixture of chlorocresol and a chloroxylenol possesses an activity greater than can be accounted for by the respective activities of the components. Acriflavine is a mixture of the hydrochlorides of 2:8-diamino-acridine, and of the corresponding methyl-acridinium chloride. In addition to their value as local antiseptics, they have been used for combating specific internal infections, as in the treatment of gonorrhea and meningococcal meningitis. Unfortunately their toxicity is rather high.—ANON. *Pharm. J.*, 142 (1939), 215. (W. B. B.)

Cosmetics—Microbiological Principles in Relation to. In this article the principles which govern the growth of bacteria and molds in cosmetic preparations are clearly explained so that the manufacturer can understand the reasons for the precautions that are recommended. It is shown that some recognized precautions may not fully attain their object.—HUGH NICOL. *Perfumery Essent. Oil Record*, 30 (1939), 209. (A. C. DeD.)

Cryptococcus—Mycological Study of, Isolated from Blastomycosis. A study of fresh sputum from a pulmonary lesion, to identify *Cryptococcus*—a group of round or oval cells similar to yeast cells. Cultures made on agar plates, transferred to liquid media were tested for thermoresistence. Cytologic studies were made with fixatives and with vital staining. Biochemical studies were made with regard to activity as a ferment for sugars, with H_2S, with indol, hemolysins, etc. Pathogenic activity was also studied, inoculating rabbits and guinea pigs. None of the tests were definitive, finding specimen only presents close analogy to *Cryptococcus minor*.—RAUL J. BLAISTEN. *Anales farm bioquím.*, 8 (1937), 93. (G. S. G.)

Deacidification of Wines by Bacteria. Malic and citric acids are converted into lactic acid in Bordeaux red wines by bacteria. *Bact. gracile* attacks malic acid even in very acid wines.—J. RIBEREAU-GAYON and E. PEYNAUD. *Compt. rend. acad. agr. France*, 24 (1938), 600–605; through *J. Soc. Chem. Ind.*, 58 (1939), 200. (E. G. V.)

Diphtheria Antitoxin Autolyzed by Pepsin—Purification and Concentration by Adsorption of.—A. HANSEN. *Biochem. Z.*, 299 (1939), 363–368; through *Chem. Abstr.*, 33 (1939), 2588. (E. G. V.)

Diphtheria Antitoxin—Effect of Concentration on. Since the contents of natural and concentrated therapeutic sera are stated in units per volume, it is generally assumed that a concentrated serum possesses advantages since it contains the requisite antibodies with less undesirable proteins. L. questioned this assumption and conducted some experiments to show the effect of concentration on the absorbability of diphtheria antitoxic sera. Relative viscosity, surface tension and protein concentration of the two types of sera were determined and the method used to determine the relative rates of absorption by different routes of injection was outlined. The concentrated antidiphtheric sera tested was more viscid and contained a higher per cent of

protein than the natural sera. The rates of absorption of the concentrated sera were less than those of the natural sera when both were injected in rabbits in the same dose of units of antitoxin per Kg. of bodyweight.—D. C. LAHIRI. *Indian J. Med. Research*, 26 (1939), 741–752. (W. T. S.)

Diphtheria Toxin—Affinity of, for Nervous Substance. Rabbits, guinea pigs and rats immunized subcutaneously to diphtheria, survive numerous toxic doses of diphtheria toxin by subcutaneous route, but die promptly on cerebral inoculation. This suggested investigation of effect of diphtheria toxin on nervous tissues. Guinea pigs were immunized immediately before and after injections of toxin. Animal survived only if antitoxin was administered subcutaneously five minutes before cerebral injection of toxin. Animals inoculated with mixtures of toxin and antitoxin, required 32 units of antitoxin to neutralize 10 of toxin, injected cerebrally, for survival. For interpreritoneal injection 50 units neutralized 20 of the toxin. By subcutaneous route 20 units of toxin were neutralized by 1.2 of antitoxin. This demonstrates the requirement of 60 times more antitoxin to neutralize by cerebral than by subcutaneous route. Present hypothesis is that toxin and antitoxin unite with colloid substances to form complexes in which one or the other predominates. Nervous tissue constitutes a reagent especially sensitive to the toxin having a definite affinity for it. This may account for fatalities in serum therapy of malignant diphtherias.—ALOIS BACHMANN. *Rev. sud-americana endocrinol. inmunol. quimioterap.*, 21 (1938), 77. (G. S. G.)

Diphtheria Toxin-Antitoxin Mixtures—Investigation of the Occurrence of the Danysz Effect in. Danysz observed in 1902 that a given quantity of ricin can combine with more antiricin when the toxin is added at intervals instead of in one instalment. Since then a number of workers have investigated this phenomenon by using different tests and various toxin-antitoxin mixtures but without uniform results. The authors of the present paper have used diphtheria toxin and antitoxin to study the Danysz phenomenon along with certain conditions which are known to influence it. They reported the phenomenon could not be detected in the flocculation reaction of diphtheria toxin and antitoxin, but that it was strongly noticeable when the mixture of toxin and antitoxin was tested on animals being especially marked within a p_H range of 4.2 to 9.6.—B. N. GHOSH and N. N. ROY. *Indian J. Med. Research*, 26 (1939), 731–740. (W. T. S.)

Diphtheria Toxin—Favorable Action of Certain Components of Yeast Extract in the Production of. Growth and toxin production are accelerated by crystalline vitamin B_1, by unheated yeast extract, and by yeast extract which has been heated with alkali to destroy the vitamin B_1 while leaving the bios and lactoflavin unchanged.—A. MUSTAFA. *Compt. rend. soc. biol.*, 126 (1937), 558–560; through *Chimie & Industrie*, 40 (1938), 713. (A. P.-C.)

Diphtherial Toxin—Influence of Diet on Resistance to. Rats fed a diet rich in protein (casein) for 21 days showed a markedly higher resistance to diphtherial toxin than rats fed a diet high in carbohydrate or fat. Acute inanition caused an increased resistance to the toxin when the dose was based on the weight of the animal.—A. ROTHE MEYER. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 404. (A. E. M.)

Flagella Staining—Routine Test for. Preparation of slides: Wash new slides in dichromate cleaning solution and rinse in 95% alcohol. Wipe dry and heat in flame until orange color appears in the flame, then cool slowly to re-anneal and prevent subsequent breakage. Preparation of organism: Transfer a small amount of growth from an 18–24-hour agar slant to 5–10 cc. of sterile distilled water heated to room temperature. Mix thoroughly and allow to stand for 5 to 30 minutes. Removes a loopful of the suspension from the top of the tube and place it on a glass slide. Smear the drop over the slide with a second slide as in making a blood smear and allow it to air dry. Staining: Prepare the mordant by mixing 2 cc. of saturated aqueous mercuric chloride, 5 cc. of saturated aqueous potassium alum, 2 cc. of 20% aqueous tannic acid and 0.4 cc. of a 6% alcoholic solution of basic fuchsin. Filter the mordant just before using and apply to smear for 8–10 minutes; then wash 10 seconds in running water and air dry. Stain smear 5 minutes without heat using Ziehl's carbol fuchsin. Wash in running water, dry and examine. This method is said to give very consistent results and a higher percentage of positive results than other customary methods of determining bacterial motility.—H. J. CONN and G. E. WOLFE. *J. Bact.*, 36 (1938), 517. (T. C. G.)

Fungistatic and Fungicidal Effects of Various Compounds. Tests were carried out with a large number of antiseptics, using cultures of *Staphylococcus aureus* and *Achorion violaceum*. Methoxybutylbenzene had practically the same fungistatic effect as thymol; its fungicidal effect was slightly greater. Benzoic and salicylic acids are of but little value. Among the dyes, Brilliant Green seems to be superior to Crystal Violet in its action toward *Achorion violaceum;* but the reverse is true with *Staphylococcus;* a mixture of these dyes, used on *A. violaceum* did not give good results, but was effective towards *E. cruris*.—P. A. MAPLESTONE and N. C. DEY. *Indian J. Med. Research*, 25 (1938), 603–616; through *Chimie & Industrie*, 40 (1938), 531. (A. P.-C.)

Hay Fever Antigen. A preparation for immunizing against hay fever comprises a mixture with starch of defatted and dried pollen, finely comminuted, which, when administered orally in solid form, can be absorbed in the digestive tract of human beings to produce a substantial degree of immunity in a majority of pollen-allergic individuals.—GEO. E. ROCKWELL, assignor to ELI LILLY AND CO. U. S. pat. 2,150,131, March 7, 1938. (A. P.-C.)

Immunology—Oxidation and Reduction in. A general review.—E. E. ECKER. *Rev. immunol.*, 4 (1938), 528–547; through *Chem. Abstr.*, 33 (1939), 1810. (F. J. S.)

M. & B. 693 and Pneumococci. A method is described by which the sensitivity of a microbe to M. & B. 693 can be tested *in vitro*. By this method pneumococci have been found to vary enormously in their sensitivity to the drug and this variation is not associated with the type of pneumococcus but with the individual strain. Experiments in mice confirm the results obtained *in vitro*. It is suggested that wherever possible such a test should be carried out and according to the result obtained forecasts can be made as to the result likely to be obtained with M. & B. 693 treatment. If the infecting organism is very sensitive simple treatment with the drug will probably be effective; if it is only moderately sensitive it is very likely that some increase in the immunity will be necessary in addition to M. & B. 693 treatment; but if the organism is insensitive to M. & B. 693 in concentrations which can be attained in the human body there is no justification for embarking on a course of M. & B. 693 treatment, which cannot do good and may have serious toxic effects. In the second part of the paper it is shown that a single dose of pneumococcus vaccine given to mice or rabbits profoundly affects the course of an experimental infection in these animals when treated with M. & B. 693, and a strong case is made out for

the combined use of vaccines and M. & B. 693 in all cases of pneumonia in man. In the concluding part experiments are cited which prove that pneumococci can, in an infected animal treated with M. & B. 693, readily establish a tolerance or fastness to the drug. This makes it essential that the initial doses should be large, and also—as M. & B. 693 merely interferes with the growth of the bacteria and the body has to do the actual killing—it is essential that the immunity should be raised to as high a degree as possible by any means, active or passive, specific or non-specific, so that the destruction of the bacteria may be complete before they have established tolerance to the drug.—I. H. MACLEAN, K. B. ROGERS and A. FLEMING. *Lancet*, 236 (1939), 562. (W. H. H.)

M. & B. 693 (2-Sulfanilylaminopyridine). Since large doses of certain sulfanilamide compounds are known to have a definite action on *P. knowlesi* infections in monkeys the author tested smaller doses of M. & B. 693 suspended in oil against the same infection. Unlike prontosil and soluseptasine, small doses of M. & B. 693 were capable of destroying the plasmodia and moreover the parasites don't reappear as they do in the treatment with atabrine.—R. N. CHOPRA and B. M. DAS GUPTA. *Indian Med. Gaz.*, 74 (1939), 201–202. (W. T. S.)

Medicinals—Presence of Microbes in. The results of bacteriological tests with 187 mineral and organic products, vegetable powders, oils and galenical preparations are tabulated. Many were found to have bacteria or molds, including some substances generally regarded as having slightly antiseptic properties.—H. PINTE. *J. pharm. Belg.*, 21 (1939), 469–477. (S. W. G.)

Microörganisms in Industry. Views on future problems are given.—A. C. THAYSEN. *Chemistry and Industry*, 58 (1939), 685–689. (E. G. V.)

Mucic Acid—Fermentation of, by Some Intestinal Bacteria. When lactose is treated with concentrated nitric acid a water insoluble precipitate is formed on cooling which is the dicarboxylic acid of galactose or mucic acid. The mucic acid is filtered off and recrystallized several times in 50% alcohol. For fermentation tests the acid is neutralized with sodium hydroxide and added to nutrient broth in 0.5% concentrations. Eighty-five strains of the colon-typhoid-dysentery group were tested for their ability to ferment mucic acid. The following organisms were found to ferment mucic acid: *A. ærogenes, E. coli, S. schottmulleri, S. ærtrycke, S. enteritidis* and *S. dysenteriæ sonne.* The following organisms did not ferment mucic acid: *E. typhi, S. paratyphi, S. cholera-suis, S. suipestifer, S. dysenteriæ flexner* and *S. dysenteriæ shiga.* While three of the strains showed inconsistent results, the results suggest that mucic acid should prove a valuable substance for differentiation of the colon-typhoid-dysentery group.—L. STERNFELD and F. SAUNDERS. *J. Bact.*, 36 (1938), 53. (T. C. G.)

Neoprontosil—Effect of, on Bacterial Toxins. Oral administration of Neoprontosil to mice was efficacious in preventing death when five different bacterial toxins were given intraperitoneally. Parenteral application of the drug was ineffective.—CHARLES M. CARPENTER and GERALD M. BARBOUR. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 255. (A. E. M.)

Phenol Ointments—Study of the Antiseptic Value of. U. S. P. X Phenol Ointment is not a dependable antiseptic being only slightly bacteriostatic; those of U. S. P. V, VI and VII were found to be active antiseptics and those of U. S. P. VIII, IX and X have no antiseptic value. Cold cream, U. S. P. X, hydrous and anhydrous lanolin had some antiseptic value when containing 3% phenol while other bases required 4–5% phenol to be effective antiseptics; 2% phenol in mixtures of petrolatum, yellow wax and 10% water is not antiseptic; benzoinated lard containing 2% phenol is antiseptic but the addition of yellow wax decreases this action; 2% phenol was found to be active in several water-containing bases such as glycerites and cold creams; 1–5% *o*-phenylphenol, 3-chlor-4-hydroxy-diphenyl and 3-brom-4-hydroxy-diphenyl incorporated with Purdue base (white petrolatum 90%, white wax 5, anhydrous lanolin 5) are active antiseptics in concentrations of 1% and over. Sixteen references are given.—ROBERT O. CRAW and C. O. LEE. *Pharm. Arch.*, 9 (1938), 1–16. (H. M. B.)

Phenothiazine—Studies on. VIII. Antiseptic Value of Phenothiazine in Urinary Tract Infections. Clinical studies were made on 49 patients suffering with either chronic or acute urinary tract infections. Phenothiazine was given orally with an average daily dose of 1.33 Gm. for an average period of 7.4 days. The majority of these patients showed both symptomatic and objective improvement. It is indicated that the use of this drug is still in the experimental stage and should not be used extensively until more exhaustive clinical trials, under carefully controlled conditions are made by several observers.—FLOYD DEEDS, A. B. STOCKTON and JOHN O. THOMAS. *J. Pharmacol.*, 65 (1939), 4. (H. B. H.)

Phenylsulfone Derivatives—Relation between Therapeutic Value and Gonococcidal Power of Some. A study of the relationship between the therapeutic activity of various phenylsulfone derivatives and their bactericidal effect *in vitro* toward the same strain of gonococcus showed that the compounds which are most active therapeutically also have the highest microbicidal activity. This parallelism, however, disappears when studying the behavior of several strains of gonococci toward the same compound. These results, together with other facts concerning the antiendotoxic properties of certain compounds of the same series, would seem to indicate that the mechanism governing antistreptococcic and antipneumococcic chemotherapy is different from that of antigonococcic and antimeningococcic chemotherapy.—C. LEVADITI and A. VAISMAN. *Compt. rend. soc. biol.*, 127 (1938), 1428–1430; through *Chimie & Industrie*, 40 (1938), 719–720. (A. P.-C.)

Potable Water—Significance of the Bacteria Count in Examination of. The limitations of the bacterial test as an indicator of organic impurity, and as a test of the efficiency of natural or artificial filtration or of sterilization, are discussed. In some cases, especially where regular inspection of sources is possible, the test is unnecessary.—O. SPITTA. *Gas- u. Wasserfach*, 82 (1939), 18–22; through *J. Soc. Chem. Ind.*, 58 (1939), 333. (E. G. V.)

Screw-Capped Bottles—Filling of, under Sterile Conditions. The use of screw-capped bottles is indicated in certain instances for the distribution of bacteriophage, sera and vaccines. A method is outlined for preparing and filling such bottles under aseptic conditions by means of an apparatus fitted for evacuation. A description is given for assembling the comparative simple apparatus necessary to the operation.—C. L. PASRICHA, A. J. H. DEMONTE and S. K. GUPTA. *Indian Med. Gaz.*, 74 (1939), 222–223. (W. T. S.)

Serum—Method of Concentrating, in Cellophane Bags and Simultaneously Removing Salts and Other Constituents. Dialysis of the serum included in a cellophane bag against pure colorless corn syrup led to a prompt concentration of the serum and removal of sodium chloride and non-protein nitrogenous material. Only 5 to 8% of glucose dialyzed into the bag and maximally traces of dextrin.—WILLIAM

THALHIMER. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 230. (A. E. M.)

"Skin-Sterilizing" Agents—Experimental Comparison of Certain. A comparative study in "skin-sterilization" was carried out. A modification of a method suggested by Birkhaug was used. The organisms employed were those occurring normally on a rabbit skin. Eleven different antiseptics were employed using over 250 animals. Seventy per cent ethyl alcohol was used throughout as a standard of comparison. Two of the antiseptics studied, propyl mercuric chloride and pyridyl mercuric chloride, have not previously been employed as skin antiseptics. Of eleven antiseptics studied, these results indicate that mercresin and propyl mercuric chloride are distinctly superior to the more generally used skin sterilizing agents, among which are iodine, merthiolate, metaphen, mercuric chloride and mercurochrome.—ALLAN D. BASS. *J. Pharmacol.*, 66 (1939), 1. (H. B. H.)

Sterilized Liquids—Closures for Flasks Containing. A discussion and six diagrams showing a convenient method of stoppering with or without the use of parchment paper.—G. SCHWEIZER. *Deut. Apoth. Ztg.*, 54 (1939), 275. (H. M. B.)

Sulfanilamide—Action of. This is a bacteriological study of the effects of incubation of hemolytic streptococci with sulfanilamide in whole blood and serum. It is deduced that the action of sulfanilamide is independent of phagocytosis, and since sterilization is prevented by the addition of peptone to the culture it is suggested that sulfanilamide acts upon hemolytic streptococci by interference with their protein-digesting mechanism. This may explain the fact that less efficient results are obtained from this treatment when local suppuration has occurred. In such cases sulfanilamide, while protecting uninvolved tissues, cannot exert its full action locally in the presence of the peptone-like products of protein digestion contained in the abscess pus.—J. S. LOCKWOOD. *Ann. Surg.*, 108 (1938), 801; *Brit. Med. J.*, 4080 (1939), 598E. (W. H. H.)

Sulfanilamide—Bactericidal Effect of. A number of strains of *beta* hemolytic streptococci were inoculated into a buffered peptone medium containing 20 mg. per cent of sulfanilamide. The cultures were kept in constant rotation while they were incubated at 37° C. and 40° C. for 48 hours. The cultures were then streaked on various media to determine the number of viable organisms. The results consistently showed that at 40° C. incubation temperature the sulfanilamide produced complete sterilization and that in those cultures incubated at 37° C. there was only inhibition of growth. In all cases there was a lag of some 6 hours before the effect of the drug was observable. At present there is no explanation of why the drug is bactericidal at 40° C. and bacteriostatic at 37° C. These results suggest the desirability of employing artificial fever therapy along with sulfanilamide in the treatment of such diseases as gonorrhea.—H. J. WHITE and J. M. PARKER. *J. Bact.*, 36 (1938), 481. (T. C. G.)

Sulfanilamide—Inactivation of Toxins of Staphylococcus Aureus and Clostridium Welchii in Vitro by. Toxins from 3 hemolytic strains of *Staphylococcus aureus* were inactivated by sulfanilamide *in vitro*. This was demonstrated by the survival of 92% of mice injected intra-abdominally with the sulfanilamide-toxin mixture. All controls, receiving the toxin alone, died. The drug was less efficient when administered *in vivo* before or after the toxin. The toxin of *Clostridium welchii* was likewise inactivated *in vitro* as proved by analogous tests.—CHARLES M. CARPENTER and GERALD M. BARBOUR. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 354. (A. E. M.)

2-Sulfanilylaminopyridine (M. & B. 693)—Properties and Therapeutic Uses of. M. & B. 693 (originally T. 693) has been given the trade name Dagenan in Great Britain and in America the same compound is called sulfapyridine. It differs from sulfanilamide in that one hydrogen atom of the sulfonamide group is replaced by a basic pyridine group. It is thus related to sulfanilic acid and aminopyridine. Tests on rats and mice showed that when Dagenan was given orally its acute toxicity, judged by the median lethal dose was about a quarter of that of sulfanilamide. After daily administration of therapeutic doses to rats, cats and dogs over periods of one or two weeks, there were no changes in the blood, urine or general health of the animals. Furthermore, the drug did not cause increased porphyrinuria in animals. Studies of the bacteriostatic effects show that a dilution of 1 in 10,000 inhibits the growth of *Streptococcus viridans* in the presence of defibrinated human blood. It was not effective in the absence of leucocytes and had no bacteriostatic effect on *Staphylococcus aureus*. In the presence of leucocytes it retards the growth of the gonococcus (*Neisseria gonorrheæ*). It is active against the meningococcus (*Neisseria meningitidis*) at a dilution of 1 in 60,000, even in the absence of blood. M. & B. 693 is a white crystalline solid melting at 190 to 193° C. and having a slightly bitter taste. It is soluble in water only to the extent of 1 in 1000. For oral administration it is supplied in tablets each containing 0.5 Gm., and these may be chewed and swallowed with water. Occasionally, however, the drug causes nausea and vomiting. In some cases where the vomiting has persisted and the patient has been severely ill the drug has been given by injection of a suspension containing 0.5 Gm. in 2.5 cc. of sterile olive oil. The mode of action of M. & B. 693 is not well understood. According to one theory, it is supposed to have a stimulating action on the specific and non-specific body defences (phagocytosis) and to neutralize toxic bacterial products. The drug has an action on the capsules of the pneumococcus; the capsules become swollen, crenated and eventually disappear. The action of the drug varies according to the strain of pneumococcus, rather than according to the type. The toxic effects are essentially the same as sulfanilamide.—ANON. *Pharm. J.*, 142 (1939), 351. (W. B. B.)

Sulfapyridine—Immunity to Reinfection with Type I Pneumococcus. Mice recovering from type I pneumococcal infection, as a result of sulfapyridine therapy, are generally immune to reinfection for at least 14 days after the initial infection. The immunity is lost within 28 days.—L. H. SCHMIDT and CAROLYN HILLES. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 111. (A. E. M.)

Sulfapyridine—Protective Action of, against Type II Pneumococcus Infections in Mice. With subcutaneous inoculations of 4000 to 8000 average lethal doses of type II pneumococcus in mice, the survival rates at both 30 and 60 days were with 0.5% sulfapyridine in the food 44%, and with 1% sulfapyridine in the food 63.4%.—RAYMOND N. BIETER, W. P. LARSON, MILTON LEVINE and ELIZABETH M. CRANSTON. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 202. (A. E. M.)

Tannin-Bearing Drugs—Inhibiting and Germicidal Action of. Residues from filtered infusions act differently with regard to stability. Marked decompositions appear in 8 days with strawberry leaves, coltsfoot leaves and St. John's wort; such decomposition did not appear with catechu, nutgalls, quebracho bark and rhatany roots; with infusions from fresh plants such turbidities appear

earlier; molds appeared in a few days on extracts of such drugs and fresh plants as well as on tannin solutions. A great increase in organisms was observed in 8 days in infusions of alder, buckthorn, coltsfoot, St. John's wort, cornflower, Lieber's kraut, quebracho bark, swine grass and walnut leaves; infusions of catechu, nutgalls and rhatany remained sterile; those of blackberry leaves, oak bark, rose leaves, tormentil and willow bark showed low germ values; those from fresh plants showed higher values than those from dried drugs. The p_H of most of the infusions ranged from 7–5; after 8 days there was a displacement to the acid side. The typhus organism was incapable of growth in infusions of catechu, nutgalls, rose leaves, tormentil and willow bark after 24 hours; the remaining infusions were less active. Drugs rich in tannin show a greater germicidal and growth development, restraining power as well as depth activity and penetrating power than those poor in tannin. Domestic tormentil is in this regard fully equal to foreign rhatany root. A 0.5% tannin solution killed typhus bacteria, tested according to the suspension method after 4 hours; a 1% solution after 1 hour, a 2% solution in 1/4 hour; staphylococci were killed in a 1% tannin solution in 48 hours, in a 4% after 24 hours and in an 8% after 4 hours. Drugs containing tannin were found to possess a greater antibactericidal action than those drugs with volatile oils as chief constituents. Eleven references and seven tables are given.—H. KLIEWE and H. I. HILLENBRAND. *Deut. Apoth. Ztg.*, 54 (1939), 211–215. (H. M. B.)

Tetanus Toxin—Combination of, with Its Specific Antitoxin. Factors influencing the union are discussed.—A. SORDELLI, J. FERRARI and I. GVIRTZMAN. *Rev. inst. bacteriol. dept. nacl. hig.* (Buenos Aires), 8 (1938), 337–375; through *Chem. Abstr.*, 33 (1939), 2579. (E. G. V.)

Toxins by Papain—Inactivation of Some. At p_H 6, 1 mg. of purified papain, activated by hydrogen sulfide, detoxifies 2 lethal doses of tetanus toxin or 5 of ricin in a few minutes and detoxifies 5 lethal doses of diphtheria toxin instantly. The action is probably other than proteolytic, since trypsin and pepsin do not have the same action.—L. VELLUZ. *Compt. rend. soc. biol.*, 128 (1938), 132–133; through *Chimie & Industrie*, 40 (1938), 939–940. (A. P.-C.)

Vaccines—Process for the Preparation of. Living cultures of virulent pathogenic agents are dried in a high vacuum at a temperature below 0° C.—FABRIQUE DE PRODUITS CHIMIQUES, CI-DEVANT SANDOZ. Belg. pat. 427,977, June 30, 1938. (A. P.-C.)

BOTANY

Acenaphthene and Colchicine—Chromosome Duplication and Polypoid Chromosome Chimeras Due to. These agents produce in germinating seeds of various plants chromosome duplications, greater amount of nucleolus substance, larger cells, multinucleation and micronuclei. The nuclei in multinucleate cells divide synchronously, producing polypoid cells.—D. KOSTOFF. *Arch. exptl. Zellforsch. Gewebezücht.*, 22 (1938), 203–205; through *Chem. Abstr.*, 33 (1939), 8679. (F. J. S.)

Agricultural Research—Rôle of Physiological Experiments in. Practical details of plant physiology experiments in pots, and correlation of results from these with field experiments, are discussed. The higher order of accuracy obtained by application of statistical methods is considered.—H. BURGEVIN. *Ann. agron.*, 8 (1938), 447–467; through *J. Soc. Chem. Ind.*, 58 (1939), 306. (E. G. V.)

Ameliorating Plants—Study of, in French Antilles. The experiments made in the Antilles on sugar cane and banana plantations have shown that *Canavalia, Indigotifera, Vigna* and *Crotalaria* have a favorable action in increasing the nitrogen content of the soil, facilitating the absorption of fertilizers, maintaining the humidity and regenerating the humus. The objections to these leguminous plants are that they may cause excessive retention of water in the soil, and they may attract undesirable insects. *Canavalia maritima*, as a result of its large foliage, limits the evaporation of the moisture from the soil, and is employed on potato, banana and sugar cane fields. *Canavalia gladiata* is utilized mainly on citron and banana plantations. Different varieties of *Phaseolus* are utilized for their abundant vegetation and nitrogen supplying value. *Vigna repens* and *Indigotifera centrosema* are utilized for soil that is poor in nitrogen.—ANON. *Agric. Coloniale*, 31 (1938); through *J. pharm. Belg.*, 21 (1939), 347. (S. W. G.)

Ascorbic Acid (Bound) in Plant Tissues. It is believed that in tissues ascorbic acid is partly bound to protein, but the methods used to demonstrate this (boiling, hydrochloric acid) are faulty and no experimental proof was found to show the presence of the bound ascorbic acid. This is because in the deproteinization with metaphosphoric acid the bound ascorbic acid is set free and, therefore, included in the determination.—AKIZI HUZITA and TUTOMU EBIHARA. *Biochem. Z.*, 301 (1939), 329–337; through *Chem. Abstr.*, 33 (1939), 8695. (F. J. S.)

Cephalanthus Occidentalis L.—Studies in the Anatomy of. II. The investigation deals with the anatomy of certain above-ground parts which are described in detail.—MAYNARD W. QUIMBY. *Pharm. Arch.*, 10 (1939), 51–52. (H. M. B.)

Chlorophyll. The chemistry of chlorophyll, its significance to the organic world, its use in the trades and pharmacy are discussed.—FRIDO KORDON. *Wien. Pharm. Wochschr.*, 72 (1939), 328–329. (H. M. B.)

Chlorophyll Multifilms—Properties of. Chlorophyll-lecithin and chlorophyll-globin multifilms were prepared by the methods developed by Langmuir and Blodgett. None of the films showed fluorescence. The extinction coefficient for red light was approximately 0.005.—M. F. E. NICOLAI and C. WEURMAN. *Proc. Acad. Sci. Amsterdam*, 41 (1938), 904–908; through *Chem. Abstr.*, 33 (1939), 1569. (F. J. S.)

Chloroplasts—Rôle of Ascorbic Acid in the. The possibility that ascorbic acid participates in the photosynthetic formation of formaldehyde is discussed on the basis of the hypothesis of Baur (*Chem. Abstr.*, 31, 3275). Experiments on the assimilation of plants before and after artificial addition of ascorbic acid supported the theory. Model experiments on illuminated lecithin solutions containing chlorophyll yielded detectable amounts of formaldehyde.—F. BUKATSCH. *Planta*, 30 (1939), 118–128; through *Chem. Abstr.*, 33 (1939), 8687. (F. J. S.)

Colchicine—Action of, on Plants. Some deformities produced by treating young seedlings with colchicine and by injecting colchicine into various parts of adult plants of different species are described.—LISETTE PIETTRE. *Compt. rend. soc. biol.*, 131 (1939), 1095–1097; through *Chem. Abstr.*, 33 (1939), 9363. (F. J. S.)

Colchicine—Polyploidy in Lettuce Induced by. Colchicine treatment of embryos and small seedlings increased chromosome number.—ROSS C. THOMPSON and WM. F. KOSAR. *Proc. Am. Soc. Hort. Sci.*, 36 (1939), 641–644; through *Chem. Abstr.*, 33 (1939), 9366. (F. J. S.)

Colchicine—Stimulation of Yeast Growth by, Fails to Reveal Mitosis. Various amounts of colchicine were added to a synthetic medium and *Saccharomyces cerevisiae* inoculated into it. Studies were then made of the growth rates in the various concentrations of colchicine. Although a 1% concentration stimulated growth, no evidence of mitosis or chromosome formation, as induced in plants and animals by this drug, was observed.—O. W. RICHARDS. *J. Bact.*, 36 (1938), 187. (T. C. G.)

Fluorine—Determination of the Presence of, in Vegetable Tissue Affected by Gaseous Fumes. Vegetation injured by fumes from a nearby glass factory was examined for fluorine, which was isolated as Na_2SiF_6. The action of fluorine on plant tissue is discussed.—A. BIRAGHI. *Boll. staz. patol. vegetale*, 18 (1938), 360–366; through *Chem. Abstr.*, 33 (1939), 9360. (F. J. S.)

Germination Tests of Seeds—Chemical Treatments Helpful in. Treatment of seeds with Ceresan and Sanoseed caused greater % germination than that obtained with untreated seed or those dressed with formaldehyde or copper preparations. Fungus growth on seed trays was prevented by organic mercury preparations, but not by zinc, copper or formaldehyde.—W. CROSIER, S. PATRICK and L. TAYLOR. *Phytopathology*, 27 (1937), 797–798; through *J. Soc. Chem. Ind.*, 58 (1939), 193. (E. G. V.)

Glycogen in Sweet Corn. Corn is soaked 1–2 days, extracted with water and the extract boiled and filtered. Acetic acid (2 vols.) is added to precipitate the starch. The glycogen is precipitated by increasing the acetic acid concentration to 75%. A yield of 3.9 Gm. was obtained from 30 Gm. of Golden Bantam corn but none could be obtained from field corn.—DANIEL L. MORRIS and CAROL T. MORRIS. *Science*, 90 (1939), 238–239; through *Chem. Abstr.*, 33 (1939), 8697. (F. J. S.)

Insecticides—Plant. A review of pyrethrum, derris, mundulea, lonchocarpus, tephrosia, etc.—K. JUNG. *Tropenpflanzer*, 41 (1938), 431–433; through *Chem. Abstr.*, 33 (1939), 1868. (E. G. V.)

Manganese—Role of, in the Biological Synthesis of Ascorbic Acid. The addition of 0.01% manganese chloride to the water results in a considerable increase in ascorbic acid content of seedlings. The increase is not due to an unspecific salt effect.—M. N. RUDRA. *Biochem. Z.*, 301 (1939), 238–244; through *Chem. Abstr.*, 33 (1939), 8695. (F. J. S.)

Nitrogenous Organic Matter in Sea Water—Decomposition and Regeneration of. Several consecutive cycles of decomposition and regeneration were carried out in the same water. It is confirmed that in the first cycle the main stages of decomposition are: dead body, ammonia, nitrite, nitrate. In the second cycle there is evidence of intermediate soluble substances between dead body and ammonia. Under anaerobic conditions the initial states of decomposition take place more slowly than under aerobic conditions, and no nitrite or nitrate is developed. Regeneration of nitrogen into phytoplankton protoplasm is possible not only in the nitrate stage but also in the ammonia stage and before the nitrate has reached its maximum. The quantitative nitrogen balance was better than that reported in previous experiments, and possible reasons for the discrepancies still present are discussed.—O. T. VON BRAND, N. W. RAKESTRAW and C. E. RENN. *Biol. Bull.*, 77 (1939), 285. (A. C. DeD.)

Nutrient Solutions—Growing Plants in. The possibilities of solution cultures and the limitations of the method are discussed. A suggested nutrient solution contains the following (in mols.): KNO_3, 0.006; $Ca(NO_3)_2$ or $CaSO_4.2H_2O$, 0.008; $MgSO_4.7H_2O$, 0.0015; KH_2PO_4, 0.001 or $CaH_4(PO_4)_2.2H_2O$, 0.0005; $(NH_4)SO_4$, 0.0005; $FeSO_4.7H_2O$, 0.5 p. p. m.; or ferric ammonium citrate, 0.5 p. p. m.; and boric acid, 0.5 p. p. m. Methods of preparing the solution are given. The pitfalls in commercial application of the method are many.—L. J. ALEXANDER, V. H. MORRIS and H. C. YOUNG. *Ohio Agr. Expt. Sta., Special Circ.*, 56 (1939), 3–17; through *Chem. Abstr.*, 33 (1939), 9362. (F. J. S.)

Phytohormones—Action of, on Emission of Plant Roots. The phytohormones are formed in the seeds of the plant, under the action of white light, then they are diffused into the growing parts of the plant where they impede the development of lateral shoots, aid in the development of size and length of the trunk, provoke root formation and transformation from the ovary to the fruit. Chemically the hormones are acidic, soluble in ether, sensitive to oxygenated water; they are called *alpha*-auxine, *beta*-auxine and ether-auxine. Certain varieties of vines which do not normally produce lateral roots were treated by immersing their roots in solutions of the auxines for twenty-four to thirty hours. All the roots tested produced lateral shoots.—ANON. *Agr. coloniale*, 31 (Nov., 1938); through *J. pharm. Belg.*, 21 (1939), 427. (S. W. G.)

Plants—Effect of Boron on Reproductive Development of. Plant analyses showed the greatest boron to be in the reproductive parts. For the same boron, boric acid causes better development than does borax. In sucrose solutions, with or without agar, boron increases pollen-grain germination and length of pollen tubes much more than does manganese, zinc, iodine, uranium, radium or copper. Boron fertilizers have a greater influence on the yield of fruit than on that of dry matter.—E. V. BOBKO and V. V. ZERLING. *Ann. agron.*, 8 (1938), 174–184; through *J. Soc. Chem. Ind.*, 58 (1939), 306. (E. G. V.)

Pollen Germination—Influence of 3-Indoleacetic Acid on. 3-Indoleacetic acid (1:1,000,000) produces the following effects: (1) germination is stimulated in such a way that the pollen tube appears in considerably less time than in the control, (2) the rate of elongation of the tube is increased, (3) a much higher percentage of germination is achieved, (4) greater tube lengths are found at the end of four hours and (5) the pollen of *Pinus austriaca* is stimulated to germinate, whereas no germination occurred in the control.—PAUL F. SMITH. *Science*, 90 (1939), 163–164; through *Chem. Abstr.*, 33 (1939), 8697. (F. J. S.)

Radium Content of Algæ—Determination of. The radium contents were found for seven freshwater and 16 salt-water algæ from various localities. The dried plants were refluxed with HCl, and the emanation from the resulting solution was measured, using the apparatus of Halledauer (*Chem. Abstr.*, 21, 3820). In units of 10^{-14} Gm. radium per Gm. air-dried plant, the salt-water algæ showed contents ranging from 0 to 14, the fresh-water ranging from 14 to 1730. This indicates considerable accumulation of radium by the plants. The reason for the great differences found between different algæ is not apparent.—RICHARD WIESNER. *Sitzber. Akad. Wiss. Wien, Math.-naturw. Klasse*, 147 (1938), Abt. IIa, 521–528; through *Chem. Abstr.*, 33 (1939), 9360. (F. J. S.)

Selenium—Physiological Differentiation in Astragalus with Reference to. Growth of *A. racemosus* was stimulated by 0.33–9.0 p. p. m. selenium as selenite. *A. crassicarpus* was poisoned by 0.33 p. p. m. selenium. The species appears to be divided into two groups, one requiring selenium for development and thus serving as an indicator of seleniferous soils, the other not utilizing this element.—SAM. F. TRELEASE and HELEN M. TRELEASE. *Am. J. Bot-*

any, 26 (1939), 530–535; through *Chem. Abstr.*, 33 (1939), 8693. (F. J. S.)

Skototenine—New Auxin in Higher Plants. Pea plants, etiolated, 5–7 days old, deprived of leaves in the dark, giving 5–8 cm. stems, were extracted with peroxide-free ether, the ether solution was shaken out with weakly alkaline glucose solution 3 times in the dark and thus the acid-reacting auxin transferred to the aqueous phase. After this extraction there still was present in the ether solution a substance which accelerated *Avena* coleoptile growth of neutral character. After evaporation of the ether the substance is water soluble; it constitutes the bulk of the auxin of the pea. After exposure of the etiolated plants for two hours to sunlight under glass the amount of the neutral auxin decreases 30–50%. It is not present in green pea plants but it is formed in the dark; it also occurs in etiolated seedlings of *Vicia faba* and in *Helianthus* cotyledons. The name skototenine is proposed; it may be identical with the lactone of auxin a.—POUL LARSEN. *Naturwissenschaften*, 27 (1939), 549–550; through *Chem. Abstr.*, 33 (1939), 9364. (F. J. S.)

Soil—Growing Plants without. Sand and water culture methods are described. A suggested nutrient solution formula consists of anhydrous $MgSO_4$ 0.5 lb., $CaH_4(PO_4)_2.H_2O$ 1.12 lb., KNO_3 7.75 lb., $(NH_4)_2SO_4$ 2.5 lb. and $CaSO_4.2H_2O$ 6.62 lb. The p_H should be maintained at about 5.0 with H_2SO_4. It is suggested that the following minor elements be also added: 0.25 lb $FeSO_4$ and 0.5 p. p. m. each of borax and $MnSO_4$. The cost of the ingredients per 1000 gallons of nutrient solution is not over 50 cents.—E. A. HELGESON. *N. Dakota Agr. Expt. Sta., Bimonthly Bull.*, 1 (1939), No. 2, 10–14; through *Chem. Abstr.*, 33 (1939), 9362. (F. J. S.)

Turgor Pressure of an Individual Cell—Manometric Determination of. Cells of *Nitella translucens* 30 cm. long and 2.5 mm. in diameter were allowed to lose water by evaporation at one end and restored to shape by air pressure at the other in a special apparatus, in which the osmotic pressure can also be measured by applying sugar solution instead of air under pressure. Turgor pressures found varied from 3 to 10 atmospheres.—KARL AVENS. *Planta*, 30 (1939), 113–118; through *Chem. Abstr.*, 33 (1939), 8687. (F. J. S.)

Water Culture Method for Growing Plants without Soil. Details of water culture of plants with solution formulæ are given. Tomatoes showed no increased content of either carotene or ascorbic acid as a result of solution culture over soil culture. There is no magic in the growth of plants in water culture but it is simply another method of supplying essential mineral elements to the growing plant. Commercial success of the method seems problematical at the present time.—D. R. HOAGLAND and D. I. ARNON. *Calif. Agr. Expt. Sta. Circ.*, 347 (1938), 1–39; through *Chem. Abstr.*, 33 (1939), 9361. (F. J. S.)

CHEMISTRY

GENERAL AND PHYSICAL

Chlorine—Second Spectrum of, and Its Structure. New wave-lengths of ClII, extending from 9483 A, in the infrared, to 2100 A in the ultraviolet, have been derived at the National Bureau of Standards from observations employing Geissler-tube and electrodeless discharges as light sources. These, together with unpublished observations of the Schumann region made by others, have been used to extend the analysis of the term system of ClII. New terms have been added to the partially known quintet and triplet systems, and the singlet system has been established. All three systems are linked together with intersystem combinations. Series of ^5S and ^3S terms, with ^4S of ClIII as their limit, and of ^3D terms, with ^2D of ClIII as their limit, are in excellent agreement in fixing the value of the deepest term at 192,000 cm.$^{-1}$, whence an ionization potential of 23.70 volts is derived for Cl^+.—C. C. KIESS and T. L. DEBRUIN. *J. Research Natl. Bureau Standards*, 23 (1939) 443. (F. J. S.)

Colloids—Researches on. Problem of Aging. All liquids, whether organic, inorganic or biological (solutions or dispersions) when stored in the dark in paraffined bottles, show with the passage of time changes in surface tension, specific viscosity, condition and composition. Biological fluids such as serums also show changes in coagulation and flocculation. The changes are cyclic and tend toward flocculation and dehydration. The changes are weaker in the presence of sodium and potassium ions and are stronger in the presence of multivalent ions, especially those which hydrolyze. There is also a decrease in stability of the biological fluids toward compounds with capillary activity.—W. KOPACZEWSKI. *Protoplasma*, 30 (1938), 272–278; through *Chem. Abstr.*, 33 (1939), 2014. (E. G. V.)

5,5-Dialkyl-2,4-Dioxo-Oxazolidines and 5,5-Dialkyl-2,4-Dioxo-Thiazolidines—Dissociation Constants of Some. 5,5-Methyl-ethyl-2-thion-4-oxo-oxazolidine was prepared by condensing methyl, ethyl-ketone, potassium cyanide and potassium thiocyanate in the presence of 30% HCl. This was converted into the 2,4-dioxo compound by treatment with bromine water. The dissociation constants of the 5,5-dimethyl, 5,5-methyl ethyl and 5,5-diethyl-2,4-dioxo-oxazolidines and those of the 5,5-dimethyl; 5,5-diethyl; 5,5-dipropyl and 5,5-dialkyl-2,4-dioxo-thiazolidines were determined electrolytically. The constants showed a regular increase with the size of the alkyls.—H. ERLENMEYER, A. KLEIBER and A. LOEBENSTEIN. *Helv. Chim. Acta*, 21 (1938), 1010. (G. W. H.)

Emulsification—Direct Observation of. The progress of emulsification was followed by using very low melting alloys, such as Woods metal, in hot water. Rapid cooling insured immediate fixation at any desired temperature and the process was then followed photographically. The actual mechanism of emulsification is extraordinarily complex. Agitation of the two liquids breaks them both into drops (normal and pear-shaped) and cylinders, and a cylinder of liquid is unstable when its length exceeds $3^1/_7$ times its diameter. It then disrupts into globules, the distance between the center of the globules being that of the circumference of the cylinder. Interfacial tension, viscosities and densities of the two liquids, and the nature of the emulsifying agent present are complicating factors. Interfacial film formation will obviously interfere.—W. CLAYTON and J. F. MORSE. *Chemistry and Industry*, 58 (1939), 304–306. (E. G. V.)

Glass Electrode—Use of, at Temperature Up to 100° C. A glass electrode smaller and more robust than the usual Morton type is described. In use the electrode is protected against sudden changes in temperature by rinsing with water at the required temperature. The glass electrode deviates from the hydrogen electrode above 70° C., hence calibration curves must be used.—R. G. HUMPHREYS. *Chemistry and Industry*, 58 (1939), 281–282. (E. G. V.)

Heavy Hydrogen and Heavy Water. A review of the discovery of heavy hydrogen and the isolation of heavy water, with tables of their physical and chemical properties. Inorganic and organic deuterium compounds are considered. The differences in m. p. and b. p. of various hydrogen and

deuterium analogs are tabulated.—G. KILDE. *Dansk Tids. Farm.*, 13 (1939), 69. (C. S. L.)

Ion Series in Colloid Chemistry and Biology. The electrical properties of the biocolloids which form membranes are of the greatest significance for the permeability of these membranes.—P. H. TEUNISSEN. *Kolloid-Z.*, 85 (1938), 158–161; through *Chem. Abstr.*, 33 (1939), 2157. (F. J. S.)

Methylene Blue—Adsorption of, by Active Carbon. Adsorption of methylene blue by an active blood charcoal is typical of that of four samples of carbon. The minimum absorption at equilibrium p_H 3.75 was 262 mg. per Gm. of carbon; at p_H 2.10, 300 mg.; at p_H 7.02, 430 mg. The isoelectric zone is p_H 3.75–3.97. The equilibrium p_H was in each case lower than the initial p_H because of the liberation of 1 mol. HCl for each mol. of dye adsorbed.—M. V. C. SASTRI. *Current Sci.*, 7 (1938), 228; through *Chem. Abstr.*, 33 (1939), 1568. (F. J. S.)

Mineral Oil—Aged, Rise of Viscosity in an. The comparative measurement of viscosity in oil surfaces by means of a rolling cylinder is described; the cylinder is released from an incline and reaches the surface of a thin oil layer in a metal layer with constant velocity, viscosity being measured by the length of the path in the surface. Viscosity in mineral oil surfaces decreases by 25% on keeping (6 hours), the original value being restored on repeated rolling of the cylinder. This effect is due to slow orientation of the polarized molecules on the metal surface of the trough.—A. MARCELIN. *Compt. rend.*, 207 (1938), 616–618; through *J. Soc. Chem. Ind.*, 58 (1939), 9. (E. G. V.)

Mineral Oil—Aged, Rise of Viscosity in. The time required for a completely immersed metal cylinder to roll down the sloping bottom of a metal trough containing the oil increased by about 22% on keeping for 12 hours. The descent of the cylinder was irregular, suggesting obstruction by molecular aggregates, probably several mm. in thickness, formed on the metal surface.—A. MARCELIN. *Compt. rend.*, 207 (1938), 777–779; through *J. Soc. Chem. Ind.*, 58 (1939), 235. (E. G. V.)

Oil Hydrosols—Destruction of Dilute, in Volumetric Analysis. The addition of amyl alcohol to dilute emulsions of the water-in-oil type clears up the opaque hydrosol. When a water soluble constituent is to be extracted from an organic liquid the formation of a hydrosol may be prevented by the addition of amyl alcohol to the liquid before extraction.—D. F. CHEESMAN. *Analyst*, 64 (1939), 344. (G. L. W.)

Silver—Colloidal. The accuracy of particle count of colloidal silver was investigated in a new type of slit ultramiscroscope. Silver sols that contain blue and green submicrons can be counted with the same accuracy as gold sols. The color of the particles is without influence on the accuracy. Polydisperse silver hydrosols cannot be counted accurately in the slit ultramicroscope. Factors affecting the formation of silver colloids were investigated.—ANON. *Kolloid-Beihefte*, 47 (1938), 321–370; through *Chimie & Industrie*, 40 (1938), 1139. (A. P.-C.)

Specific Surface of Powders—Determination of. II. The technic previously described for calculating specific surface from a knowledge of permeability and porosity is modified so as to apply to powders with an average size as low as 2 microns.—P. C. CARMAN. *J. Soc. Chem. Ind.*, 58 (1939), 1–7. (E. G. V.)

Sulfuric Acid Densities—Nomographic Chart for Temperature Correction of, with Additional Scales for Interconversion of Physical Data.—ERNST BERL. *Chem. and Met. Eng.*, 46 (1939), 40; through *Chem. Abstr.*, 33 (1939), 1557. (F. J. S.)

Thymoquinhydrone Electrode—Determination of p_H with. Because the quinhydrone electrode does not give accurate results above p_H 8.5, thymoquinhydrone was substituted for the quinhydrone. It was found that accurate results can be obtained up to p_H 10.5. Thymoquinhydrone was used in solution in dioxane. A formula is derived to calculate the p_H from the electromotive force measurements with the saturated calomel electrode.—H. J. C. TENDELOO, J. S. BUY and J. H. HUYSKES. *Landbouwkund. Tijdschr.*, 50 (1938), 742–746; through *Chem. Abstr.*, 33 (1939), 1575. (F. J. S.)

INORGANIC

Ammonia-Soda Process. The ammonia-soda process has become commercially successful due to the economical recovery of the expensive by-products.—F. HARTLEY. *Pharm. J.*, 141 (1938), 578. (W. B. B.)

Bismuth Salicylate—Basic, Change in Composition of, on Washing with Water. The bismuth oxide content of a preparation was increased from 52.2% to a maximum of about 65% by repeated washing with water. Preparations with less than 60% bismuth oxide are unsuitable for suspensions in oil for parenteral administration.—L. BRACALONI. *Boll. chim.-farm.*, 77 (1938), 605–609; through *J. Soc. Chem. Ind.*, 58 (1939), 213. (E. G. V.)

Borax—Test for Purity of. The Belgian Pharmacopœia (1930) tests for the presence of organic matter in sodium borate by heating the compound first to drive off the water of hydration, then until it melts and finally becomes a glassy mass. No color should appear. The author suggests replacing this cumbersome procedure by the following method: Heat 0.5 Gm. of the powdered compound in a dry crucible with about 2 cc. of sulfuric acid until a limpid solution is formed. If organic matter is present a brown to black color is formed. The author also states that the solubility of borax in glycerin should be stated as follows: Borax is soluble in about an equal weight of glycerin.—V. EVRARD. *J. pharm. Belg.*, 21 (1939), 283–286. (S. W. G.)

Hydrogen Peroxide—Process for the Manufacture of. The reaction between barium peroxide and phosphoric acid is carried out first at a low temperature (6° C.) and then at a high temperature (70° C.) so as to coagulate the precipitated barium phosphate.—A. C. SEMIDEI. Belg. pat. 428,510, July 31, 1938. (A. P.-C.)

Lead Acetate (Neutral)—Possible Results of Efflorescence of Officinal. Crystalline lead acetate, when kept in a sulfuric acid desiccator at 24° for seven days loses 15% of its weight. The final anhydrous product is a white amorphous powder. The trihydrate appears to lose its water of hydration without formation of intermediary hydrates. The authors point out the possible errors when lead acetate, which has partly or completely lost its water of hydration, is used as the hydrated salt, and they suggest that the salt be analyzed for its lead content before use.—M. FRANÇOIS and L. SEGUIN. *J. pharm. chim.*, 29 (1939), 241–245. (S. W. G.)

Microchemical Tests. Known microchemical tests for most of the common cations are described.—K. HOCHSTETTER. *Anales quím. farm.*, (1938), 18–22; through *Chem. Abstr.*, 33 (1939), 2069. (E. G. V.)

Periodic Table—Extension of, and the Elements beyond Uranium. Extension of the periodic table to 97 by artificial production of elements is discussed.—PRIYADARANJAN RAY. *Science and Culture*, 4 (1938), 167–171; through *Chem. Abstr.*, 33 (1939), 1558. (F. J. S.)

ORGANIC

Alkaloids

Adrenaline and Adrenalone Hydrochloride—Relation between the Polarographic Constants of the Different Forms of, and Their Pharmacodynamic Properties. The solution containing the substance to be tested is placed in contact with the two electrodes of the apparatus (Heyrovsky, *Chim. et Ind.*, 40 (1938), 1043). The current is carried from one electrode to the other by the ions in the solution. The values are based on the fact that each chemical system has a characteristic ionization tension. The tension at the immersed electrodes automatically and progressively increases until it reaches the ionization tension of one of the compounds present. At this point the plotted curve stops its gradual rise until the "saturation current" for this compound is reached. When a further ionization appears the curve again resumes its upward course. The level stretch gives the value r_H expressed in volts. The polarographic measurements of 1:1000 solutions of *l*-, *d*- and *dl*-adrenaline containing 0.1 *N* ammonium chloride and also of adrenalone hydrochloride gave a value (r_H) of -0.97 v. at p_H 3 in each case. At p_H 8, r_H values for each adrenaline compound were obtained at -0.60 v. and, after several hours, at -1.65 v. This indicates the presence of two forms for each compound. The course of the polarograms studied with respect to the time factor shows a diminution of the concentration of the form corresponding to the first value and a coincident augmentation of the form responsible for the second value. The following conclusions regarding the adrenaline forms giving r_H -1.65 v. are given: (1) The r_H value increases with the passage of time. (2) The change shown by natural and synthetic *l*-adrenaline proceeds faster than that shown by *d*- and *dl*-adrenalines. (3) This increased rate is in direct relation to the change in color of the solutions. (4) Adrenalone hydrochloride at p_H 8 gave r_H -0.97 v. which changed after 24 hours to r_H -0.75 v. (5) The rates of change appear to be related to the pharmacodynamic actions of the different adrenaline isomers.—J. KOCKELMEYER and L. HAUSS. *J. pharm. Belg.*, 21 (1939), 305–307. (S. W. G.)

Alkaloid of the Chinese Drug "Kuh-Seng." II. The principal alkaloid of this drug, previously reported by Kondo, is matrine; the new alkaloid is more difficultly soluble in ether and can therefore be readily separated from the former. It precipitates from anhydrous acetone as prisms that melt at 208° C., and from aqueous acetone as needles that melt at 77° to 80° C. Both forms dissolve easily in water with strong alkaline reaction. The first form has a specific rotation of 29.8° at 80° C. and the composition $C_{15}H_{24}N_2O_2.H_2O$; this water of crystallization was not expelled on heating in a vacuum. The second form melts at 77° to 80° C., and appears to have the composition $C_{15}H_{24}N_2O_2.(H_2O)_x$. Both forms gave a leaf-like picrate melting at 215° C., a prismatic chloroaurate melting at 207° C., and a leaf-like chloroplatinate melting at 250° C. The new alkaloid combines with only one molecule of methyl iodide. One of the nitrogen atoms is certainly of tertiary nature, while the other most probably is of lactim character, as with matrine and lupanine. The new alkaloid has been named hydroxymatrine. The perchlorate melts at 240° C., the hydrobromide at 215° C., the methochloride of the chloroaurate decomposes at 185° C.—H. KONDO, E. OCHIAI and K. TSUDA. *Arch. Pharm.*, 275 (1937), 493–496; through *Chimie & Industrie*, 40 (1938), 936. (A. P.-C.)

Alkaloids from Sanguinaria Canadensis and Their Influence on the Growth of Phymatotrichum Omnivorum. Sanguinarine (I), chelerythrine (II) and protopine (III) were isolated from the roots and rhizomes of *Sanguinaria canadensis*. I was shown by experiment to prevent the growth of *P. omnivorum* at a concentration of 2.5 p. p. m. II and III were less toxic.—GLENN A. GREATHOUSE. *Plant Physiol.*, 14 (1939), 377–380; through *Chem. Abstr.*, 33 (1939), 8683. (F. J. S.)

Alkaloids in Cortex Chinæ and Tinctura Chinæ—Estimation of. The following method is proposed using formic acid in place of hydrochloric acid: Place 1.25 Gm. powdered Cortex Chinæ in a bottle (150 cc.) and add 2 cc. formic acid (25%) and 15 cc. water and heat on a boiling water bath for 30 minutes. After cooling add 20 Gm. chloroform and 40 Gm. ether, 5 Gm. 30% sodium hydroxide and shake vigorously for 10 minutes, add 1 Gm. tragacanth and again shake vigorously. Pour 48 Gm. of the ether-chloroform solution (= 1 Gm. drug) through cotton into an Erlenmeyer flask (150 cc.) and distil off the solvents on a water bath. Dissolve the residue with gentle warming in 10 cc. alcohol, add 10 cc. water and 3 drops of methyl red and titrate with 0.1*N* hydrochloric acid to a red color; dilute with 50 cc. water and titrate again after the return of the yellow color to a red color. For the assay of the simple and compound Tinctura Chinæ the following method was used: After the addition of 1 cc. formic acid (25%) to 20 Gm. of the tincture evaporate in a 100-cc. tared flask on a boiling water bath to 5 Gm., add, after cooling, 20 Gm. chloroform with vigorous shaking, and 5 Gm. 30% sodium hydroxide and shake again for 10 minutes. Then add 40 Gm. ether and, after shaking, 1 Gm. tragacanth. Shake for some minutes, filter 48 Gm. of the ether-chloroform solution (equivalent to 16 Gm. tincture) through a small cotton plug into a small flask and completely distil off the solvent and then proceed as described above. The alkaloidal content of the cortex as indicated by the German Pharmacopœia VI is too low; there is an inadequate concentration of the liquor for the precipitation of the alkaloids and the ratio of the drug to the solvent (1:3) is unfavorable for a quantitative determination of the alkaloids. The formic acid method described yields quantitatively the alkaloids precipitated by the addition of the alkali; this is not true of the pharmacopœial method where acidification is carried out with hydrochloric acid, by which method tannin interferes and by occlusion gives low alkaloidal contents.—HANS WOJAHN and KARL ERDELMEIER. *Deut. Apoth. Ztg.*, 54 (1939), 226–228. (H. M. B.)

Alkaloids in Living Plants—Action of. A review with 35 references.—KURT GANZINGER. *Scientia Pharm.*, 10 (1939), 113–117. (H. M. B.)

Alkaloids—Manufacture of Molecular Compounds of. (*A*) Quinine and ascorbic or isoascorbic acids form molecular compounds, melting points 90–120° (decomposition), which are easily soluble in water and suitable for pharmacological use. (*B*) Similar compounds of ascorbic and isoascorbic acids with quinidine (1:1, 2:1) are described.—(*A*) I. G. FARBENIND. A.-G. (*B*) W. W. GROVES. From I. G. FARBENIND. A.-G. Brit. pat. 499,798; through *J. Soc. Chem. Ind.*, 58 (1939), 438. (E. G. V.)

Alkaloids of Aurouparia. III. Rynchophylline. Rynchophylline, isolated from *Aurouparia rynchophylla* has a composition corresponding to $C_{22}H_{24}N_2O_4$. It contains one alcoholic hydroxyl, one methoxyl, one acetyl and one active nitrogen atom. Contrary to yohimbine it does not give any color reaction with chloral hydrate and sulfuric acid. When distilled in presence of platinized asbestos it gives different results from those obtained with yohimbine.—H. KONDO and T. IKEDA.

J. Pharm. Soc. Japan, 57 (1937), 237–241; through *Chimie & Industrie*, 40 (1938), 716. (A. P.-C.)

Alkaloids of Berberis Aquifolium. The method of Orechoff (*Arch. Pharm.*, 271 (1933), 323) was applied and in the dried roots was found, besides berberine, oxyacanthin and berbamine; also a crystalline mixture of several phenolic bases with a strong alkaloidal reaction and a melting point of 185–195° C.; palmatin was absent. The plant portions contain berberin, oxyacanthin and berbamine chiefly in the bark of the stem and palmatin is also absent; a phenolic base was found which after recrystallization formed methanol and also acetone and melted at 190–193° C.—H. NEUGEBAUER and K. BRUNNER. *Deut. Apoth. Ztg.*, 54 (1939), 326–327. (H. M. B.)

Alkaloids of the Lupines. XIV. Anisoylsparteine. Anisoyldehydrosparteine, $C_{22}H_{30}N_2O$, obtained from lupanine and anisoyl-magnesium bromide by Grignard's reaction, is a viscous oil boiling at 194° to 202° C. under 0.1 mm. pressure. On hydrogenation it yielded anisoylsparteine, $C_{22}H_{32}N_2O$, a viscous oil boiling at 188° C. under 0.03 mm. pressure; the sulfate melts at 76° C., the aurate melts with decomposition at 193° C., the platinate melts with decomposition at 246° C. and the picrate melts at 206° C. It exerts a strong curare-like effect. Its effect on the frog heart is 30 times that of phenylsparteine, which in turn is 20 times more active than sparteine sulfate.—K. WINTERFELD and E. HOFFMANN. *Arch. Pharm.*, 275 (1937), 526–532; through *Chimie & Industrie*, 40 (1938), 637. (A. P.-C.)

Alkaloids of the Morphine Series—Preparation of Nuclear Alkylated, Aralkylated and Arylated Derivatives of. Dihydrothebaine is caused to interact with organomagnesium halides in anhydrous benzene, any free halogenohydrocarbon in solution being removed by addition of a tertiary amine prior to the condensation. For example, methyl magnesium iodide is prepared in ether, the ether is removed by distillation, dihydrothebaine is added and the mixture is heated at the boiling point for 24 hours; methyl-, melting point 192–193°, specific rotation at 25° −20.5° in ethyl alcohol (hydrochloride, melting point 283–285° decomposition), and isomethyl-dihydrothebainone, melting point 168–168.5°, specific rotation at 24° −57°, are formed. Benzyl-, melting point 227–229°, and phenyl-dihydrothebainone, melting point 213–214°, are similarly prepared.—W. U. DYKES. Brit. pat. 492,702; through *J. Soc. Chem. Ind.*, 57 (1938), 1503. (E. G. V.)

Alkaloids of Veratrum Album and Sabadilla Officinalis—Detection of the. There is no essential similarity as regards special chemical reactions between a mixture of sabadilla alkaloids and one of veratrum alkaloids. Likewise the poisonous constituents are completely different. Chemical and biological detection of mixtures of sabadilla and veratrum alkaloids may be impossible under certain conditions. The case reported by Ipsen (*Chem. Abstr.*, 21, 1846) was probably one of a mixed poisoning.—FRITZ LIPPICH. *Samml. Vergiftungsfällen*, 8 (1937), Abt. C, 73–80; through *Chem. Abstr.*, 33 (1939), 9546. (F. J. S.)

Alkaloids—Refining of Natural, by Chemical Means. The methods of isolating the opium, quinine and cocaine alkaloids and their conversion into derived therapeutics are described. Syntropan, the tropic ester of 2,2-dimethyl-3-dimethylamino-propanol-1, possesses the therapeutic characteristics of atropine.—C. MANNICH. *Festschr. E. C. Barell* (Basel), (1936), 96–106; through *J. Soc. Chem. Ind.*, 58 (1939), 102. (E. G. V.)

Artabotrys Suaveolens—Investigation of Three Alkaloids from. Three isoquinoline alkaloids were isolated from the bark of *Artabotrys suaveolens* a member of the natural order *Anonaceæ*. These alkaloids were found to contain the aporphine skeleton and showed the characteristics of certain other alkaloids obtained from botanical orders related to the *Anonaceæ*. By several reactions including acetylation, *o*-methylation, Hofmann's degradation, oxidation, etc., it was shown that artabotrine is probably 10-hydroxy-4:5:6-trimethoxy-aporphine. The unusual feature of this structure was the aliphatic hydroxyl group at position 10 of the aporphine nucleus, specific evidences for which were painstakingly given. The second alkaloid, suaveoline, was found to be identical with artabotrine except that it contains a hydroxyl group at position 4 instead of the methoxyl group as found in artabotrine. The third alkaloid, artabotrinine, was found not to contain the hydroxyl group at position 10 but was a secondary base probably 2-methoxy-5:6-methylenedioxynoraporphine and is closely related to the methyl ether of anolobine, an alkaloid found in another plant of the *Anonaceæ*.—GEORGE BARGER and LEWIS J. SARGENT. *J. Chem. Soc.* (London), (1939), 991–997. (W. T. S.)

Belladonna Root—Alkaloids of. The successful treatment of encephalitis lethargica with Bulgarian belladonna root suggested a chemical and pharmacological examination of the constituents of belladonna root from various sources. Samples of Bulgarian, German, Italian and Indian roots were analyzed and compared with scopolia root. The main alkaloids in all samples were the tropyltropeines, *l*-hyoscyamine (I), atropine (II) and scopolamine (III) together with apo- alkaloids and amorphous alkaloidal residues (similar to belladonnine (IV)). A table of the content of individual alkaloids in mg. per 100 Gm. of dried sample is given. Pharmacological investigations showed that the relatively interconvertible alkaloids, I, II, apotropine (V) and IV differ greatly in the strength and kind of the activity and toxicity. I and II were principally active on the parasympathetic nervous system whereas IV and V act directly on the musculature. The combined action of these alkaloids which partially differ fundamentally in their pharmacological action may be, to some extent, the explanation of the efficacy of the crude Bulgarian belladonna root preparations in the so-called "Bulgarian" cure.—H. KREITMAIR. *E. Merck's Jahresber.*, 52 (1938), 39–55; through *Chem. Abstr.*, 33 (1939), 9541. (F. J. S.)

Cinchona Bark—Extraction of Alkaloids from Homogenized. Extraction from the bark by water at p_H 1.3–4.2 is more complete when the bark is ground to a No. 85 powder than when homogenized (that is, ground in water to a very fine powder). This may be due to adsorption on the fine powder. The amount extracted increases with the acidity of the solution.—W. M. HUGHES. *J. Roy. Tech. Coll.*, 4 (1939), 602–605; through *J. Soc. Chem. Ind.*, 58 (1939), 663. (E. G. V.)

Cinchona Sulfanilamide and Process of Making It. *2,145,799*—A therapeutic product containing a quinine salt and sulfanilamide is claimed as new. *2,145,800*—Novelty is claimed for a salt, in solid form, of sulfanilamide and a cinchona alkaloid, of a halogen acid or sulfuric acid.—HORACE M. POWELL, U. S. pat. 2,145,799, Jan. 31, 1939; ELMER H. STUART, U. S. pat. 2,145,800, Jan. 31, 1939; both assigned to ELI LILLY AND CO. (A. P.-C.)

Cocaine in Coca Leaves—Determination of. The method of the Committee of the Health Organization of the League of Nations for determination of cocaine in coca leaves (*Quart. J. Pharm. Pharmacol.*, 11 (1938), 765) is discussed. By powdering the coca leaves finely before extraction with ether in the presence of sodium carbonate, the alkaloids can be extracted to an extent of 5% greater than is extracted

from coarsely powdered leaves. In the Committee's method the alkaloids are extracted from ether with 45 cc. of 0.1*N* hydrochloric acid, the alkaloids liberated from the acid solution by 1 Gm. of sodium bicarbonate and extracted with three quantities of ether-light petroleum mixture. It is shown that this method does not completely extract the alkaloids and other bases, a result which is obtained by using 5 Gm. of sodium bicarbonate or 5.5 cc. of 1*N* sodium carbonate and shaking the solution with three quantities of 30 cc. of ether, ether being a better solvent than the mixture of ether and light petroleum. If required, hygrine and amino-acid esters can be determined separately by extracting twelve times with chloroform.—A. W. K. DE JONG. *Rec. trav. chim.*, 57 (1938), 1218; through *Quart. J. Pharm. Pharmacol.*, 12 (1939), 116. (S. W. G.)

Ergot Alkaloids—Colorimetric Determination of. The method of M. I. Smith for colorimetric assay of ergot alkaloids depends on an oxidative reaction photochemically induced. The iron chloride used in Allport and Cocking's reaction acts both photocatalytically and as an oxidation agent. The authors find that the blue color can be developed in the absence of light by the use of hydrogen peroxide and that after development of the color further reaction can be stopped by adding a little sulfite. *Method:* 0.18 to 2.0 mg. of the ergot alkaloid salt, or an equivalent amount of the base, is dissolved in 25 cc. of 1% tartaric acid solution. A four-cc. aliquot of this solution is placed in a 25-cc. Erlenmeyer flask and 7 cc. of reagent solution (in 100 cc. of a cooled mixture of equal parts of conc. sulfuric acid and distilled water is dissolved 0.12 Gm. of *p*-dimethylaminobenzaldehyde), and then 5 drops of a solution of one drop of 30% perhydrol in 5 cc. distilled water are introduced. Color development is complete in 1–1$^1/_2$ minutes but 2 minutes are allowed. The reaction is now stopped by the addition of about 2 mg. of sodium bisulfite (excess should be avoided as gas bubbles may interfere with photometry). The color thus developed is constant for many hours. The solution is now read in a Pulfrich step photometer using filter S 61 and a 2-cm. cell depth. A blank consisting of the reagents plus 4 cc. of distilled water, treated just like the unknown, is placed in a similar cell in the other light beam and the extinction is determined. Curves show that in the range from about 0.05–0.15 mg. of alkaloid salt per 11.25 cc. of solution the relation of *E* to concentration was linear, for ergotamine tartrate, ergotoxine ethanesulfonate and for sensibamine. The same results were obtained whether the color was developed in the dark or in bright sunlight.—E. SCHULEK and G. VASTAGH, *Dansk Tids. Farm.*, 13 (1939), 101. (C. S. L.)

Morphine—Determination of, in Opium. Maceration of the fresh and not the dried material for 48 hours is proposed.—G. CARMINA. *Giorn. Farm. Chim.*, 85 (1936), 36–39; through *J. Soc. Chem. Ind.*, 11 (1938), 1362. (E. G. V.)

Syr. Glycerophos. Co., B. P. C.—Estimation of Alkaloids of. The most successful method for the estimation of strychnine in Syr. Glycerophos. Co., B. P. C. was found to be as follows: Dissolve the impure strychnine in benzene, extract this solution with water and acid, render this alkaline with sodium hydroxide and extract with chloroform and evaporate. If the strychnine obtained is not completely crystalline and contains some amorphous matter, the solution in benzene, etc., must be repeated. The coloring matter is capable of forming a colloidal compound with strychnine. Methods for the estimation of strychnine azorubrate and quinine azorubrate are also given.—D. B. DOTT. *Pharm. J.*, 142 (1939), 328. (W. B. B.)

Vallesia Glabra—Alkaloid from. A simplified method of isolating the vallesine of Stuckert and Paya from *V. glabra* is described. The base is identical with aspidospermine from *Aspidosperma quebracho-blanco*. The name vallesine should be deleted from the literature.—M. HARTMANN and E. SCHLITTLER. *Helv. Chim. Acta*, 22 (1939), 547–549; through *J. Soc. Chem. Ind.*, 58 (1939), 776. (E. G. V.)

Essential Oils and Related Products

American Wormseed Oil. This report deals with 4 distinct oils of which the constants and properties, the determination of ascaridol, its solubility and effect of heat upon it are given. The aqueous distillate from the oil was found to contain acetaldehyde, acetone, methyl and ethyl (?) alcohols, ammonia and methylamine. Forty-five references are given.—RUDOLPH J. PAULY. *Pharm. Arch.*, 7 (1936), 1–16. (H. M. B.)

Anise, Caraway, Celery Fruit, Coriander, Cubeb and Fennel—Volatile Oils of. The yield, specific gravity, optical rotation, refractive index and other constants are given for a large number of samples of the oils.—J. F. CLEVENGER. *Bull. Natl. Formulary Committee*, 7 (1939), 293. (H. M. B.)

Camphor Basil—Composition of the Essential Oil of. The essential oil was separated (after fractionation at 20 mm. Hg) into hydrocarbons and into oxygen-containing products. After repeated fractionation the following hydrocarbons were obtained and identified: dipentene, terpinolene, crithmene, limonene(about 15%), *d*-α-pinene sabinene and camphene (about 10%). From the oxygen compounds were separated camphor, alcohols (about 5%), aldehydes (about 3%), caryophyllene (about 1%) and traces of phenol and of acetic acid.—V. S. KONOVALOV. *Farmatsiya i Farmakol.*, No. 5 (1939), 13–19; through *Chem. Abstr.*, 33 (1939), 8914. (F. J. S.)

Camphor Oil—Constituents of Brown. I. Alcohols in Brown Camphor Oil. The oil contained about 0.8% of primary and secondary alcohols. The presence of *d*-borneol, *d*-citronellol, a primary alcohol $C_{10}H_{18}O$ (boiling point 229–231°, density at 24° 0.9100, index of refraction at 23° 1.4755), and a dihydrocumin alcohol was confirmed. It contains no primary or tertiary sesquiterpene alcohol, but a secondary sesquiterpene acohol, shojunol, $C_{15}H_{26}O$ (boiling point 273–278°, density at 18° 0.9643, index of refraction at 19° 1.5026, specific rotation at 20° +25°), was isolated.—K. ONO, S. KIMURA and M. IMOTO. *J. Chem. Soc. Japan*, 57 (1936), 119–131; through *J. Soc. Chem. Ind.*, 58 (1939), 103. (E. G. V.)

Chenopodium—Comparative Study of the Three Recognized Assays for Oil of. The methods of the Association of Official Agricultural Chemists, the British Pharmacopœia and the United States Pharmacopœia were applied to the same oils. The two former methods yield concordant results but they are at variance with the U. S. P. method.—WILLIAM F. REINDOLLAR. *Jour. A. Ph. A.*, 28 (1939), 589. (Z. M. C.)

East Africa and Its Aromatic Plants. The production of the oils from the citrus fruits as well as their physical constants are given. Seven illustrations.—ALFONS M. BURGER. *Riechstoff Ind. Kosmetik*, 14 (1939), 75–79. (H. M. B.)

Essential Oil Industry—Development of. Yields of essential oil obtained by steam distillation and partial analyses of the oils are given for *Ocimum basilicum, O. canum, O. sanctum, Cymbopogon citratus* (lemon grass), *C. martini, C. schoenanthus* (palmarosa grass) and lemon tree leaves and twigs, all grown in India.—JITENDRA NATH RAKSHIT. *Science*

and Culture, 5 (1939), 108–111; through *Chem. Abstr.*, 33 (1939), 8913. (F. J. S.)

Essential Oil of Siberian Fir Tree. The oil contains up to 32% of borneol (as bornyl acetate), santene, *l*-α and *l*-β-pinene, *l*-camphene, *l*-α-phellandrene, dipentene and an unidentified hydrocarbon.—W. W. WILLIAMS and A. S. ONISHCHENKO. *Sovet. Farm.*, 2 (1935), 15–21; through *J. Soc. Chem. Ind.*, 58 (1939), 216. (E. G. V.)

Essential Oils from Flowers, Grasses, and Plants. Experiments are reported on the best type of still for use by the "cottage cultivator" in India. Lemons grown in these gardens had: variety *Kagzi:* juice per fruit 7.7 cc., vitamin C per 100 cc. of juice 36 mg.; variety *Zamiri:* 9.0 cc. and 45 mg., respectively. The green twigs and leaves obtained on pruning yielded 0.34% (volume/weight) of oil and in a properly developed cultivation one tree would give about 1 oz. of oil and 160 lb. of lemons per year.—J. N. RAKSHIT. *Rakshit Gardens Bull.*, 2 (1938); through *J. Soc. Chem. Ind.*, 58 (1939), 215. (E. G. V.)

Essential Oils—Treating, with the Aid of Extracting Agents. An oxygen-containing solvent (or solvents), for example, aqueous methyl alcohol, flows countercurrently to a non-miscible hydrocarbon solvent, for example, pentane, in an extraction apparatus (described). The oil is either dissolved in one of the solvents or introduced at a suitable temperature stage, alone or dissolved in a low-molecular weight oxygenated compound. Two zones may be employed: in one the hydrocarbons are removed from the oil, and in the other the non-hydrocarbon constituents are removed.—N. V. DEBATAAFSCHE PETROLEUM MAATS. Brit. pat., 486,347; through *J. Soc. Chem. Ind.*, 58 (1939), 105. (E. G. V.)

Geranium Oil from Algiers. Production, control and analyses are reported and discussed. Twelve references are given.—B. ANGLA. *Riechstoff Ind. Kosmetik*, 14 (1939), 95–101. (H. M. B.)

Maleic Anhydride as Color Reagent in the Chemistry of Essential Oils. Many pure compounds such as are found in ethereal oils, and the latter themselves, have been tested by treating a few drops with 1 cc. of a saturated solution of maleic anhydride in acetone. All aliphatic and hydroaromatic compounds containing conjugated linkings gave a yellow color (positive reaction), although conditions were too mild for an adduct to be formed. Abietic acid and commercial terpinolene (probably on account of α-terpinene present) give positive reactions, but pyroabietic acid gives a negative result, confirming Ruzicka's opinion that conjugation is absent. Most, though not all, phenolic compounds and aromatic amines gave a positive reaction, the intensity of which is a useful rapid test in the examination of essential oils.—W. SANDERMANN. *Seifensieder-Ztg.*, 65 (1938), 553–554; through *J. Soc. Chem. Ind.*, 57 (1938), 1501. (E. G. V.)

Ocimum Sanctum L. —Essential Oil of. The oil (0.7%, calculated on the leaves) contains eugenol (more than 71), eugenol methyl ether (20), carvacrol (about 3%) and a terpene (caryophyllene).—S. DUTT. *Proc. Indian Acad. Sci.*, 9A (1939), 72–77; through *J. Soc. Chem. Ind.*, 58 (1939), 664. (E. G. V.)

Oil from Chenopodium Ambrosioides L. Var. Anthelmintica Gray—Investigation of, Cultivated in the Gardens of Medicinal Plants of the Stefan Batory University in Wilno. The oil from the leaves contained only a little ascaridole while that from the fruit contained a sufficient amount to meet the requirements of the pharmacopœia. The oil yield was 0.96%; d. 0.9815–0.9828; $[\alpha]_D$ −0.5°.—TADEUSZ BURCHACIŃSKI. *Wiadomości Farm.*, 64 (1937), 639–642, 653–656; through *Chem. Abstr.*, 33 (1939), 8916. (F. J. S.)

Oil of Bay—Monograph Changes in. On the basis of data submitted in which one lot of the oil showed a specific gravity above 0.980 (*i. e.*, 0.981) and 107 lots were below 0.962 of which 9 were below 0.950 and 35 below 0.955, it is recommended that the standards in the N. F. VI for the oil be changed to a minimum phenol content of 50% and the specific gravity requirement be lowered to 0.950 with a maximum of 0.990.—R. C. SCHLOTTERER. *Bull. Natl. Formulary Committee*, 7 (1939), 261–266. (H. M. B.)

Oil of Juniperus Virgiana—Preliminary Report on the Vacuum Fractionation of the. Studies made by heating under nitrogen and in a bomb tube indicated that the oil should not be heated above 145°. Studies made of changes taking place during prolonged heating indicate two types of reactions at least. Refluxing under nitrogen for 59 hours produced changes in the distillation curve indicating partial conversion to higher boiling compounds. But the acid number increased only from 2.5 to 5.0. Refluxing for 50 hours while air was admitted raised the distillation curve and produced resinification. Careful low-pressure distillation below 145° is necessary to avoid chemical changes. The more volatile portions of the oil contain a material of leaf-like odor probably due to mutarotation. The cedrene portion of the distillation fraction contains two components. Cedrol crystals separated from several high-boiling fractions.—H. B. HUDDLE. *J. Tenn. Acad. Sci.*, 13 (1938), 259–267; through *Chem. Abstr.*, 33 (1939), 9549. (F. J. S.)

Oil of Pypericum Verum. A critical examination of existing literature.—HANS OTTO. *Deut. Apoth. Ztg.*, 53 (1938), 1446–1449, 1464. (H. M. B.)

Sandalwood Oil Chemistry of Australian. In 1928 this oil contained up to 94% of sesquiterpene alcohols ($C_{15}H_{24}O$) of which actual santalol was not greater than 45%, but manufacturers' improvements have now increased the content to 60–65%. The structure of the other primary and secondary alcohols is being investigated. A recent sample of the oil had a density at 15° of 0.9789, specific rotation of 4.2, index of refraction at 20° of 1.5074, ester value 13.4 (after acetylation 208.3), alcohols 96.8% (as santalol), and was soluble in three volumes of 70% ethyl alcohol.—A. R. PENFOLD. *Australasian J. Pharm.*, 154 (1937); through *J. Soc. Chem. Ind.*, 57 (1938), 1500. (E. G. V.)

Sandalwood Oil Solvent Extraction Method for Winning. The crushed wood is extracted hot with ethyl alcohol. The solvent is removed under reduced pressure and the residual oleoresin treated with aqueous ethyl alcohol (70%). The oil thus extracted is of better quality than that obtained by steam distillation.—A. N. RAO. *J. Indian Chem. Soc.*, 2 (1939), 1–9; through *J. Soc. Chem. Ind.*, 58 (1939), 663. (E. G. V.)

Tunisian Rosemary. Production of the volatile oil with illustrations is discussed and the constants of the oil produced at various times are given.—L. TRABAUD. *Drug and Cosmetic Ind.*, 44 (1939), 564–567. (H. M. B.)

Volatile Oils—Determination of, in Drugs. A review of various methods. Five tables and two drawings.—K. KOCH. *Deut. Apoth. Ztg.*, 54 (1939), 310–313. (H. M. B.)

Ylang Ylang Oil—Qualities and Constants of. During October and November the best perfume is obtained. Distillation of the flowers is discussed. The first runs are usually cohobated. The oil is usually fractioned after time intervals to yield four

or five qualities. Typical examples are given; in order of distillation, the fractions are termed: "extra, surfine, premiere, deuxeme, troiseme." The time varies from 6 to 22 hours and yield 2000–2500 Gm. per 100 kilos. Direct fire distillation for 15 hours yielded 1 kilo of oil from 60 kilos of flowers. Solvent extraction yields less than steam distillation. Numerous tables give constants of various qualities of known various localities. In each case the specific gravity decreases with successive fractions, the optical activity is usually more levorotatory, the saponification value decreases, the refractive index usually increases and the solubility in 90% alcohol decreases.—E. GUENTHER. *Am. Perfumer*, 37 (1938), No. 5, 42–45, 70. (G. W. F.)

Glycosides, Ferments and Carbohydrates

Carbohydrates of Certain Vegetables and Fruits. The material, low in carbohydrates, is air dried below 60° and extracted with 60% ethyl alcohol. After inversion of the sucrose, the sugars are determined before and after fermentation. The starch is separated from the unavailable carbohydrate residue by pancreatin digestion followed by acid hydrolysis of the filtrate to convert the starch into glucose which is determined as such. The residue is then dissolved in 21.4*N* sulfuric acid and further hydrolyzed to convert the cellulose into glucose, the hemicellulose into non-fermentable sugars. The lignin which is insoluble in dilute acids is determined gravimetrically.—WILLIAM H. OLMSTED and RAY DAVID WILLIAMS. *Proc. Soc. Exptl. Biol. Med.*, 40 (1939), 586. (A. E. M.)

Carbohydrates of Wheat Leaves. Sugars were liberated by 1% sulfuric acid hydrolysis of a tryptic digest of the residue from the alcoholic extraction of wheat leaves in the stage of early maturity. This indicates the presence of a carbohydrate-protein complex of such a nature that it is not broken down by 1% sulfuric acid, since sugars can be liberated only after tryptic digestion. No substance was revealed in the leaf residue from which sugar can be easily liberated in sufficient amount to account for the entire secondary respiratory substrate.—G. KROTKOV. *Plant Physiol.*, 14 (1939), 559–565; through *Chem. Abstr.*, 33 (1939), 8684. (F. J. S.)

Enzymes—Chemistry of. A review.—L. F. LELOIR. *Anales asoc. quím. argentina*, 26 (1938), 231–248; through *Chem. Abstr.*, 33 (1939), 2551. (E. G. V.)

Glucosides in a High Vacuum—Scission of. Christiani and Parler found that with digitonides it was possible to accomplish scission by merely heating in a very high vacuum. The question arose therefore, whether the method could be applied to a glucoside and replace the somewhat less satisfactory method of hydrolysis by heating with dilute acid. The experiments described in the present paper show that decomposition together with sublimation of one of the products will accomplish the same effect as hydrolysis and the results compare favorably with respect to yield and purity of the products. Comparative tests by both methods were made with digitonin, phlorizin, daphnin, quercitrin and arbutin.—A. V. CHRISTIANI and CH. HOFMANN. *Mikrochim. Acta*, 2 (1937), 93–96; through *Chimie & Industrie*, 40 (1938), 716. (A. P.-C.)

Glucosides on Microsublimation—Behavior of. In the literature a number of glucosides have been characterized as sublimable. One should not, however, conclude that glucosides are sublimable merely because they yield crystalline sublimates. It is rather necessary to identify such crystals by melting point and other suitable tests, since in many cases these microsublimates do not consist of the original glucosides but of their genins. Should the melting point lie in the neighborhood of the aglucon, or better, higher than the approximate melting point of the glucoside, then it is highly probable that on heating the glucoside a sublimate will be obtained consisting of the aglucon. In the event that such a glucoside is involved, then the addition of acid to the sublimate would be appropriate, since the aglucon would thereby be more quickly released and sublimed. Few glucosides permit heating above their melting point without decomposition.—R. FISCHER. *Arch. Pharm.*, 275 (1937), 516–526; through *Chimie & Industrie*, 40 (1938), 937. (A. P.-C.)

Glycerophosphoric Acids (Alpha- and Beta-)—Comparative Hydrolysis of, by Different Vegetable Phosphatases. VIII. Taka-Diastase. The following conclusions are given: (1) At p_H 3.7 and 4.5 taka-diastase hydrolyzes glycerophosphates more rapidly in the presence of citric acid than in the presence of acetic acid or a mixture of sulfuric and phthalic acids. However, whichever acid may be used to buffer the mixture, diastase exhibits a much greater affinity for *beta*-glycerophosphate than for the *alpha* form, and also a much greater maximum velocity in the hydrolysis of the *beta*-form is noted. With equimolecular concentrations of the two forms, the *beta*- is always hydrolyzed more rapidly than the *alpha*- regardless of the p_H and the buffer used. (2) A thirty-eight year old sample of taka-diastase shows the same properties as the fresh material with respect to the glycerophosphates. (3) The facts seem to indicate that there is in taka-diastase one phosphatase capable of hydrolyzing *alpha*- and *beta*-glycerophosphates at the same time, and that specific *alpha*- and *beta*-glycerophosphatases do not exist.—J. COURTOIS. *J. pharm. chim.*, 29 (1939), 343–353. (S. W. G.)

Glycogen in the Seed of Zea Mays (Golden Bantum). The seeds contain a carbohydrate that is apparently identical with glycogen. Enzymic-hydrolysis rates and $CuCl_2$-crystallization patterns are apparently definite criteria for the identification of the preparation from corn with glycogen of other origins.—DANIEL L. MORRIS and CAROL T. MORRIS. *J. Biol. Chem.*, 130 (1939), 535–544; through *Chem. Abstr.*, 33 (1939), 9365. (F. J. S.)

Glyoxalase in Human Milk. Human milk which gives a positive Arakawa reaction contains much glyoxalase, milk with a negative reaction little or none. The administration of vitamin B increases the glyoxalase content of the milk.—A. TAKAMATSU. *Tôhoku J. Exptl. Med.*, 34 (1938), 509; through *Brit. Med. J.*, 4080 (1939), 598H. (W. H. H.)

Medicinal Plants of Brazil—Chemical Study of. The biochemical method of Bourquelot was used in the analysis of some ten medicinal plants. Several plants contained glycosides as well as both holosides and heterosides. The presence of the glycosides suggests further medicinal uses and additional study of pharmacodynamic properties.—OSVALDO DE ALMEIDA COSTA. *Rev. quím. farm.*, 2 (1937), 6; through *Tribuna Farm.*, 6 (1938), 20. (G. S. G.)

Oxydase—Research upon the Action of. A systematic study was made upon the state of the oxydase of *Cynara scolymus* L. with relation to carbohydrate metabolism. The hypoglycemic action of this substance on both the normal animal (rabbit, dog) and those which had artificially produced hyperglycemia. The result is constant and independent of dose or manner of introduction. The substance produced hypoglycemic shock and secondary reactions. It produced a fall of 0.4% of initial glycogen in the normal animal and when in the presence of cholesterin or eosin the value was

0.40 to 0.53%.—A. RISI. *Arch. intern. pharmacodynamie*, 61 (1939), 428. (W. H. H.)

Papain—Natural Activators of. From 34 to 340 mg. glutathione per 100 gm. fresh material were found in the fruit of papaya (*Carica papaya*), cucumber (*Cucumis sativus*) and pineapple (*Bromelia sativa*), in papaya leaves, in *Calatropis gigantea* and in *Ficus bengalensis*. It constituted 5–10 of the total mercaptan compounds. It is higher in the ripe than in the unripe fruit. Its cuprous salt was isolated from papaya latex.—C. V. GANAPATHY and B. N. SASTRI. *Proc. Indian Acad. Sci.*, 8B (1938), 399-404; through *Chem. Abstr.*, 33 (1939), 2553. (E. G. V.)

Phosphatase—Almond, Studies on Synthesizing Action of. The following conclusions are given: (1) In ethyl alcoholic medium the synthesizing action of almond phosphatase is very low; in glycerolic medium the action is definite from p_H 5.4 to 7.7. With large amounts of phosphates, hydrogen sulfide and ascorbic acid inhibit this biosynthesis which appears to be dependent upon the oxido-reduction potential of the medium, an oxidizing medium favoring the biosynthesis. (2) In glycerolic medium the synthesizing action is much less definite than with renal phosphatase. The authors, however, have, with difficulty, isolated a small quantity of the synthesized product; this impure substance contained 75% of a phosphoric ester which seems to be exclusively *alpha*-glycerophosphate, according to its chemical characteristics and its hydrolysis by two different specific phosphatases. (3) The preferential esterification of the secondary alcohol group of glycerol has been confirmed indirectly: by following the hydrolysis of *beta*-glycerophosphate in glycerolic medium up to the final equilibrium. At this equilibrium, glycerophosphate $\rightleftarrows$ glycerol + phosphate, there seems to be superimposed a second equilibrium, *alpha*-glycerophosphate $\rightleftarrows$ *beta*-glycerophosphate, very strongly displaced in favor of the alpha form. This equilibrium manifests itself by the biochemical transposition of *beta*-glycerophosphate to the alpha form which is identified by its chemical reactions.—J. COURTOIS. *J. pharm. chim.*, 29 (1939), 433–446. (S. W. G.)

Piule. A Mexican Narcotic. The author has demonstrated the presence of a glucoside in the Mexican narcotic drug Piule or Ololiuqui, *e. g.*, in the round seeds of *Ipomœa sidæfolia* Choisy, which in all probability consists of an alkaloid in combination with sugar, in other words, a gluco-alkaloid. Animal experiments with frogs, white mice and rabbits show before as well as after scission of the glucoside by boiling with hydrochloric acid, certain depressive cerebral activity. According to Mexicans the drug taken as a narcotic drink induces vigorous and peculiar psychic phenomena. Earlier experiments by scientific investigators did not corroborate these claims. It appears that psychically active drugs (opium, coca) react differently on men of different nationalities, so that individual dispositions often play a part.—C. C. SANTESSON. *Arch. Pharm.*, 275 (1938), 532–537; through *Chimie & Industrie*, 40 (1938), 937. (A. P.-C.)

Plant Chemistry. II. Glucosides. A discussion. ANTON HOGSTAD, JR. *Drug and Cosmetic Ind.*, 45 (1939), 164–167. (H. M. B.)

Polysaccharides—Significance of the, in Immunological Specifics. A review of the subject.—C. W. VERBAARSSCHOTT. *Pharm. Tijdschr. Nederland.-Indië*, 14 (1937), 435; 15 (1938), 40, 105, 135. (E. H. W.)

Schima Liukiuensis Nakai—Saponin from the Bark of. The bark was extracted with hot methyl alcohol. The impurities were removed by lead acetate and the excess of lead in the filtrate was removed by hydrogen sulfide. A light yellow powder was obtained by precipitating with ether. The yield was 27 Gm. from 2 Kg. of the bark. A needle, melting at 240° (decomposition), $(\alpha)_D^{15°}$ −8.0 (20% in acetic acid), was obtained by recrystallization from 80% alcohol. It contained 4.27% of ash which could not be removed by repeated recrystallization. It showed the reactions of saponin. It was hydrolyzed into sapogenin, melting at 267–269°, methylpentose and uronic acid. The sapogenin was a silky leaflet having the formula $C_{28}H_{42}O_9$ or $C_{29}H_{44}O_9$.—SINITI SIMAMOTO and KONOSIN ONODERA. *J. Agr. Chem. Soc. Japan*, 15 (1939), 496–498; through *Chem. Abstr.*, 33 (1939), 8914. (F. J. S.)

Snake Venom—Enzymes in. The critical inactivation temperature of the proteolytic enzymes in the venoms of cobra (*Naja naja*), banded krait (*B. fasciatas*), *Echis carinata* and *Vipera russelli* is 55°, 53°, 55° and 62°, respectively. The critical inactivation temperature of trypsin mixed with heated cobra venom is 60°. It is suggested that the proteolytic enzyme in snake venom is identical with trypsin.—B. N. GHOSH and D. K. CHOWDHURY. *J. Indian Chem. Soc.*, 15 (1938), 566–572; through *Chem. Abstr.*, 33 (1939), 2548. (E. G. V.)

Other Plant Principles

Azulene Content of Matricaria Chamomilla and Its Preparations—New Contribution for the Estimation of the Pure. The authors find that almost all of the crude azulene (A) may be obtained by precipitation with hydroferrocyanic acid from the volatile oil of chamomile without suffering losses that occur upon vacuum fractionation. A obtained is not pure but is a mixture of A and compounds with an odor of borneol and camphor and contains besides a pure blue portion, also a yellowish and a bright to dark green portion. For the isolation of pure A a chromatographic separation is recommended to avoid losses mentioned above whereby means of a color curve a notable depression occurs. A method is described which is applicable for the quantitative determination of pure A in small quantities (a few drops) of the volatile oil. An examination of native and imported chamomile drugs and oils indicates that the quantity and appearance alone are not sufficient criteria for judging the excellence of the products. According to prevailing views on the anti-inflammatory action of chamomile the pure A content is decisive as indicated by the rapid simple method reported. Nine graphs.—H. KAISER and H. FREY. *Deut. Apoth. Ztg.*, 53 (1938), 1385–1388, 1402–1404. (H. M. B.)

Balsam Copaiba—Contribution to the Knowledge of. A discussion of the work of F. W. Freise. Balsams exported from Brazil from *Copaifera reticulata* (3 tappings), *C. guyanensis* (3 tappings), *Calophyllum brasiliense* Camb. and *Caraip Lacerdaei* Barb. were examined and in a table densities of each, the yields of volatile oil and their densities and optical rotations are recorded.—ERNST DUSSEN. *Scientia Pharm.*, 10 (1939), 69–71. (H. M. B.)

Catnip Oil—Crystalline Acid from. A so-called white crystalline lactone was isolated and a large number of properties and reactions reported in an effort to determine its constitution. Twenty-two references are given.—MINNIE MEYER. *Pharm. Arch.*, 7 (1936), 17–52. (H. M. B.)

Dryopteris Spinulosa and D. Austriaca—Phloroglucinol Derivatives of. Rhizomes of these closely related ferns were collected in southern and eastern Finland, dried at room temperature and 0.5–2 Kg. samples were extracted with ethyl ether. The extract of each species was mixed with an amount of MgO sufficient to give a homogeneous powder and leached with water to convert the phloroglucinol

derivatives into soluble magnesium salts. These were precipitated with acid, filtered off and dried, giving a light brown powder of crude aspidine. Dissolved in ethyl ether it yielded a crystalline mass on evaporation at room temperature. (In the absence of aspidine the residue is noncrystalline.) The mass was triturated with absolute alcohol, the undissolved residue sucked off and the aspidine (I), melting at 125°, recrystallized from 96% alcohol. The alcoholic mother liquor was evaporated, the residue dissolved in 20% Na_2CO_3 solution and extracted with ethyl ether. On distilling off the ether the red-brown resinous residue was triturated with water, giving an emulsion. Addition of 10% calcium chloride solution caused the resin to precipitate; this was filtered off, leached out and on acidification extracted with ether. On removal of the ether the residue was covered with absolute alcohol. Next day the crystalline mass of flavaspidic acid (II), melting at 158–160°, was sucked off and recrystallized from hot methyl alcohol. For the preparation of aspidinol (III) the resinous calcium chloride precipitates were treated by Boehm's method and refluxed for 3 hours with benzene. From the filtered solution III crystallized in fine needles; these were treated with ligroin and recrystallized from xylene and finally from benzene (melting at 145°). For the determination of the crude I content 20-Gm. samples of each rhizome were worked up with MgO as described, and the product was dried for 1 hour at 100°. (In a parallel series the determinations were made according to the Finnish Pharmacopœia with barium hydroxide. The values obtained by the latter method are almost 3 times higher than those of the MgO method.) *D. spinulosa* (seven samples) contained 0.71–1.33% of crude I; I in rhizomes 0.045–0.22%, in the crude I 17–25.3%; II 0.005–0.036% and 1.7–4.8%, respectively; III 0.03%. *D. austriaca* (eight samples) contained 0.5–1.47% of crude I, I up to 0.39% in rhizomes, 11.8–27.2% in crude I; II 0.03–0.2% and 4.2–40%, respectively; III 0.012%. Albaspidine, melting at 149–150°, was isolated from the mother liquor of I, by fractionated recrystallization from alcohol.—B. WIDÉN. *Pharmacia* (Estonia), 19 (1939), 219–225 (in German); through *Chem. Abstr.*, 33 (1939), 8915. (F. J. S.)

Gum Tragacanth of Brazil. The gum extracted from the hulls of the plant *Brachychiton populneum* is similar to gum tragacanth. It is slightly soluble in cold water forming a thick, clear, colorless mucilage; it is not soluble in alcohol and neutral solvents; the aqueous solution is slightly acid and iridescent; it is not altered by boiling, nor by the addition to 50% absolute alcohol. Its composition is: soluble gum 81.8%, water 12.0%, ash 6.20% and traces of oxidases and peroxidases. The ash has a predominance of calcium, with small quantities of magnesium, iron and potassium. This gum is more soluble than gum tragacanth.—VIRGILIO LUCAS. *Rev. assoc. brasil. farm.*, (Dec. 1937); through *Tribuna farm.*, 6 (1938), 36. (G. S. G.)

Ichthyol: Its Source and Properties. A résumé of available information, including an extensive bibliography.—O. C. BLADE. *U. S. Bur. Mines*, (Dec. 1938), *Inf. Circ.* 7042; through *J. Soc. Chem. Ind.*, 58 (1939), 324. (E. G. V.)

Jasmone—Constitution and Synthesis of. Jasmone-Like Perfume Materials and Their Application. A lecture. The determination of the constitution of jasmone and the synthesis of it and of various isomerides and homologues of it, as well as of alkylidenecyclohexane derivatives (mostly patented by Heine and Co.), suitable for use in perfumery, are reviewed.—H. WERNER. *Fette u. Seifen*, 45 (1938), 623–626; through *J. Soc. Chem. Ind.*, 58 (1939), 216. (E. G. V.)

Licorice Root—Sweet Constituents of. Oxidation of methyl glycyrrhetinate with chromic oxide in acetic acid gave a methyl ketoglycyrrhetinate, $C_{31}H_{46}O_4$, melts at 247° (all melting points corrected); oxime, melts at 288.5°; semicarbazone, melts at 254°. Reduction of glycyrrhetinic acid (I) gave dehydrohydroglycyrrhetinic acid, $C_{30}H_{46}O_3$, melts at 287°; methyl ester, melts at 272°; acetate, melts at 261°. I (10 Gm.) when heated at 380–400° gave on distilling a compound, $C_{13}H_{20}$, boiling at 95–100° at 2 mm. pressure, $[\alpha]_D^{19}$ 36.35° (in chloroform), probably hydrosapotalene, which gave, when heated with selenium, sapotalene whose picrate, $C_{19}H_{17}O_7N_3$, melts at 129°.—G. KURONO. *J. Pharm. Soc. Japan*, 58 (1938), 770–773; through *Chem. Abstr.*, 33 (1939), 2527. (E. G. V.)

Menthenes. Carvomethenes from carvacrol and from limonene were prepared and studied. Twelve references are given.—NEVADA WINDEMUTH. *Pharm. Arch.*, 9 (1938), 76–88. (H. M. B.)

Picrotoxin—Elucidation of the Structure of. III. In this, the third of a series of reports concerned with the structure of picrotoxin, H. and R. have deduced the position of the ethylenic linkage and of an oxygen atom in picrotoxinin and picrotoxic acid. Their deductions were made possible by a consideration of some previous evidence and the following experimental data. Picrotoxinone and picrotoxinonic acid on being strongly reduced with hydriodic acid and red phosphorus gave rise to norpicrotic acid, hydroxynorpicrotic acid and more important a phenolic ketone ($C_{13}H_{16}O_2$). Further reduction of the phenolic ketone by Clemmensen's method produced a phenol identical with *l*-methyl-4-ethyl-5:6:7:8-tetrahydro-β-naphthol, the synthesis of which compound was described. It was a study of this naphthol which enabled the authors to draw the deductions referred to above. The structural formulæ were developed for nor- and hydroxynorpicrotic acid and a discussion included concerning the production of naphthalene derivatives from picrotoxinone.—JAMES C. HARLAND and ALEXANDER ROBERTSON. *J. Chem. Soc.* (London), (1939), 937–943. (W. T. S.)

Pinene Source in Japan. I. Steam distillation of red pine roots gives a brownish yellow oil (density at 24° 0.8624, index of refraction at 25° 1.4682, acid value 0.43, ester value 4.23). The oil contained 80% of α-pinene and small amounts of camphene, dipentene, α-terpineol and longifolene.—T. TAKANO and N. HIRAO. *J. Chem. Soc. Japan*, 57 (1936), 100–103; through *J. Soc. Chem. Ind.*, 58 (1939), 103. (E. G. V.)

Ranunculus Thora L.—Lachrymogenic Principle of the Roots of. The roots of *Ranunculus thora*, if ground fresh, are vesicant and yield a small amount of crystalline anemonine, melting at 147° C., and a larger amount of an oily lachrymogenic substance which rapidly passes into an amorphous mass; while dried roots are non-irritating after being ground and yield a large amount of anemonine and a proportionately small amount of the oily lachrymogenic substance. There was no evidence of a toxic substance in any fraction of the extracts.—A. GORIS. *Compt. rend. acad. sci.*, 205 (1937), 624–626; through *Chimie & Industrie*, 40 (1938), 711. (A. P.-C.)

Fixed Oils, Fats and Waxes

Camphorated Oil for Injection—Preparation and Physical Properties of. Freeing olive oil from free fatty acid by means of alcohol is described, and methods of neutralization of the oil with sodium carbonate or with sodium hydroxide. These give camphorated oils with slightly different physical constants. Constants are also given for prepara-

tions made with peanut oil or rape seed oil.—A. JERMSTAD. *Arch. Pharm. Chemi*, 46 (1939), 420. (C. S. L.)

Coconut Oil—Liberation of, through Bacterial Agency. Clear, colorless and nearly odorless oil is obtained from coconut milk by suitable dilution and inoculation with pure cultures of bacteria isolated from samples of fermented coconut milk. The curd obtained after fermentation contained considerable amounts of protein but no sugar or starch.—F. A. SOLIVEN and A. I. DE LEON. *Philippine Agr.*, 27 (1938), 200–215; through *J. Soc. Chem. Ind.*, 58 (1939), 70. (E. G. V.)

Cod Liver Oil—Quality of Medicinal Samples of, on the Indian Market. As an introduction to the report the authors discussed the commercial aspects, vital properties and adulteration of cod liver oil. Of 100 samples bearing foreign and indigenous labels collected from all provinces of British India, 64 failed to satisfy the requirements of the British Pharmacopœia (1932). The procedure used in collecting and analyzing the samples was described and the results of the analyses were tabulated. This very unsatisfactory condition will probably have to be remedied, it was thought, by government control as it is in the Western countries.—N. K. IYENGAR and B. MUKERJI. *Indian Med. Gaz.*, 74 (1939), 215–220. (W. T. S.)

Fat in Foods—Deterioration of. The spoiling of the flavor of fats is usually due to either the presence of undesirable microbes or the direct oxidation of fats. In the fats themselves and in the tissues surrounding the fats there are commonly found enzymes or organisms that promote oxidation and natural antioxidants that prevent oxidation.—C. H. LEA. *Chemistry and Industry*, 58 (1939), 479–484. (E. G. V.)

Fats and Oils. Action of Microörganisms on Oleic Acid. Cultures of fungi (from soil, river mud and manure) and bacteria (from soil and river water) were grown on media containing oleic acid. From the fungi cultures 69–98%, and from the bacteria cultures 59–95%, of the original oleic acid was recovered. There was little or no change in the iodine and saponification values. Small amounts of ketones were formed by the action of fungi on oleic acid. *Clostridium acetobutylicum* reduced oleic acid to a slight extent at the double linking and the COOH group.—H. REYNOLDS and E. W. HOPKINS. *Oil and Soap*, 15 (1938), 310–312; through *J. Soc. Chem. Ind.*, 58 (1939), 289. (E. G. V.)

Greases—Hydrodynamics of Consistent. The rate of flow of a solution of sodium soap in a mineral oil was measured in a capillary viscometer at various pressures. Since the solution was thixotropic it was kept in the viscometer for 24 hours before measurement. The calculated viscosity decreased from a limiting value at low to another limiting value at high pressures; the rate of decrease gave the elasticity modulus. The experiments were done at −40°, −20° and 20°.—I. V. P. VARENTSOV. *Colloid J.* (U. S. S. R.), 4 (1938), 417–427; through *Chem. Abstr.*, 33 (1939), 2393. (E. G. V.)

Hydrogenated Fats—Refining of. A brief lecture with some notes on yields from hardened oils of various qualities.—R. DIETERLE. *Seifensieder-Ztg.*, 65 (1938), 148; through *J. Soc. Chem. Ind.*, 58 (1939), 70. (E. G. V.)

Linseed Oils of Various Origins—Analysis of. Four samples from widely separated sources were examined with particular attention to the determination of the proportion of saturated to the several unsaturated acids. The conclusion reached is that in all of the oils examined the various acids were distributed as follows: saturated acids 8.5–11.3%; oleic acid 8.0–17.4%; linolic acid 33.4–42.6%; linolenic acid 36.3–42.1%. Comparison of the composition of the mixed acids of a sample of oil from the Baltic region with others from India and Argentina indicated that the former, which was known to have superior drying and heat-polymerizing properties, contained a higher percentage of the most highly unsaturated acids.—F. N. WOODWARD. *Analyst*, 64 (1939), 265. (G. L. W.)

Maize Oil—Suggested Standards for. Maize oil having been found useful in the preparation of zinc cream and similar galenicals, and being readily obtainable on the local market, a series of samples were examined to determine their physical and chemical constants. A comparison was made with the standards laid down for maize oil in the U. S. P. XI. A monograph is suggested, with standards for purity, for inclusion in the A. P. F.—E. E. NYE and J. R. BARNED. *Australasian J. Pharm.*, 20 (1939), 188. (A. C. DeD.)

Mineral Oils—Potentiometric Determination of Acidity of. The acidity of oxidized mineral oils is determined by potentiometric titration (quinhydrone electrode) of a solution of the oil in 1:1:1 isopentanol-benzene-carbon tetrachloride; titration in an atmosphere of air gave the same results as in nitrogen.—V. L. VALDMAN and K. A. SCHTSCHEGROVA. *Zavodskaya Lab.*, 7 (1938), 917–921; through *J. Soc. Chem. Ind.*, 58 (1939), 231. (E. G. V.)

Oils, Fats and Detergents—Trend of Progress in. Developments in the oil, fat (other than edible), and detergent industries are traced.—P. W. TAINSH. *Chemistry and Industry*, 58 (1939), 587–591. Discussion of above paper. *Ibid.*, 58 (1939), 717–719. (E. G. V.)

Oils, Fats, Greases and the Like—Manufacture of Solid, from Emulsions. A heated emulsion of fat is sprayed through a heated jet or atomizer (preferably upwardly) into a cooling chamber containing cooling air, which is supplied by injecting conditioned (filtered and dried) cold air through a jet which is concentric with (inside or outside) the jet of hot emulsion; additional gas (for example, oxygen, ozone, hydrogen or carbon dioxide) may be admitted to the cooling chamber if desired. The solidified particles of emulsion falling to the bottom of the chamber are collected and removed for use in the manufacture of margarine, greases, etc. Apparatus is claimed.—J. L. KERR. Brit. pat. 488–556; through *J. Soc. Chem. Ind.*, 58 (1939), 72. (E. G. V.)

Oils of Fresh-Water Fishes. Data for oils from 14 species of fish are recorded. The saturated acids (18–20%) consisted chiefly of palmitic acid. There were indications of the presence of acids of an intermediate degree of saturation, $C_nH_{2n-4(6)}O_2$.—M. P. BELOPOLSKI, O. B. MAXIMOV, and E. A. LAGOVSKAJA. *Bull. Far East. Branch Acad. Sci., U. S. S. R.*, 16 (1936), 47–64; through *J. Soc. Chem. Ind.*, 58 (1939), 71. (E. G. V.)

Olive Oil—Vitamin Content of. Olive oil contains not more than 1 I. U. of vitamin A/Gm.—M. R. MARCILLE. *Ann. chim. anal.*, 21 (1939), 7–11; through *J. Soc. Chem. Ind.*, 58 (1939), 288. (E. G. V.)

Sesame from Belgian Congo. Analyses are recorded. Oil contents of the seed range from 41.0 to 54.5%. Better-grade oils are utilizable in food industries and poorer grades for soap manufacture. The press cake, used as cattle food, contains 10% ash, which includes phosphorus pentoxide 30.19, potassium oxide 20.82, calcium oxide 15.13 and magnesium oxide 11.47%.—L. TIHON. *Bull. agr. Congo Belge*, 26 (1935), 492–495; through *J. Soc. Chem. Ind.*, 58 (1939), 70. (E. G. V.)

Sesame Seed Oil—Cause of Cloudiness in a Batch of Refined. A batch of freshly refined (doubly-filtered) and deodorized, benzene-extracted sesame oil from black seed developed cloudiness on keeping for a few days. The separated sludge was found to contain oil, cellulosic material from the seed husks, phospholipins, and a saturated, optically inactive, white, waxy substance, melting point 80.5°, insoluble in ether, soluble in hot absolute ethyl alcohol and in benzene, which contained no nitrogen, sulfur or halogen, and gave negative tests for sterols, glucosides and carbohydrates.—F. HAWKE. *J. S. African Chem. Inst.*, 21 (1938), 57–58; through *J. Soc. Chem. Ind.*, 58 (1939), 170. (E. G. V.)

Unclassified

Acridine Derivatives as a Source of Medicinal Products. An investigation into the derivatives of acridine having a dialkylamino-alkylamino chain in the 9-position, a methoxy (or other) group in 2-position and a chlorine (or other halogen) atom in the 6-position. In presence of an electropositive substituent in 6-position, introduction of an electronegative substituent in the 7-position reduces considerably the antimalarial effect. Weakening of the electropositive factor in 6-position (replacement of chlorine by bromine) acts similarly, as does the introduction of a hydroxyl in place of the methoxyl in the 2-position, contrary to what has been observed for the quinoleine derivatives.—O. IOU. MACHIDSOHN, A. M. GRIGOROVSKI and IE. P. GALPERINE. *J. Obchtch. Khim.*, 8 (1938), 56–66; through *Chimie & Industrie*, 40 (1938), 942. (A. P.-C.)

17-Aldehydroandrostanes—Process for the Preparation of. They are obtained by oxidizing cyclopentanopolyhydrophenanthrene compounds containing at the C_{17} atom an unsaturated side chain in which there is a double bond between C_{20} and C_{21}.—SCHERING A. G. Belg. pat. 428,686, July 31, 1938. (A. P.-C.)

Antipyrine and Pyramidon—Addition Products of. A study of the action of maleic anhydride on antipyrine and pyramidon. When 1-Gm. mol. each of maleic anhydride and antipyrine are ground together in a mortar the mass rapidly acquires a yellow color and absorbs moisture from the air. After some time the mass becomes white again and solidifies. By dissolving in water and crystallizing, small white crystals are obtained that have an acid reaction and melt at 115° C. (reverting to the yellow color). This product is antipyrine monomaleate, $C_{11}H_{12}N_2OC_2H_4(COOH)_2$. If 2-Gm. mol. of antipyrine are made to react under the same conditions with 1-Gm. mol. of maleic anhydride, the monomaleate is always obtained. Pyramidon and maleic anhydride do not react at ordinary temperature; but if the mixture is heated to incipient fusion the mass becomes dark red, and on cooling there are formed small crystals that are very soluble in water and alcohol and somewhat less soluble in benzene. These crystals melt at 123° to 124° C. and consist of pyramidon monomaleate, $C_{13}H_{17}ON_3 \cdot C_2H_2(COOH)_2$.—G. LA PAROLA. *Gazz. chim. ital.*, 67 (1937), 645–647; through *Chimie & Industrie*, 40 (1938), 1141. (A. P.-C.)

Barbituric Acid Compounds. Compounds which are the reaction products of a bile acid, a barbituric acid substituted in the 5-position, and lime or magnesia, are as efficacious soporifics as the corresponding substituted barbituric acid acids, but are less toxic.—PAUL ROSENGART and ERICH RABALD, assignors to POLA FABRICCA DI PRODITTI CHIMICI S. A. MELANO. U. S. pat. 2,146,989, Feb. 14, 1939. (A. P.-C.)

Barbituric Acids—Pyridine Derivatives of. Pyridines and substituted barbituric acids are fused together or caused to react in solution to obtain various new products which may be crystallized. Equimolecular proportions of 4-hydroxy-5-nitropyridine and diethylbarbituric acid form a crystalline product which melts at 245° C. One molecule of diethylbarbituric acid and two molecules of 2-ethoxy-5-acetaminopyridine form a compound that melts at 112° to 115° C. *N*-Methyl-α-pyridone and diethylbarbituric acid form a compound that melts at about 120° C. Phenylethylbarbituric acid and *N*-methyl-α-pyridone form an equimolecular compound melting at about 122° C. An equimolecular compound of diethylbarbituric acid and α-aminopyridine melts at 82° to 85° C., has an anesthetic action and is of lower toxicity than its components. Diethylbarbituric acid (2 molecules) and 3,5-di-iodo-*N*-methyl-α-pyridone (1 molecule) form a compound that melts at 184° C. and that is decomposed by alkalies.—CURT RAETH and RUDOLF GEBAUER, assignors to CHEMISCHE FABRIK VON HEYDEN, A.-G. U. S. pat. 2,134,672, Oct. 25, 1938. (A. P.-C.)

Carbanilic Acid Esters of Substituted Alkylamino Alkanols. Substituted alkyl carbanilates of the general formula $C_6H_5NHCOOC(CH_2CH_2R)R'R''$, in which R′ is hydrogen, alkyl or alkylaminoalkyl, R is hydrogen, alkyl, aryl or aralkyl, and R″ is alkylaminoalkyl; and their acid-addition salts are prepared by treating phenyl isocyanate with alcohols of the general formula $R'R''(HO)CCH_2CH_2R$, where R′ is hydrogen, alkyl or alkylaminoalkyl, R is hydrogen, alkyl, aryl or aralkyl and R″ is alkylaminoalkyl. Details are given for the preparation of a number of such compounds. They may be used for therapeutic purposes, having effective local anesthetic action, and besides recovery as hydrochlorides may be obtained as addition salts of boric, nitric, lactic, tartaric, citric, phosphoric, sulfuric, picric or picrolonic acids.—WALTER G. CHRISTIANSEN and SIDNEY E. HARRIS, assignors to E. R. SQUIBB & SONS. U. S. pat. 2,137,042, Nov. 15, 1938. (A. P.-C.)

Catalytic Hydrogenation. Prof. L. Palfray has devised a new form of apparatus for the semi-industrial hydrogenation of perfumery chemicals and other fine chemicals. It consists of an oscillating steel autoclave fitted with means for registering simultaneously on the same diagram the temperature and pressure of the contents. It normally has a capacity of about 2 liters, but where the pressure required does not exceed 50 Kg. per sq. cm. the capacity of the plant can be greatly increased. Nickel prepared by the method of Raney (*i. e.*, by treatment of a nickel-aluminum alloy with caustic soda lye) has been used as catalyst, the quantity employed being about 5 grams per Kg. of the substance to be hydrogenated. It has been found possible in some cases to hydrogenate solid bodies as such, without heating them above their melting point, or employing a solvent, and it is shown that the use of a high pressure is very often quite unnecessary.—ANON. *Perfumery Essent. Oil Record*, 30 (1939), 388. (A. C. DeD.)

Cosmetic Paint—Plastic. A permanently plastic cosmetic paint for eyebrows and eyelashes has a base consisting of an emulsion of unsaponified wax such as ceresin wax with aqueous liquids and contains a rapidly drying oil such as oil of turpentine which is volatile at ordinary temperatures and is present in such an amount as to produce rapid drying of the emulsion after its application.—HELENE WINTERSTEIN. U. S. pat. 2,134,494, Oct. 25, 1938. (A. P.-C.)

Dehydrocholic Acid—Some Derivatives of. A description of the preparation and properties of the following derivatives of dehydrocholic acid, which itself is obtained by oxidation of cholic acid: neu-

tral ethylenediamine dehydrocholate, ethylenediamine tephamine-dehydrocholate (tephacol). On account of the dehydrocholic acid which it contains, tephacol has a considerably higher diuretic power than tephamine.—L. BELTRAMI and A. MOSSINI. *Boll. chim.-farm.*, 76 (1937), 553–554; through *Chimie & Industrie*, 40 (1938), 937–938. (A. P.-C.)

6-Desoxy-*l*-Ascorbic Acid—Synthesis of. 6-Desoxy-*l*-ascorbic acid was prepared from 2,3-monoacetone-*l*-sorbomethylose by mild oxidation with permanganate and heating the corresponding sorbomethylosonic acid thus obtained with alcoholic hydrochloric acid. The product when tested on guinea pigs was found to be very active, which showed that the presence of a hydroxyl in the side chain is sufficient to ensure the activity of the product in question.—H. MÜLLER and T. REICHSTEIN. *Helv. Chim. Acta*, 21 (1938), 273–277; through *Chimie & Industrie*, 40 (1938), 941. (A. P.-C.)

Dihydroestrine Series—Process for the Preparation of New Esters of the, Possessing Free Phenolic Hydroxyl Groups. Phosgene is made to react on dehydroestrine compounds in presence of an inert organic solvent, and the chlorocarbonates formed are made to react with alcohols, amines, aminoalcohols, etc.—SOCIÉTÉ L'INDUSTRIE CHIMIQUE À BÂLE. Belg. pat. 428,575, July 31, 1938. (A. P.-C.)

Ergot—Therapeutically Active Principle from, and Processes for Its Production. Novelty is claimed for a new ergot principle having the formula $C_{32}H_{30}O_{14}$, which consists of yellow leaflets melting with decomposition at about 263° C. at a pressure of about 30 mm. of mercury, and which is insoluble or but very difficultly soluble in practically all of the usual solvents.—OTTO WOLFES, assignor to MERCK & CO., INC. U. S. pat. 2,145,907, Feb. 7, 1939. (A. P.-C.)

Ethyl Chloride—Synthesis of. Contrary to Tulleners and co-workers, the reaction between dry hydrochloric acid and ethylene with a catalyst of anhydrous aluminum chloride suspended in ethyl chloride proceeds satisfactorily at temperatures above −78° C. The reaction rate increases with increasing temperature (−78° to −55° C.), giving in the interval between −55° and −12° C. 95% yields. The ethyl chloride obtained at −55° C. contained 5% of polymers and at −12° C. 10% of polymers. The addition of 10 Gm. of aluminum to 1 Gm. of aluminum chloride increased the productivity from 700 to 800 Gm. to 5000 Gm. of ethyl chloride. Yields of 95% (91% ethyl chloride) resulted from ethylene diluted with air and with cracking gases (hydrogen, ethane and methane) by working at −27° and −30° C.—D. M. ROUDKOVSKI, S. N. ALEXANDROV, V. K. PAJITNOV, B. V. IVANOVSKI and N. S. GOLOOUCHINE. *Prom. Org. Khim.*, 4 (1937), 499–502; through *Chimie & Industrie*, 40 (1938), 721. (A. P.-C.)

Mothproofing Composition. The essential active ingredient is an ester of a chlorobenzene sulfonic acid with a phenolic body of the benzene series containing on each aryl nucleus only one hydroxy group and no water-solubilizing group.—GUY DE MEURON, assignor to J. R. GEIGY, S. A. U. S. pat. 2,148,928, Feb. 28, 1939. (A. P.-C.)

Plaster Bandages. Gauze is impregnated with gypsum and wound to form a compact roll, the roll is saturated with a liquid containing a binder such as soluble starch, and the saturated roll is heat-treated to dehydrate the gypsum to plaster of Paris.—HARRY M. WEBER. U. S. pat. 2,134,963, Nov. 1, 1938. (A. P.-C.)

Quinoline Compounds as Sources of Medicinal Products. A study of anesthetic products of the 6-alkoxy-8-aminoquinoline series. The ethyl and propyl homologs are the most active. The anesthetizing power decreases slightly with increase in the size of the alkyl radical; but even for the benzyl derivative it is considerably greater than that of cocaine. The toxicity varies in the same direction: it is slighly higher in the ethyl and propyl homologs than for the butyl and benzyl. The new products offer no substantial advantage over percaine.—O. IOU. MAGUIDSON and A. L. MIDJOIAN. *J. Obchtch. Khim.*, 7 (1937), 1557–1563; *Chimie & Industrie*, 40 (1938), 713. (A. P.-C.)

Sedatives and Soporifics—Ureides Containing a Quaternary Carbon Atom Useful as. Ureides of the general formula $R'R''R'''CCONHCONH_2$ in which R′ is hydrogen or a halogen, R″ is hydrogen, a lower alkyl or phenyl and R‴ is an alkyl containing a quaternary carbon atom in its structure, are made by condensing urea with an acid of the general formula $R'R''R'''CCO_2H$ (or by use of a corresponding acid halide). Details are given of the production of a number of such products.—FRANK C. WHITMORE, AUGUST H. HOMEYER and CLARENCE I. NOLL, assignors to MALLINCKRODT CHEMICAL WORKS. U. S. pat. 2,135,064, Nov. 1, 1938. (A. P.-C.)

Sexual Hormones Series—Process for the Preparation of 3-Ketones Unsaturated in 4,5-Position of the. Reagents capable of breaking off the HX groups are made to react with compounds of the sexual hormones series containing a characteristic atomic group in the A and B nuclei.—SOCIÉTÉ L'INDUSTRIE CHIMIQUE À BÂLE. Belg. pat. 428,404, July 31, 1938. (A. P.-C.)

Shaving Cream—Brushless. This consists of a plastic emulsion comprising 5 to 30% of oleaginous material, 50 to 80% of water, 2 to 13% of soap and 0.5 to 5% of a chemical compound (other than soaps that are metal salts of higher fatty acids) having oleophilic and hydrophilic groups in the molecule, the oleophilic group comprising a chain of not less than 8 carbon atoms. This soap may be formed *in situ* by use of triethanolamine or caustic alkali. Glycerol, glycol, perfumes and antiseptics may also be added.—WOLF KRITCHEVSKY, assignor to RIT PRODUCTS CORP. U. S. pat. 2,134,666, Oct. 25, 1938. (A. P.-C.)

Snake Venoms—Isolation of Active Constituents from. Since the active principles of several snake venoms have been isolated, G. and B. have attempted to isolate and purify the active constituents of the venoms of both *Bungarus fasciatus* and *Vipera Russellii*. The venom of the Russell viper is known to contain three active principles, *viz.*, a neurotoxin, a hemorrhagin and a blood coagulating agent. A very concentrated preparation of these principles was obtained by fractional precipitation with sodium sulfate followed by absorption on and elution from the surface of aluminum hydroxide C. A similar treatment of the venom from *B. fasciatus* resulted in the decided concentration of this venom while the use of tungstic acid as an absorbent provided an active sample of its neurotoxin free from hemolysin.—B. N. GHOSH, S. S. DE and D. P. BHATTACHARYA. *Indian J. Med. Research*, 26 (1939), 753–758. (W. T. S.)

Sterol Derivatives—Preparation of. To prepare *cis*-androsterone from β-cholestanol, β-cholestanol is reacted with a thionyl halide to produce the corresponding *epi*-halogeno-cholestane, the latter is oxidized to *cis*-halogeno-androsterone, and the latter is hydrolyzed to *cis*-androsterone.—RUSSELL E. MARKER, assignor to PARKE, DAVIS & CO. U. S. pat. 2,144,726, Jan. 24, 1939. (A. P.-C.)

BIOCHEMISTRY

Aminophenylsulfamides—New Chemotherapeutic Agents. A Preliminary Note on Methods of Determination in Biological Fluids.—J. DESBORDES and P. G. SIVY. *Bull. biologistes pharm.*, (1938), 632–636; through *Chem. Abstr.*, 33 (1939), 2161. (F. J. S.)

Ammonia in Feces—Determination of. The Folin method for the determination of ammonia in urine (Labbé, Labbé and Nepveux, *Techniques de Laboratoire*, (1932), 506) is applicable to the determination of ammonia in feces.—M. GRINSTEIN. *Anales asoc. quím. argentina*, 25 (1937), 95–101; through *Chimie & Industrie*, 40 (1938), 655. (A. P.-C.)

Anesthetics—Relation between the Activity of Different, Their Chemical Structure and Their Physico-Chemical Properties. The relationships between the physico-chemical properties of anesthetics and their physiological action do not always follow the generally accepted laws; *e. g.*, cyclization of carbon chains, replacement of a hydrogen atom by a hydroxyl group, etc., weaken, instead of enhancing, the anesthetic action. Similarly, substitution of a hydrogen by halogen does not produce any appreciable intensification of anesthetic action, but rather a slight weakening. Generally speaking, multiple bonds in hydrocarbons reduce their anesthetic power. On the other hand, nearly any group (except the terminal groups) can either strengthen or weaken the anesthetic effect according to the group which it replaces.—N. W. LAZAREW and ANNA BROUSSILOWSKA. *Bull. soc. chim. biol.*, 19 (1937), 1173–1193; through *Chimie & Industrie*, 40 (1938), 936. (A. P.-C.)

Antineuritic Vitamin in the Fresh Leaves of Hedysarum Coronarium and Medicago Sativa. Tests on chickens showed that the leaves of these two plants contained about 5 International units of vitamin B_1 per Gm. of dry substance.—F. USUELLI and F. BEBI. *Boll. soc. ital. biol. sper.*, 13 (1938), 46–48; through *Chimie & Industrie*, 40 (1938), 940–941. (A. P.-C.)

Ascorbic Acid and Dehydroascorbic Acid—Existence of an Oxidized Form Intermediate between. A study of the absorption of oxygen by solutions of vitamin C and its reversible color reactions with phosphomolybdic acid shows the existence of an oxidized form intermediate between ascorbic and dehydroascorbic acids. This form would seem to correspond to the absorption of one atom of oxygen per 2 molecules of ascorbic acid and to be represented by the general formula $n(C_6H_7O_6)$. The production of the vitamin H form is favored by increase in the stability of ascorbic acid toward oxidation, by increasing its concentration or by decreasing the amount of oxygen available. Reversal of these conditions reverses the effect.—N. BEYSSONOFF and MME. M. WOLOSZYN. *Bull. soc. chim. biol.*, 20 (1938), 93–122; through *Chimie & Industrie*, 40 (1938), 1145. (A. P.-C.)

Ascorbic Acid Content of Chlorophyllian Tissues. Extensive biological tests on guinea pigs have confirmed that the green portions of plants contain more vitamin C than the non-chlorophyllian portions (withered leaves, petioles, roots).—MME. L. RANDOIN, GIROUD and RATSIMAMANGA. *Bull. soc. sci. hyg. aliment.*, 26 (1938), 309–327. (A. P.-C.)

Ascorbic Acid—Production of Reducing Substances Resembling, by Two Species of Penicillium. When grown on Czapek medium containing mannose or fructose, *Penicillium citroroseum* Dierck and *Penicillium ochraceum* Bains produce a substance which reduces 2,6-dichlorphenolindophenol, but which is not ascorbic acid. Its composition is not known.—P. MANCEAU, A. A. POLICARD and M. FERRAND. *Bull. soc. chim. biol.*, 20 (1938), 82–92; through *Chimie & Industrie*, 40 (1938), 1145. (A. P.-C.)

Bile Chemistry. A review, including technique of liver-function tests.—MARIE CARR. *Am. J. Med. Tech.*, 4 (1938), 8–13; through *Chem. Abstr.*, 33 (1939), 1802. (F. J. S.)

Bilirubin—Methylene Blue Reaction for the Detection of. The Franke methylene blue reaction is shown to be an optic phenomenon of chromatic synthesis and is obtained with other blue indicators. Even though it is found not entirely specific for biliary pigments, it is considered an important diagnostic aid.—M. STRANI. *Diagnostica tec. lab.*, 8 (1937), 721–728; through *Chimie & Industrie*, 40 (1938), 874–875. (A. P.-C.)

Blood—Action of a Sulfomercurial Compound on Coagulation of the. The anticoagulant properties of "hermophenyl," believed to be $C_6H_2OHg(SO_4Na)_2$, were studied. Concentrations of 0.2% to 0.0005% retard the clotting of recalcified rabbit oxalate plasma, while smaller concentrations sometimes accelerate it. "Hermophenyl" prevents the clotting of oxalate plasma by staphylocoagulase. Intravenous injection of 45 mg. per kilo body weight kills rabbits in 5 minutes. The change of prosero-zyme to serozyme is retarded *in vitro* but not *in vivo*, and the most marked action of the drug is its prevention of the formation of thrombin.—E. ZUNZ and ELENA CRACIUNESCU. *Arch. intern. pharmacodynamie*, 58 (1938), 175–192; through *Chimie & Industrie*, 40 (1938), 532. (A. P.-C.)

Blood and Urine—Changes in the Chemistry of, during and after Anesthesia. A report on blood and urine findings during and following anesthesia with ether or avertin-ether, spinal and local morphine and atropine being employed as premedicants.—LOUIS SACHS. *Anesthesia and Analgesia*, 18 (1939), 37–47; through *Chem. Abstr.*, 33 (1939), 2585. (E. G. V.)

Blood Coagulation—Pathological Physiology of. A discussion.—K. APITZ. *Kolloid-Z.*, 85 (1938), 196–211; through *Chem. Abstr.*, 33 (1939), 2157. (F. J. S.)

Bovine Livers—Preserving, by Dehydration. Spray-drying liver yields an active product that can be used in pharmacology for the treatment of Addison's anemia. The taste of powdered liver is much better than that of raw liver and its administration *per os* does not cause any dyspeptic trouble. Spray-dried liver swells easily, which permits of using it for various culinary purposes. Liver powder should be kept in a dry place and protected from light.—I. KALÉDIN. *Myasn. Ind. S. S. S. R.*, 9 (1938), No. 4, 27–33; through *Chimie & Industrie*, 40 (1938), 1183. (A. P.-C.)

Cacothelin as a Reagent for Ascorbic Acid. The yellow color of an aqueous solution of cacothelin is changed to a lilac by reducing agents. Ascorbic acid produces this change in a few minutes at room temperature in the presence of hydrochloric acid; thus, 4.5 cc. of 0.1% ascorbic acid solution + 0.5 cc. of normal hydrochloric acid + several drops of 0.2% aqueous solution of cacothelin so react. Under like conditions cysteine and glutathione require heating on the water bath. This reaction is given at water-bath temperature by ascorbic acid at a concentration of 1:10,000, but not by cysteine and glutathione, and it is also given at that temperature by 4 cc. of 1:50,000 ascorbic acid + 1 cc. of 37% hydrochloric acid. Hydrogen sulfide may produce the color change, but is removed on heating with hydrochloric acid. Oxidizing agents (hydrogen peroxide, potassium ferricyanide, mercuric acetate, quinone) interfere with the reac-

tion.—L. ROSENTHALER. *Z. Vitaminforsch.*, 7 (1938), 126–128; through *Chimie & Industrie*, 40 (1938), 1145. (A. P.-C.)

Cancer—Biochemical Problems in. An address. H. v. EULER. *Deut. med. Wochschr.*, 64 (1938), 1712–1716; through *Chem. Abstr.*, 33 (1939), 1810. (F. J. S.)

Carotene—Rapid Method for the Determination of. The method is a modification of the Kuhn and Brockmann method.—I. K. MURRI. *Bull. Applied Botany, Genetics Plant Breeding* (U. S. S. R.), *Suppl.* 84, *Vitamin Problems 2*, (1937), 296–305; through *Chem. Abstr.*, 33 (1939), 2162. (F. J. S.)

Cholesterol. It is recommended that the official title be cholesterol with cholesterin as a synonym. On the basis of a study carried out on five samples, a melting point range of 146–149° or 147–150° is recommended for the N. F., that the present requirement of not more than 2% loss in weight when dried to constant weight at 100° C. is within practical limits and that the weight of residue after incineration was found to be negligible.—FREDERICK GRILL. *Bull. Natl. Formulary Committee*, 7 (1939), 274–276. (H. M. B.)

Cortin-Like Activity—Process for the Preparation of Products Having a, or of Intermediates for their Preparation. Pregnane compounds having a double bond between C_{20} and C_{21} and a hydroxyl group at C_{17}, are converted by the action of oxygen-fixing agents into compounds having a glycerol-like structure.—SCHERING A. G. Belg. pat. 428,550, July 31, 1938. (A. P.-C.)

7-Dehydrocholesterol—Irradiation Products of. Irradiation of 7-dehydrocholesterol produces lumisterol III, tachysterol III and vitamin D_3. In this respect there is practically perfect parallelism with ergosterol which, under the same conditions, gives lumisterol, tachysterol and vitamin D_2. The composition of the first three compounds corresponds to the formula $C_{27}H_{44}O$, while that of the last three corresponds to $C_{28}H_{44}O$.—A. WINDAUS, M. DEPPE and W. WUNDERLICH. *Justus Liebigs Ann. Chem.*, 535 (1937), 118–127; through *Chimie & Industrie*, 40 (1938), 533. (A. P.-C.)

Endocrine Compounds. The Ovaries and Testes. A review.—A. RICHARD BLISS, JR. *Drug and Cosmetic Ind.*, 44 (1939), 572–573, 584–585. (H. M. B.)

Endocrine Compounds. The Ovaries and Testes. A conclusion of an article. Two groups of chemical compounds are concerned with reproduction in animals—the protein or protein-like substances and the cholesterol derivatives. The latter group is discussed.—A. RICHARD BLISS, JR. *Drug and Cosmetic Ind.*, 44 (1939), 716–717. (H. M. B.)

Endocrine Compounds. The Pituitary Gland. A continued review.—A. RICHARD BLISS, JR. *Drug and Cosmetic Ind.*, 45 (1939), 168–169, 177. (H. M. B.)

Eserine—Influence of, on Resistance of Man to Fatigue. Eserine and prostigmine (an anticholinesterase) increased the work capacity by reducing the accumulation of lactic waste.—E. MILLA. *Boll. soc. ital. biol. sper.* 13 (1938), 1126–1127; through *Chem. Abstr.*, 33 (1939), 1817. (F. J. S.)

Foodstuffs—New Method for Rapid Freezing of Perishable. The author utilizes a brine which permits cooling to −26° C. to −30° C. The foodstuff is protected from the brine by inclosing in a caoutchouc envelope. This inhibits the formation of perforations during the freezing and thawing processes. A mass of 38 Kg. may be congealed in three and one-half hours. During thawing the foodstuff shows no change in color or consistency, and fats do not become rancid.—ANON. *Agr. coloniale*, (1938), No. 8; through *J. pharm. Belg.*, 21 (1939), 24. (S. W. G.)

Glucose and Chlorides in the Blood—Application of the Photoelectric Cell to the Determination of. For the determination of glucose in blood dissolve the washed cuprous oxide precipitate in ammonia in presence of air. Rinse this solution with a total of 10 cc. of ammonia into a 25-cc. flask and add 10 cc. of freshly made, colorless, Delépine solution (to 1 Gm. of carbon disulfide add 10 cc. of 10% diethylamine alcoholic solution kept in the dark, stir and add 7 cc. of twice normal sodium hydroxide; a precipitate forms; again stir and complete to 140 cc. with water); fill to the mark and read the optical density of the resulting stable solution in a photoelectric cell. For a glucose content from 0 to 2.00 Gm. per liter, optical density varies directly as concentration; this is illustrated in a graph by a straight line. A blank reading, *i. e.*, without glucose, is included in the determination. To determine chlorides in blood, mix 0.2 cc. of blood with 1 cc. of decinormal silver nitrate in a hemolysis tube, add the washings of the pipette, keep for 15 minutes in boiling water, centrifuge and decant. Wash the precipitate 3 times with water acidified with nitric acid, dissolve the silver chloride in 1 cc. of ammonia, transfer all this into a 25-cc. flask and add about 15 cc. of pure glycerol. Agitate, then add 0.5 cc. of colorless ammonium sulfide, mix well and complete to 25 cc. with glycerol, avoiding bubbles. Measure the optical density, using a blue screen. A straight-line graph shows directly the concentration of chlorine ions in Gm. per liter as a function of the optical density.—CH. POLLES and L. FROCRAIN. *J. pharm. chim.*, 26 (1937), 408–413; through *Chimie & Industrie*, 40 (1938), 655–656. (A. P.-C.)

Goitrous Thyroid Gland—Effect of Iodine on. Experiments on two dogs with goiter show that feeding massive doses of potassium iodide, although it causes a large increase in blood iodine, quiets thyroid glands and brings about a marked accumulation of colloid substance.—G. LIEBEGOTT. *Endokrinologie*, 21 (1938), 81–92; through *Chem. Abstr.*, 33 (1939), 2588. (E. G. V.)

Glucuronic Acid—Method of Determining. The glucuronic acid is treated with naphthoresorcinol in the presence of dilute hydrochloric acid and the colored precipitate which forms is collected on a hard filter paper, washed, dried, dissolved in benzene and compared with a standard in a Pulfrich photometer.—M. FLORKIN. *Compt. rend. soc. biol.*, 126 (1937), 916–918; through *Chimie & Industrie*, 40 (1938), 716. (A. P.-C.)

Hemoglobin—Heme-globin Linkage of. II. The Molecular Weight of the Product from Carboxyhemoglobin. Minimum molecular weights for the product from pancreatic digestion of carboxyhemoglobin are 1060, based on the iron content and 1300 on the nondialyzable residue. Osmotic pressure determinations and diffusion experiments indicate a molecular weight of once or twice this value. The product appears to contain the original heme-protein linkage of hemoglobin and to consist of one or two heme groups associated with a polypeptide of 500 or 1000 size, respectively.—W. F. ROSS. *J. Biol. Chem.*, 127 (1939), 179–90; through *Chem. Abstr.*, 33 (1939), 1769. (F. J. S.)

Hormones and Hormone Preparations—Chemistry, Physiology and Pharmacology of. The hormones of hypophysis, thyroid, suprarenals-medulla and cortex, the pancreas and the sex hormones are discussed as to function. Twenty references.—HANS BRAUN. *Deut. Apoth. Ztg.*, 54 (1939), 486–487, 507–508, 522–523. (H. M. B.)

Hormones—General Review of.—L. RUZICKA. *Inst. intern. chim. Solvay, 6e Conseil chim. Bruxelles*, (1938), 255–334; through *Chem. Abstr.*, 33 (1939), 2575. (E. G. V.)

Hormones—Present State of Our Knowledge of. An address outlining the science of hormones and the methods of investigation used by endocrinologists.—H. HANDOVSKY. *Ann. Zymol.*, 5 (1939), 120–133. (A. P.-C.)

Human Skin—Alkalinization Ability of. A discussion of the factors involved in the alkalinization of the skin as determined by the method of Leszcynski and Falik.—FRANZ and KOCH. *Klin. Wochschr.*, 17 (1938), 1609–1610; through *Chem. Abstr.*, 33 (1939), 1802. (F. J. S.)

Hydrogen-Ion Concentration—Determination of the, of Blood and Cerebrospinal Fluid. When used together with the vacuum-tube potentiometer, the glass electrode gives satisfactory results in the examination of blood and cerebrospinal fluid. The accuracy is 0.02 to 0.03 of a p_H unit. A lower p_H in cerebrospinal fluid than in blood is reported. This is interpreted as indicating that cerebrospinal fluid has its own regulatory system. A historical survey of the problem is given.—A. BISGAARD and J. MADSEN. *Compt. rend. trav. lab. Carlsberg (Sér. chim.)*, 22 (1938), 75–81; through *Chimie & Industrie*, 40 (1938), 1077. (A. P.-C.)

Iodine in Normal Nutrition. A review.—W. R. CAMPBEL. *Can. Med. Assoc. J.*, 40 (1939), 77–78; through *Chem. Abstr.*, 33 (1939), 2564. (E. G. V.)

Insulin—Action of Hydrochloric Acid on. Insulin can be precipitated with normal hydrochloric acid from a sufficiently concentrated aqueous solution at a temperature of about 5° C. The precipitate retains all its original physiological activity.—NETTER and SIMONE ROCHE. *Compt. rend. acad. sci.*, 205 (1937), 934–935; through *Chimie & Industrie*, 40 (1938), 716. (A. P.-C.)

Iron—Colorimetric Microdetermination of. Application to the Analysis of Biological Substances. The microdetermination of iron in the presence of large amounts of phosphorus can be made accurately. To a twice normal sulfuric acid solution containing iron and phosphates a few drops of hydrogen peroxide (to oxidize the iron to the ferric state) and 0.5 cc. of a 5% cupferron solution are added. After being shaken vigorously, the precipitate is extracted three times with chloroform, and the extract is made up to 10 cc. and the color measured by the electrophotometer. This technic is directly applicable to a residue after the destruction of the organic matter but oxidizing acids must be removed. Iron can be determined in as little as 0.05 cc. of blood.—R. PAULAIS. *Compt. rend. acad. sci.*, 206 (1938), 783–785; through *Chimie & Industrie*, 40 (1938), 874. (A. P.-C.)

Iron Requirement in Normal Nutrition. A review.—J. A. DAUPHINEE. *Can. Med. Assoc. J.*, 39 (1938), 483–486; through *Chem. Abstr.*, 33 (1939), 1795. (F. J. S.)

Ketosteroids—Process for the Preparation of, and of Their Derivatives. Steroids containing hydroxyl groups susceptible of being dehydrogenated (and containing no side chains) are treated with biochemical dehydrogenating agents. The starting material can be androstenediol.—SCHERING A. G. Belg. pat. 428,411, July 31, 1938. (A. P.-C.)

Law of Chemical Equilibrium—Application of, to Biological Problems. A review of contributions to the law of chemical equilibrium to the study of biological problems. An example is made of its rôle in the elucidation of the mechanisms concerned with the acid-base balance and in the discovery of physiological important properties of hemoglobin.—F. C. MCLEAN. *Physiol. Revs.*, 18 (1938), 495–523; through *Chem. Abstr.*, 33 (1939), 2551. (E. G. V.)

Liver Extract—Allergy to. Report of a case with ragweed hay fever and a clinical sensitivity to various foods. The patient was given liver extract by injection for anemia, and after a year developed asthma and urticaria. Oral therapy was substituted for six months, when he could again tolerate liver extracts by injection. This type of acquired allergy cannot be produced experimentally.—LEO H. CRIEP. *J. Am. Med. Assoc.*, 110 (1938), 506. (G. S. G.)

Male Hormones. Male hormone, androsterone, and female hormone, estrone, were isolated from urine of pregnancy and assayed biologically. Both presumably are esterol derivatives. The quantities extracted from urine are too small for chemical disintegration studies. Since structure had been determined, synthesis was undertaken, and androsterone prepared in pure state. Likewise, the hormone of corpus luteum, progesterone, was synthesized, also an esterol derivative. Estradiol extracted from ovaries was found more potent than estrone. Androsterone was obtained from urine not testicles. A testicular extract proved more potent in biological tests on capons and rats than androsterone, but more susceptible to destruction by alkalies. Laquer and David isolated a hormone from testicles, calling it testosterone, which has the same biological potency as testicular extract, and which is more potent than androsterone. Finally, there was synthesized, by same method as that used for androsterolone, an androsterone derivative. The sex hormones are all closely related, all are derived from cholesterol. Progesterone and estrone are easily destroyed. Sex hormones are important for proper development, but if destroyed may now be replaced by chemical means.—L. RUZICKA. *Anales. Farm. Bioquim.*, 8 (1938), 75. (G. S. G.)

Marmite—Diet Supplement. In tropical countries where the diet is often inadequate there is a great need for a rich source of vitamins B_1 and B_2 for treating nutritional diseases. Marmite serves this purpose and moreover it is an inexpensive vegetable product, acceptable to all tropical peoples, and may be taken as a food or as a medicine, prophylactically or therapeutically.—ANON. *Indian Med. Gaz.*, 74 (1939), 320. (W. T. S.)

Methyl 2-Keto-*d*-Gluconate—Antiscorbutic Activity of. When guinea pigs were fed a scorbutigenic diet, daily administration of 10 to 20 mg. of methyl 2-keto-*d*-gluconate permitted gain in body weight but did not protect from the development of scurvy. When the daily dose was raised to 30 mg., development of scurvy was prevented. A daily dose of 60 mg. exerted a curative action on experimental scurvy.—P. GOTTARDO and C. O. MILLER. *Z. Vitaminforsch.*, 7 (1938), 118–125; through *Chimie & Industrie*, 40 (1938), 1144. (A. P.-C.)

Oxalic Acid in Blood—Direct Determination of, by Precipitation with Cerium Salt as Described by Suzuki. The method of Suzuki consists in precipitating the trichloroacetic acid filtrate with cerium chloride, and determining the oxalic acid in the precipitate iodometrically. The method has the drawback that if an excess of reagent is used, the results are lower. By using cerium sulfate, an excess does not appreciably affect the result, but the solution must be allowed to stand for several hours to secure complete precipitation. The special centrifuge tube described by Suzuki must be used. Ordinary cylindrical or conical tubes lead to a loss of the precipitate on decantation or washing, since the cerium oxalate separates out at first in a colloidal form, which only later becomes crystalline.—S. KAMIYA, Y. NOYE and H. SATO. *Japan. J. Med.*

Sci., 3 (1937), 317–324; through *Chimie & Industrie*, 40 (1938), 470. (A.-P. C.)

Oxidizing and Reducing Agents—Treating Living Tissues with. A process of treating living tissue, in which pathogenic biological materials exist, comprises alternately oxidizing and reducing the materials with a permanganate and a reducing agent, to a sufficiently limited degree, so that only a part of the improvement desired is accomplished in any alternate oxidation and reduction, so that a negligible amount of damage is done to unaffected tissue, and repeating the alternate oxidation and reduction a sufficient number of times to accomplish the treatment desired. Various details are given for the treatment of infected tissue, with different oxidizing and reducing agents.—SIMEON C. ALLEN, assignor to HEALTH RESEARCH FOUNDATION, INC. U. S. pat. 2,134,679, Nov. 1, 1938. (A. P.-C.)

Pepsin and Its Preparations. Extraction of pepsin by incompletely defined coagulation of milk casein seems appropriate for series determinations; both the casein digestion method and nephelometric estimation of undigested protein were used and it is shown that many commercial preparations especially Pepsinum Liquidum are weak presumably because of improper p_H. Possible misinterpretation of results due to rennet adulteration as well as errors in observation, value of digestion, stability optimum of pepsin, the biological value of hydrochloric acid in pepsin preparations and its substitution by citric acid, the buffering action of pepsin in Pepsinum cum Peptono Stada are discussed. Results are given for investigations on a large number of products which tend to substantiate the author's conclusions. Eighteen references are given.—G. DULTZ. *Deut. Apoth. Ztg.*, 53 (1938), 1550–1553, 1573–1577. (H. M. B.)

Pepsin—Titrimetric Method for the Determination of. The method consists in titrating a mixture of 1 cc. of the enzyme solution, 1 cc. of the substance solution (6% casein solution) and 6 cc. of methyl acetate with fortieth normal alcoholic hydrochloric acid (75% alcohol) in presence of naphthyl red indicator, the acid being added from a burette graduated in 0.02 cc. The accuracy of the titration is about ±0.01 cc. of fortieth normal acid. A pepsin unit is arbitrarily defined as 0.1 of the quantity of that enzyme which can, under the conditions of the experiment, produce in 2 cc. of the digestive mixture, a cleavage equivalent to 0.25 cc. of fortieth normal hydrochloric acid. Experimental results are given for the determination of pepsin in the stomach content of an adult, and of two children after test meals. The method is useful for the determination of pepsin activity after Ewald test meals.—B. ANDERSEN. *Compt. rend. trav. lab. Carlsberg (Sér. Chim.)*, 22 (1938), 36–41; through *Chimie & Industrie*, 40 (1938), 1077. (A. P.-C.)

Perchloric Acid Mixtures—Warning against the Use of, for the Decomposition of Animal Substances. The use of perchloric acid following treatment with fuming nitric acid for the decomposition of plant samples is a safe method for destroying organic matter, and has been used for samples of liver without accident. A trial with a sample of fish flesh resulted in an explosion of extreme violence, demolishing a hood and blowing out the laboratory windows. The effects were comparable to those to be expected from a like quantity of the most brisant common explosives.—R. BALKS and O. WEHRMANN. *Bodenkunde u. Pflanzenernähr*, 11 (1938), 253–254; through *Chem. Abstr.*, 33 (1939), 2438. (E. G. V.)

Quinacrine—Identification and Determination of, in Blood. The following outline of the procedure is given: The tissular cast (from 20–25 cc. of blood) is obtained rapidly by means of 60% potassium hydroxide solution. The alkaline mixture is extracted with 40 cc. of a mixture of benzene (thiophene-free) 8 parts and amyl alcohol 2 parts. The separated benzene-amyl alcohol layer is extracted with several small portions of 0.1*N* hydrochloric acid, the acid extracts are combined and alkalinized to litmus with 10*N* sodium hydroxide. Mix well, allow the emulsified mixture containing the liberated acridine to stand for several hours, then compare with a series of standards prepared as above using known amounts of quinacrine in aqueous solution. The method will determine 0.1 mg. of quinacrine per liter of blood.—C. LATASTE, NGUYEN-VAN-LIEN and M. E. FARINAUD. *J. pharm. chim.*, 29 (1939), 577–582. (S. W. G.)

Radiography of Internal Organs. As agents for intravenous injection in radiography, use is made of the sodium salt of one or more of the following acids: di-iodohippuric; dibromohippuric; dibromoiodohippuric; *o*-iodohippuric; *o*-iodobenzoyl-*dl*-α-aminovaleric; *o*-iodobenzoyl-*d*-glutamic; *o*-iodobenzoyl-*dl*-α-aminophenylacetic; and *o*-iodobenzoyl-5-aminosalicylic.—ALBERT P. SACHS, assignor to ZONITE PRODUCTS CORP. U. S. pat. 2,135,474, Nov. 1, 1938. (A. P.-C.)

Ribonucleic Acid—Union of the Nucleotides in. The experiments of Bredereck and Richter were repeated and it was impossible to obtain sufficient evidence to support their view that the individual nucleotides are linked through phosphorus-nitrogen linkages in ribonucleic acid.—R. S. TIPSON and P. A. LEVENE. *J. Biol. Chem.*, 127 (1939), 105–110; through *Chem. Abstr.*, 33 (1939), 2528. (E. G. V.)

Scientific Events and Research Products during 1938. A review dealing with sterilization of drug products, the Bulgarian cure, chemotherapeutics, researches on the hoof and mouth disease, insulin, hormones, vitamins, ferments, new specialties with different spheres of indication, agents for the circulation, blood alcohol determination and physical chemistry.—KONRAD SCHULZE. *Deut. Apoth. Ztg.*, 54 (1939), 77–79, 88–89, 106–108, 120–123. (H. M. B.)

Sex Hormones—Biological Activity of. A review.—E. LANQUEUR. *Inst. intern. chim. Solvay, 6e Conseil chim. Bruxelles*, (1938), 335–419; through *Chem. Abstr.*, 33 (1939), 2575. (E. G. V.)

Sitosterol—Purification of. Crude sitosterol separated from barley rootlets contains ergosterol and a substance which has either zero or (more probably) dextrorotatory power. Ergosterol can be easily eliminated by bromination, benzoylation and ultraviolet irradiation. A method of purification combining benzylation and crystallizations of the product as acetate permits of obtaining a very pure sterol corresponding with Anderson's γ-sitosterol.—A. CASTILLE and MELLE. E. RUPPOL. *Bull. soc. chim. biol.*, 19 (1937), 1716–1730; through *Chimie & Industrie*, 40 (1938), 720. (A. P.-C.)

Sodium Bismuth Pyrocatecholdisulfonate. II. Chemotherapeutic Studies. Sodium bismuth pyrocatecholdisulfonate was effective in combating trypanosamiasis in mice and guinea pigs, syphilis in rabbits and attenuating syphilitic symptoms in man. The toxicity was slight.—L. ZANCAN. *Boll. soc. ital. biol. sper.*, 13 (1938), 1188–1190; through *Chem. Abstr.*, 33 (1939), 1818. (F. J. S.)

Sodium Dehydrocholate—Effect of, on Bile Salt, Chloride and Cholesterol of Bile in Dogs. Feeding sodium dehydrocholate to dogs with biliary fistulæ resulted in an increase in volume of bile excreted in a 24-hour period. Associated with the increase in bile volume there was an increase in chloride excretion and in 4 of 5 dogs an increase in cholate excretion. The cholesterol excretion was not changed

significantly.—C. RIEGEL, I. S. RAVDIN and M. PRUSHANKIN. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 392. (A. E. M.)

Sterols XLV. Neutral Reduction Products of Equilenin. On reduction of *alpha*- and *beta*-dihydroequilenin with sodium in amyl alcohol, the nonphenolic fractions yielded 5,7,9-oestratrienediol-3(a),17(a) and 5,7,9-oestratrienediol-3(a),17(b).—RUSSELL E. MARKER, EWALD ROHRMANN, EUGENE L. WITTLE and FRANK H. TENDICH. *J. Am. Chem. Soc.*, 60 (1938), 2440. (E. B. S.)

Sterols XLVI. The Steroid Content of Cows' Pregnancy Urine. From cows' pregnancy urine was isolated pregnanediol-3(a),20(a), *allo*-pregnane-diol-3(a),20(a), in approximately one-half the quantities present in human pregnancy urine. *Alpha*- and *beta*-equistanol were also present. On oxidation of the carbinol fraction an aliphatic acid, $C_{18}H_{36}O_2$, was obtained. An aliphatic hydrocarbon, $C_{28}H_{58}$, was also isolated.—RUSSELL E. MARKER. *J. Am. Chem. Soc.*, 60 (1938), 2442. (E. B. S.)

Sterols and Steroids—Constitution of. A review.—A. WINDAUS. *Chimie & Industrie*, 40 (1938), 835–849. (A. P.-C.)

Sucrose—Micromethod for the Determination of, in the Blood. The following was devised for the determination of sucrose: blood sucrose equals total reducing sugars after hydrochloric acid hydrolysis minus glucose before hydrolysis, multiplied by 342/360.—B. D. MAGGIORE. *Boll. soc. ital. biol. sper.*, 13 (1938), 1086–1087; through *Chem. Abstr.*, 33 (1939), 2161. (F. J. S.)

Synthetic Hormones. A Review of the Synthetic Estrogenic Agents.—E. C. DODDS. *Inst. intern. chim. Solvay, 6e Conseil chim. Bruxelles*, (1938), 447–475; through *Chem. Abstr.*, 33 (1939), 2575. (E. G. V.)

Trace Elements and Their Importance to Plants, Animals and Man. Review with references.—H. VON BRONSART. *Phosphorsäure*, 7 (1938), 465–469; through *Chem. Abstr.*, 33 (1939), 2153. (F. J. S.)

Urea—Hemolytic Action of. It is known that urea possesses hemolytic action in the blood stream, and that isotonic sodium chloride prevents this action. Experiments were carried out to find what proportion of isotonic solution of urea is required to nullify the protective power of sodium chloride. Series of tubes of varying proportions of each solution were set up, and into each tube was introduced a drop of blood from a finger-prick. Hemolysis began in the tube which contained 3.7 urea to 1 part sodium chloride. Test is applicable in cases of hematuria, on chemical analysis of urine to determine amount of urea present in relation to sodium chloride.—RODOLFO PEREIRA DOS SANTOS. *Rev. soc. brasil. quím.*, 6 (1937), 66. (G. S. G.)

Urinary Tract—Treatment of Infected, by Means of Agents for Acidifying the Urine. Good effects were obtained in clinical experiments by administering 2 tablets per hour (daily 6–10 Gm.) mandurin (a preparation containing calcium amygdalate). This salt is secreted quantitatively by healthy kidneys; it has no direct disinfecting action. It decreases the alkalinity of the urinary passages and bladder, and decreases virulence and multiplication of bacteria. Solutions of calcium amygdalate dissolve phosphatic urinary concretions.—A. BABICS and F. VARSANYI. *Orvosi Hetilap*, 82 (1938), 1131–1134; through *Chem. Abstr.*, 33 (1939), 1815. (F. J. S.)

Urine Analysis—Reactions Which Are Essential for Diagnosing Diabetes by. These reactions comprise: (1) preliminary detection of reducing substances by means of Fehling's solution, Nylander's reagent or *o*-nitrophenylpropiolic acid; (2) fermentation test. Hexoses only are directly fermentable; pentoses and disaccharides are not. This test permits of detecting the presence of a quickly fermentable sugar, such as glucose or fructose. The exact nature of the sugar can be ascertained by polarizing after filtering the urine through bone black.—K. FEIST. *Deut. Apoth. Ztg.*, 53 (1938), 133–134; through *Chimie & Industrie*, 40 (1938), 657. (A. P.-C.)

Valine and Isovaleric Acid Show Positive Influence upon Hemoglobin Production in Anemia Due to Blood Loss. The natural *d*-form of valine stimulates hemoglobin production in the anemic dog markedly. The artificial *l*-form is slightly less efficacious. Isovaleric acid is of similar potency.—F. S. ROBSCHEIT-ROBBINS and G. H. WHIPPLE. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 361. (A. E. M.)

Venezuelan Snakes—Properties of the Venoms of the Principal Species of. The venom of *Crotalus terrificus* of Venezuela is intermediate in type between the venom from southern South America which is more neurotropic and has less protease, and that from Central America which has greater protease activity but less toxicity. This venom and that of *Lachesis muta* L. are characterized by high protease and phosphatidase activities which give them anticoagulant properties *in vivo* owing to destruction of fibrinogen serozyme and cytozyme. The venom of *Lachesis* is similar to that from Brazil. The venom of *Bothrops atrox* L. is characterized by high coagulant and hemolytic activity *in vitro*, weak protease activity and high toxicity. The venom of this species in Brazil has an active protease and but little hemolytic power and toxicity. The venom of *Bothrops nasula* Boc resembles that of this species of Costa Rica. It has a strong protease activity with weak coagulant and hemolytic properties *in vitro*. It is an anticoagulant *in vivo* with little toxicity. The venom of *Elaps lemniscatus* L. resembles that from Brazil. It is a poor coagulant *in vitro* and contains no protease. It is an anticoagulant *in vivo* owing to the presence of a powerful phosphatidase which destroys cytozyme and also causes hemolysis. The geographical differences in the character of the venom of certain species must be considered in the preparation of antivenom serums.—J. VELLARD. *Ann. inst. Pasteur*, 60 (1938), 511–548; through *Chimie & Industrie*, 40 (1938), 718–719. (A. P.-C.)

Vitamin C—Action of, on the Vanadic Reagent. A diluted vitamin-containing solution is poured upon a vanadic reagent, leading to a sky-blue, olive- or Nile-green coloration, because of a violent reduction of V205, which is the essential constituent of the vanadic reagent. The preparation of the reagent is described.—A. T. FRESES. *Bol. soc. quím. Peru*, 4 (1938), 22–24; through *Chimie & Industrie*, 40 (1938), 1145. (A. P.-C.)

Vitamin A and Carotenoids. Kinetic Study of the Reaction of Carr and Price. The weakening of the reaction of Carr and Price in the presence of acetic anhydride is characteristic for vitamin A_1 in the absence of unsaturated fat acids. The kinetic study together with the inversion of the absorption values with red and yellow filters distinguish easily between vitamins A_2 and A_1.—P. MEUNIER and Y. RAOUL. *Compt. rend.*, 206 (1938), 1148–1150; through *Chimie & Industrie*, 40 (1938), 941. (A. P.-C.)

Vitamin A and D Contents of Cod Liver Oils. Of 42 samples of commercial cod liver oil, the iodine numbers varied from 85.4 to 149.5; iodine number alone is therefore not a criterion of the quality of cod liver oil. Vitamin A varied from zero to 6800 International units per Gm.; vitamin D from zero to 187.5 International units per Gm. Cod liver for pharmaceutical purposes should contain at least 800 International units of vitamin A and at least

85 International units of vitamin D per cc. and should have an iodine number of 140 to 160. Cod liver oils for feed should contain at least 40 International units of vitamin D per cc.—J. BECKER. *Mezőgazdasági Kutatások*, 10 (1937), 247–254; through *Chimie & Industrie*, 40 (1938), 720. (A. P.-C.)

Vitamin A—Antigenic Function of. β-Carotene was incubated with dilute pig serum at 37° for 1 hour. The resulting solution was antigenic for rabbits as measured by the complement-fixation test.—J. P. KLAPERZAK. *Schweiz. med. Wochschr.*, 68 (1938), 1098; through *Chem. Abstr.*, 33 (1939) 1810. (F. J. S.)

Vitamin A—Correlation between the International Unit and the Cod Liver Oil Unit of. The ratio of International Unit to cod liver oil unit is 310 for saponified and 297 for unsaponified oils. The ratio of International unit to U. S. P. XI unit is reported to be 75:100 in the United States when calculated from $E^{1\%}_{1\,cm.}$, 328 mμ value of the spectrographic determination.—Z. NAKAMIYA. *Sci. Papers Inst. Phys. Chem. Research*, 34 (1938), 10; through *Chimie & Industrie*, 40 (1938), 1145. (A. P.-C.)

Vitamin A Deficiencies in Pregnancy—Biophotometer Tests for. The existing literature is quoted to indicate that pregnancy makes additional demands on the vitamin reserves of the maternal organism. A series of 40 patients from professional groups, having no economical reason for malnutrition, was tested with the biophotometer to determine the state of vitamin A nutrition. A modified Jeans method was used, which did not give the entire dark-adaptation curve, but which was especially adapted to select the worst cases of subnormal dark-adaptation. Those showing severe degrees of this abnormality were given the complete test. Sixteen of the pregnant women had good adaptation, 17 fair and 3 poor. Four were very poor. Nineteen of the worst cases were re-checked after taking large doses of vitamin A, and were found very greatly improved. The doses given daily were 60,000 to 90,000 units, continued until the photometer test was normal. In view of their findings, the authors recommend biophotometer tests for all pregnant women.—W. A. RICKETTS, *Am. J. Obstet. Gynecol.*, 38 (1939), 434; through *Abbott Abstract Service*, (1940), No. 569. (F. J. S.)

Vitamin A—Existence of Two Chemical Forms of, Hemovitamin A and Hepatovitamin A. The vitamin A of the liver, "hepatovitamin A," and its estimation by means of its destruction by ultraviolet light have been discussed previously. The vitamin A extracted, by petroleum ether containing 4% of absolute alcohol, from blood dried by addition of anhydrous sodium sulfate is a different form, "hemovitamin A," and it is not destroyed by ultraviolet light in the same manner. It is soluble in 60% ethanol while the hepatovitamin does not dissolve in alcohol weaker than 80%. The hepatovitamin is reserve material, the hemovitamin is the active form distributed to the various tissues by the blood.—A. CHEVALLIER and YVONNE CHORON. *Compt. rend. soc. biol.*, 127 (1938), 1443–1445; through *Chimie & Industrie*, 40 (1938), 1144. (A. P.-C.)

Vitamin A—Poor Absorption of, in Celiac Disease. To determine the readiness with which vitamin A is absorbed in celiac disease, the authors measured vitamin A absorption in a large series of miscellaneous other diseases. The test used was a colorimetric determination done on the blood serum both before and after the administration of a test dose of the vitamin. None of the ten cases of celiac disease could absorb vitamin A as well as the controls, and this poor absorption persisted even after the patients had been placed under treatment. Other investigators, however, have found that treatment does improve the absorption of vitamin A in cases of this type. The most striking failure to absorb vitamin A, as measured by the test used on the other patients, occurred in a case of cystic fibrosis of the pancreas, in which the lack of absorption was total. Thus, though the inability to absorb vitamin A is characteristic of celiac disease, it does occur in other conditions, and is therefore not pathognomonic.—B. B. BREESE and A. B. MCCOORD. *J. Pediat.*, 15 (1939), 183; through *Abbott Abstract Service*, (1940), No. 568. (F. J. S.)

Vitamin B_6 (Adermin)—Crystalline. Discussion.—P. W. WIARDI. *Nature*, 142 (1938), 1158; through *Chem. Abstr.*, 33 (1939), 2567. (E. G. V.)

Vitamin C Nutrition—Determination of, by Means of a Skin Test. A Critical Evaluation. In 100 tests there was no correlation between the amount of ascorbic acid in the blood during fasting and the time of decolorization of an intradermal injection of 2,6-dichlorophenolindophenol. The skin test is not a satisfactory method for the determination of the state of vitamin C nutrition.—GRACE A. GOLDSMITH, DONALD F. GOWE and ADOLPH T. OGAARD. *Proc. Soc. Exptl. Biol. Med.*, 41 (1939), 370. (A. E. M.)

Vitamin C—Highly Sensitive Test for. To 0.5 cc. of 0.6% potassium ferricyanide solution add 0.5 cc. of 10% trichloroacetic acid and then 1 cc. of the solution to be tested; mix and add 1 cc. of 2.5% ammonium molybdate in five times normal sulfuric acid; after 2 to 3 minutes observe the color. Vitamin C reduces the ferricyanide and the resulting ferrocyanide gives a dark red-brown precipitate with molybdate. The test can be obtained with 20γ of vitamin C in 1 cc. of solution. Interfering substances like cysteine, glutathione, tannins and pigments can be removed with mercuric acetate.—V. K. GIRI. *Mikrochemie*, 23 (1938), 283–284; through *Chimie & Industrie*, 40 (1938), 1144. (A. P.-C.)

Vitamin C—Photometric Determination of, with the Methylene Blue Method. The procedure of Wahren is modified. Extinction curves are given for the determination in aqueous solution, serum and urine.—W. ZIMMERMANN. *Klin. Wochschr.*, 17 (1938), 1728–1731; through *Chem. Abstr.*, 33 (1939), 2163. (F. J. S.)

Vitamin Research in 1937–38—New Results in. A continuation of a review dealing with the chemical determination of vitamin A and carotin, and vitamins B_1, B_2, C and D. Ninety-three additional references.—DILLER. *Deut. Apoth. Ztg.*, 54 (1939), 684–685, 694–696. (H. M. B.)

Vitamins. A discussion of the discoveries and applications of the vitamins.—M. SZENT-GYÖRGYI. *J. pharm. Belg.*, 21 (1939), 379–382. (S. W. G.)

Vitamins and Minerals—Importance of, during Pregnancy. The existing literature is reviewed to support the contention that American diets tend to be low in vitamins, residue and alkaline minerals. The foods which will correct these deficiencies are milk, eggs and leafy vegetables, and unless sufficient amounts of these are eaten severe malnutrition may occur in the pregnant woman. There is conclusive evidence to show that depletion of calcium and phosphorus reserves will occur during pregnancy unless the diet is adequate in these minerals, and quantitative estimates of the mean required intake determined for one part of the country may be too low for other parts where the patients receive less sunshine. Requirement for all vitamins seems to increase in pregnancy; 9000 International units of vitamin A per day is believed necessary for aver-

age pregnant women, though the richest diet hardly provides 3000 units. Inadequate diets may adversely affect the health of the mother, fetus and infant; better diets are needed.—W. J. DIECKMANN and W. W. SWANSON. *Am. J. Obstet. Gynecol.*, 38 (1939), 523; through *Abbott Abstract Service*, (1940), No. 579. (F. J. S.)

Vitamins—Short Summary of the Physiology and Pharmacology of. Vitamins A, B_1, B_2 complex and its various factors, C, D, E, H, I and P are discussed; a table is offered giving the occurrence, daily requirements and trade products.—H. BRAUN. *Deut. Apoth. Ztg.*, 53 (1938), 1496–1500. (H. M. B.)

Xanthine Derivatives—Effect of, on Muscular Work. In two persons theobromine, theophylline and caffeine increased the ability for muscular work with the maximum effect after 1 hour.—G. FICHERA. *Boll. soc. ital. biol. sper.*, 13 (1938), 1101–1103; through *Chem. Abstr.*, 33 (1939), 1817. (F. J. S.)

Yeast—Antidermatitic Vitamin of. Yeast contains antidermatitic vitamin B_6 in a nondialyzable form that is resistant to heat and to alkalies and has a high molecular weight. This protein, adermine, can be purified by the methods generally used for albuminoids. It can be converted by treatment with acetic anhydride into acetyl adermine, which is soluble in chloroform and can be separated by crystallization. By treatment of the acetyl adermine with dilute hydrochloric acid, there is obtained adermine hydrochloride, which also possesses an antidermatitic action.—R. KUHN and G. WENDT. *Ber. deut. chem. Ges.*, 71 (1938), 780–782; through *Chimie & Industrie*, 40 (1938), 1144. (A. P.-C.)

Zinc—Occurrence of, in Human Blood. The amount of zinc in the venous blood obtained from 30 patients was determined by means of the colorimetric dithizone method. The average value found was 0.607 mg. %. The amount of zinc found in the blood of diabetics did not differ from that of other patients. The values found varied from 0.23 to 1.03 mg. %. The highest value was found in a case of polycythemia, the lowest in a case of a severe hyperchromic anemia. About 90% of the zinc present in the blood is contained in the blood cells. Three diabetics showed a higher value corresponding with a lowered amount of plasma zinc. The amount of zinc in the blood is probably related to the number of cells present. In two cases of leucemia the amount of zinc in the white cells was found to be higher than that in the red cells.—E. H. VOGELENZANG. *Pharm. Weekblad*, 76 (1939), 89. (E. H. W.)

ANALYTICAL

Acedicon—Microchemical Reactions for. Acedicon (Boehringer) is an isomer of acetylized codeine differing from it by the position of a double bond. The author describes several microchemical reactions obtained with the following reagents: platinum chloride, gold chloride, mercuric chloride, potassium ferrocyanide, potassium ferricyanide, Dragendorff's, potassium hydroxide, ammonium dichromate, sodium anthraquinone-β-sulfonic acid, sodium carbonate, sodium bicarbonate and sodium phosphate. The crystalline precipitates are described, four of them being illustrated with sketches. Four color reactions are also mentioned: concentrated H_2SO_4, a trace of yellow; Erdmann's reagent, a trace of green; Fröhde's reagent, olive-green yellow; Marquis' reagent yellowish, brown-red-violet to bluish purple.—F. AMELINK. *Pharm. Weekblad*, 76 (1939), 74. (E. H. W.)

Adsorption Indicators—Titration with. VI. Influence of Various Cations on the Argentometric Titration. Chloride Titration with Eosin as an Indicator. In the titration of chloride, bromide, iodide, thiocyanate by silver nitrate and uranine or eosin as indicator, the disturbing influence of colorless cations such as alkaline earths, magnesium, zinc, cadmium, aluminum, lead and mercuric mercury on the end-point was studied. It was found that eosin can be used as an adsorption indicator in the titration of chloride, if the solution is acid, *i. e.*, p_H 0.5–2.0.—YASUMITU UZUMASA and HIROKATU OGURA. *J. Chem. Soc. Japan*, 59 (1938), 1253–1257; through *Chem. Abstr.*, 33 (1939), 1621. (F. J. S.)

Alizarin Test for Aluminum in Microchemistry. Feigl's technic for detecting aluminum (modified by the addition of ether) permits the detection of 1γ of aluminum. To the solution in a test-tube, add 2 drops of alcohol solution of 0.1% alizarin and a few drops of concentrated ammonia. Shake and let stand for 15 minutes. Add 50% acetic acid up to p_H 5.2; add an equal volume of ether; shake and let stand. The violet color is found at the boundary between the aqueous and ether phases.—O. R. CHIODI. *Rev. facultad cienc. quím.* (Univ. nacl. La Plata), 12 (1937), 117–119; through *Chem. Abstr.*, 33 (1939), 2435. (F. J. S.)

Antimony—New Semi-Micro Gravimetric Method for Determining. The method is based on the formation of the stable, water-insoluble complex $(CrEn_3)(SbS_4)2H_2O$ in which En = ethylenediamine. It is formed by adding $(CrEn_3)Cl_3.3H_2O$ to a solution of sodium thioantimonate, with formation of a yellow lustrous crystalline precipitate. The precipitate can be washed with dilute ammonium hydroxide, then with alcohol and ether and weighed. The precipitate is so voluminous that the method is limited to about 0.05 Gm. of antimony, but it is rapid and more convenient than the usual method of weighing as antimony trisulfide. The original acid solution is heated to 70° C. and treated with an excess of the reagent to which the authors give the simplified name "chromien" chloride. The solution must not be too hot or some chromium hydroxide is likely to precipitate. The results of about 35 analyses show that the method is accurate.—G. SPACU and A. POP. *Z. anal. Chem.*, 111 (1938), 254–260; through *Chimie & Industrie*, 40 (1938), 867. (A. P.-C.)

Arsenic and Antimony—Micrograviметric Determination of. Detailed directions are given for determining 0.1 to 3.3 mg. of arsenic in sodium arsenate by precipitation as magnesium ammonium arsenate, washing the precipitate with dilute ammonia solution and finally with alcohol and ether. The results of 14 tests show that the method is excellent. With the aid of a modified Jean microfilter and a two-piece aluminum block it was possible to adapt Henz's method of determining antimony as antimony trisulfide to the analysis of 0.16 to 4.0 mg. of antimony.—F. HECHT and M. v. MACK. *Mikrochim. Acta*, 2 (1937), 218–226; through *Chimie & Industrie*, 40 (1938), 865. (A. P.-C.)

Arsenic—Determination of. A method based on the findings of Tarugi and Sorbini (*Boll. chim. farm.*, 51 (1912), 361) and Zinzadze (*Ind. Eng. Chem., Anal. Ed.*, 7 (1935), 227) is described in detail. The main steps are: preparation of the sample by solvent procedure or wet ashing; reduction of arsenic to trivalent form with potassium iodide and acid; simultaneous formation and extraction of arsenic xanthate by the use of a solution of sodium xanthate in carbon tetrachloride; removal of carbon tetrachloride soluble interferences (if present) by washing the extract through concentrated hydrochloric acid containing stannous chloride; elimination of carbon tetrachloride by volatilization; oxidation of arsenic to pentavalent form with bromine; de-

velopment of the molybdenum blue color with Zinzadze's reagent; estimation of the color by means of the neutral wedge photometer. The range of the method as described is set at 0.0 to 0.8 mg. of arsenious oxide, but may be extended by suitable dilution before adding Zinzadze's reagent. The probability or possibility of interferences being present in the determination of arsenic in foods is discussed. No difficulties of a mechanical nature were encountered in the analysis of 100 or more routine samples of a wide variety of foods. A collaborative study of a synthetic solution containing considerable amounts of so-called interferences gave highly satisfactory results.—A. K. KLEIN and F. A. VORHES, JR. *J. Assoc. Official Agr. Chem.*, 22 (1939), 121–130. (A. P.-C.)

Arsphenamine and Its Derivatives—Detection of Small Quantities of, in Tissues. Jansco's method for the detection of arsphenamine and its colorless derivatives in tissues is based on the reducing action of these products on ammoniacal silver nitrate. The histological specimen (after fixing with formalin and washing with distilled water) is immersed in Jansco's reagent (silver nitrate, ammonia, glycerol). In the presence of arsphenamine, or one of its derivatives, the reduced silver appears in the form of black granules or of brownish black infiltrations, which are identified by the usual histological methods. In order to increase the sensitiveness of the test immersion of the tissue for 30 minutes in Jansco's reagent is followed by immersion for one or two minutes in 0.5% acid-free formalin. The order of the analytical operations is therefore as follows: fixation of the tissue in formalin; cutting of a thin section with a microtome; washing with distilled water; immersion in Jansco's reagent; washing with distilled water; immersion for 1 or 2 minutes in 0.5% formalin; washing at least half a minute in water; washing 10 minutes with 1% sodium thiosulfate solution; coloring of the nucleus; drying, and microscopical examination. Tests on rats have shown that under these conditions amounts of the order of 0.001 Gm. per Kg. of animal can be detected.—V. DUBRAUSZKY and L. DOBSZAY. *Boll. ist. sieroterap. milan.*, 17 (1938), 87–93; through *Chimie & Industrie*, 40 (1938), 658. (A. P.-C.)

Asclepias Syriaca L.—Phytochemical Study of. A historical review is offered (34 references). The oil of the seeds showed the presence of linoleic acid (50.50%), oleic acid (35.90%), solid acids (8.63%), glycerin residue (4.60), a sterol (melting at 110° C.) and a hydrocarbon (melting at 50° C.). The technology of the seed hairs is discussed. Fifty-eight references.—ALFRED E. RHEINECK. *Pharm. Arch.*, 10 (1939), 53–64. (H. M. B.)

Ascorbic Acid and Carotenoid Pigments. Significance of the Molisch Reaction and Test of Localization of Ascorbic Acid. It was found there is no direct relation between carotenoids, chlorophyll and vitamin C. It is always the lower section of the plant that is richest in carotenoids and poorest in ascorbic acid. The Molisch reaction was studied as a possible detector for vitamin C. This reaction can be interpreted as one of photolysis. As a detector, it did not work very satisfactorily. The Bezssonoff reaction and Fehling's solution employed on tissues rich in vitamin C react very smoothly. In all the cases studied, the vacuoles seem to be the center of attack in the reaction. This is where the vitamin C is probably localized.—A. MIRIMANOFF. *Compt. rend. acad. sci.*, 206 (1938), 1038–1040; through *Chimie & Industrie*, 40 (1938), 941. (A. P.-C.)

Bismuth—Colorimetric Determination of. Dilute aqueous sodium sulfide is added to a slightly acid solution of the sample in presence of gum arabic or polyvinyl alcohol. The solution is made slightly alkaline with ammonia, diluted to a standard volume and the color is matched against a standard. The accuracy is ±3%.—T. YAMAMOTO. *Sci. Papers Inst. Phys. Chem. Research*, 33 (1937), 61; *Chimie & Industrie*, 40 (1938), 870. (A. P.-C.)

Caffeine—Determination of, in Tea. The following procedure is given: Place 2 Gm. of finely powdered tea in a 100-cc. volumetric flask. Add 2 Gm. of calcium oxide and 25–30 cc. of distilled water. Boil for 10 minutes, add 2 Gm. of aluminum acetate, then continue boiling for several minutes. The remainder of the procedure is similar to that given for the determination of caffeine in coffee.—G. SCOTTI. *Boll. chim.-farm.*, 14 (1938), 444; through *J. pharm. Belg.*, 21 (1939), 23. (S. W. G.)

Calamines—Natural and Artificial, from the Pharmaceutical, Chemical and Pharmacological Standpoints. The history, nomenclature, preparation, uses and official preparations of the calamines are reviewed. Prepared calamine (N. F. VI) was found to contain iron, zinc carbonate and zinc oxide (98.87%); Chinese calamine (Smithsonite) iron, zinc, copper, magnesium, aluminum (trace), carbonate, oxide, insoluble residue (trace), zinc (14.79%) equivalent to 18.42% ZnO. Precipitated zinc carbonate was prepared by the U. S. P. V method and in a semi-colloidal form by a proposed formula. A new formula for the ointment is also offered. Prepared calamine N. F. VI, zinc oxide U. S. P. XI, zinc carbonate A. R., Chinese calamine, precipitated zinc carbonate and the semi-colloidal form were not bacteriostatic. Clinical observations on lotions of the Chinese calamine, zinc oxide and prepared calamine N. F. VI showed no differences in their therapeutic actions.—HELEN L. CREECH and C. O. LEE. *Bull. Natl. Formulary Committee*, 7 (1938), 34–39. (H. M. B.)

Calcium Hypophosphite—Assay of. From a study of the present assay process it is recommended that time of standing after the addition of sulfuric acid be shortened from 3 hours to one-half hour.—REPT. AM. PHARM. ASSOC. LAB. *Bull. Natl. Formulary Committee*, 7 (1939), 312–314. (H. M. B.)

Calcium in Liquor Alumini Acetatis—Determination of. Weigh about 2 Gm. of the solution, add 1 cc. acetic acid and about 100 cc. water and warm on a water bath to 60–65° C., add, with continuous stirring, quinoline acetate solution (4 Gm. hydroxyquinoline dissolved in 8–10 cc. acetic acid and diluted with 70 cc. warm water and treated dropwise with ammonium hydroxide until a turbidity begins, dilute to 100 cc. and filter when cool) until an excess of the reagent is added (20–30 cc.), heat to boiling, add sodium acetate solution (3–4 Gm. dissolved in 15 Gm. water). After heating for 2–3 minutes filter the solution through a tared filter, Gooch crucible or glass filter. The filtrate must be yellow or more of the reagent must be added. Wash the precipitate with hot water and then cold water until the filtrate is colorless, dry the precipitate at 105–110° C. and weigh. The filtrate from the aluminium precipitation is used for the calcium determination which is carried out as follows (according to Berg): To the filtrate add 3 Gm. ammonium chloride and add about 10 cc. of the oxyquinoline solution, heat to boiling and add an excess of ammonium hydroxide; recover the precipitate formed in a Gooch crucible, wash with water, dissolve in about 10 cc. dilute hydrochloric acid, rinse with water and dissolve potassium bromide in the solution, add a few drops of methyl red solution, add 0.1*N* potassium bromate solution until a distinct yellow color is obtained (about 22 cc.). The iodine liberated is back titrated with 0.1*N* sodium thiosulfate solution. (Each cc. 0.1*N*

$KBrO_3$ = 0.0005 Gm. Ca.).—RICHARD HOLDERMANN. *Deut. Apoth. Ztg.*, 54 (1939), 531–532. (H. M. B.)

Calcium, Magnesium and Barium—Tests for. Variant methods of testing qualitatively for Ca, Mg and Ba were examined. Recommended for the Ca test is either *M*/3 sodium phosphate or *M*/4 ammonium oxalate. To 10 cc. of the solution under test is added 1 cc. of 5*M* ammonia, 1 cc. of 2*M* ammonium chloride, and 1 cc. of *M*/3 sodium phosphate. If oxalate is used: To 10 cc. of the solution under test is added 1 cc. of 5*M* ammonia and about 1 cc. of *M*/4 ammonium oxalate. The reaction can be conducted in acetic acid solution. Observation time should be 5 minutes if acetic acid is not used. In the presence of acetic acid nearly twice as strong a reaction is observable after 1 minute. For Mg, the recommendation is: To 10 cc. of the solution under test add about 1 cc. of 5*M* ammonia, about 1 cc. of 2*M* ammonium chloride and about 1 cc. of *M*/3 sodium phosphate. The reaction is nearly twice as strong after 5 minutes as after 1 minute. For the Ba test is recommended: To 10 cc. of the solution to be tested, acidified according to the directions of the Swed. Phar., is added 1 cc. of *M*/1 sulfuric acid. Observation time should be at least 5 minutes.—N. THÖRN. *Farm. Revy*, 38 (1939), 355. (C. S. L.)

Carbon Disulfide—Detection of. The reaction between piperazine and carbon disulfide can be used to advantage for the detection of the latter; in concentrated solutions in alcohol a pale yellow precipitate of $C_4H_{10}N_2.CS_2$ is formed. The test will serve to detect 0.5 mg. of carbon disulfide at a dilution of 1:2000.—A. CASTIGLIONI. *Z. anal. Chem.*, 115 (1939), 257–259; through *Chem. Abstr.*, 33 (1939), 2067. (F. J. S.)

Carbon—Microtitrimetric Dry Combustion Method for Determining. Excellent results were obtained in the determination of carbon in samples of resorcinol, benzoic acid and biphenyl with samples weighing 2.535 to 3.445 mg. The sample was burned in a current of oxygen, the resulting carbon dioxide was absorbed in a measured volume of decinormal barium hydroxide and the excess determined by titration with twentieth normal hydrochloric acid to a phenolphthalein end-point. A description and illustration of the apparatus and a detailed description of the technic are given.—R. B. SCHMIDT and J. B. NIEDERL. *Mikrochem.*, 24 (1938), 59–64; through *Chimie & Industrie*, 40 (1938), 655. (A. P.-C.)

Caustic Lime—Determination of, in Commercial Hydrated Lime. Some Iceland Spar of standardization grade is powdered and 1.3507 grams are ignited to lime. This, when hydrated, yields exactly one gram of calcium hydroxide. This ignited but cooled sample and a sample of one gram of commercial hydrate are dissolved in equal volumes of water to each of which 20 grams of sucrose have been added; 200 cc. of water is a convenient volume. The solutions should be in cork-stoppered bottles of 250–300 cc. capacity. After shaking for one hour the samples are filtered through dry filters and 50-cc. aliquots are titrated with 0.15–0.20 normal acid, using phenolphthalein as indicator. The acid need not have been previously standardized. The ratio of the volumes of acid used is the ratio of caustic lime in the two samples from which the per cent in the commercial sample is directly calculated. The sucrose solution from the Iceland Spar will be sparkling clear. The other will be more or less turbid from calcium carbonate, silicates, oxides of iron, aluminum, etc.—A. BENDER. *Chemist-Analyst*, 28 (1939), 56. (A. C. DeD.)

Chromatographic Analysis of Molecular Organic Compounds. The splitting of molecular compounds and the separation of mixtures by the chromatographic method, with alumina as adsorbent, was studied. Anthracene, phenanthrene and γ-methylcyclopentenophenanthrene picrates were successfully separated into picric acid and the hydrocarbons, hypnal into hydrochloric acid and pyramidon, pyramidone-veronal into the constituents, kompral into voluntal and pyramidon, and palmitin-choleic acid into palmitic and desoxycholic acid. The following alkaloid mixtures can be separated in the same manner: *d*-lupanine and sparteine, morphine and thebaine, codeine and thebaine, narcotine and thebaine, pyridine and α-picoline, etc.—H. KONDO. *J. Pharm. Soc. Japan*, 57 (1937), 218–229; through *Chimie & Industrie* 40 (1938) 239. (A. P.-C.)

Colors to Indicate Dangerous Temperatures. A table of 19 compounds with their formulæ, temperatures of color changes and the colors apparent is given. Temperatures range from 80–500° C.—ANON. *Deut. Apoth. Ztg.*, 53 (1938), 1580. (H. M. B.)

Copper—New Method for Determining. Divalent copper forms in hot, dilute, nitric acid solutions a light blue complex salt with urotropine benzoate, which corresponds to the formula $Cu_3(C_6H_5CO_2)_6.Urtp.$, where *Urtp.* = hexamethylenetetramine. After washing with water, alcohol and ether in succession, the precipitate can be dried in a vacuum and weighed. To 50 to 100 cc. of solution containing up to 0.1 Gm. of copper, add a solution of 0.5 to 1 Gm. of ammonium benzoate and an equal weight of hexamethylenetetramine dissolved in about 20 cc. of water. Stir, filter, wash with a solution containing 3 Gm. of ammonium benzoate and 0.3 Gm. of hexamethylenetetramine per liter, then with water, alcohol and ether in succession. If the precipitate is large, it should be ignited to cupric oxide.—J. DICK. *Z. anal. Chem.*, 111 (1938), 260–263; through *Chimie & Industrie*, 40 (1938), 867. (A. P.-C.)

Copper—New Method for Determining, and Separating It from Lead. To 40 to 50 cc. of copper solution add pyridine in slight excess which should color the solution azure blue. For 0.1 Gm. of copper, 20 to 25 drops of pyridine are sufficient. Add about 3 Gm. of sodium benzoate dissolved in 20 to 25 cc. of water. This causes the precipitation of blue $(CuPy_2)(C_6H_5CO_2)_2$. Wash with a solution of 1.5 Gm. of ammonium benzoate and 1 cc. of pyridine in 100 cc. of water. Dry, ignite and weigh as cupric oxide. The same procedure, but in the presence of 2 to 3 Gm. of ammonium acetate, serves to precipitate copper in the presence of lead which can be determined in the filtrate as lead chromate. The results of test analyses were good.—J. DICK and A. RADULESCU. *Z. anal. Chem.*, 111 (1938), 394–396; through *Chimie & Industrie*, 40 (1938), 872. (A. P.-C.)

Drug Investigation—Contribution to. The 7th of a series of articles in which monographs are proposed for succinic acid, precipitated quinine and copper sodium citrate. Other items discussed are barium chloride, iron peptonate, guaiacol valerianate, soluble iron subacetate, sodium glycerophosphate, petroleum ether and petroleum benzin with a table showing the densities and boiling ranges of the various products.—KONRAD SCHULZE and ARMIN MELLE. *Deut. Apoth. Ztg.*, 53 (1938), 1536–1538. (H. M. B.)

Fluorescence Analysis. IX. Fluorescence Detection of Acids. The detection of fluoride, chloride, bromide, iodide, cyanate, cyanide, ferrocyanide, ferricyanide, sulfide, hypochlorite, chlorate, perchlorate, bromate, iodate, thiosulfate, sulfite, sulfate, nitrite, nitrate, phosphate, borate, permanganate and chromate by means of fluorescence indicators was studied and the sensibility in each case

determined.—H. GOTO. *J. Chem. Soc. Japan*, 59 (1938), 1215-1224; through *Chem. Abstr.*, 33 (1939), 1627. (F. J. S.)

Food Dyes—Capillary Analysis of Certified. Purpose of the present investigation was to develop a shorter method of detecting and separating certified food dyes. Chemical methods are laborious and some conclusions are indefinite. Apparatus is described and illustrations given. Details of experimental work are reported. One table shows the effect of aqueous solutions of various salts upon capillary rise for each of the certified colors; another shows the effect of p_H upon capillary rise. A method for identification of each dye is submitted. Also a method has been evolved which aids in separation and identification of a mixture of the dyes.—ABRAHAM TAUB and MARRO DE J. ORTEGA Y CANET. *Jour. A. Ph. A.*, 28 (1939), 578. (Z. M. C.)

Fucus Varieties of the German Coast and Their Iodine Content. *Fucus vesiculosis, F. serratus, F. platycarpus* and *F. Mytili* are considered and all varieties occurring in the North Sea have a relatively high iodine content—0.109% (dry basis), 0.107, 0.046 and 0.083, respectively. These values were higher than those found for commercial samples (0.021-0.042%). Those drugs collected in the North Sea always have a higher iodine content than those from the Baltic Sea. The iodine content of the plant can be raised by putting it in a weak potassium iodide solution (from 0.109% to 0.135%) and decreases to 0.041% in fresh water. The following method for the determination of iodine in the dried drug is offered: To 1 Gm. of the powdered drug placed in a porcelain crucible add 2.5 Gm. potassium hydroxide and 3 cc. water, mix the mass well with a magnesia stick and concentrate over a Bunsen flame. After the addition of 1 Gm. of powdered calcium carbonate mix and heat with a stronger flame. (The contents should not burn at this time.) After 10–15 minutes, heat the crucible to redness for a short time whereby the mass becomes gray. Cool, add hot water and filter through a smooth moistened filter (9 cm.) into an iodine number flask, wash the filter well until the volume of the filtrate is about 80–100 cc. and it should be absolutely clear. Add 2 drops of methyl orange (1:1000), neutralize carefully with 20% sulfuric acid, add 2–3 drops in excess, then add 1 cc. freshly prepared saturated bromine water (solution must be distinctly yellow) and after a few minutes add about 0.6 cc. of 5% phenol solution after which no turbidity should arise. After the addition of 5 cc. phosphoric acid (25%) and 0.2 Gm. potassium iodide, allow to stand in the dark for some minutes and titrate with 0.01*N* sodium thiosulfate using a small amount of starch solution as an indicator. Twenty-three references are given.—ULRICH WEBER. *Deut. Apoth. Ztg.*, 53 (1938), 1351–1354, 1373–1375. (H. M. B.)

Gnaphalium Obtusifolium L.—Phytochemical Analysis. A historical review with 49 references is offered. The per cent extracts by selective solvents from the entire above ground portion and the flowering heads are given and the following were identified among other substances, sterols, carbohydrates, arachidic, palmitic, oleic and linolinic acids, a phytosterol (melting at 136–7° C., acetate 125°), glycerin, a sugar, phenols, hydrocarbons. Fifty references are given.—PAUL JOSEPH JANNKE. *Pharm. Arch.*, 9 (1938), 17–75. (H. M. B.)

Heavy Metals Test of the U. S. P. Sensitivity of the test with hydrogen sulfide is impaired when applied to organic compounds, because the metallic impurity is so firmly combined or because organic matter inhibits formation of visible sulfides. This necessitates destruction of organic matter which in itself presents difficulties. The question should be studied. If it should be found impossible to prevent presence of traces, means should be found to identify the metal present and strict limits should be set for toxic metals like mercury and lead.—M. W. CAREY and R. E. SCHOETZOW. *Jour. A. Ph. A.*, 28 (1939), 592. (Z. M. C.)

Histochemistry—Micromethods in. A review.—K. LINDERSTRÖM-LANG. *Chem. Weekblad*, 36 (1939), 4–12; through *Chem. Abstr.*, 33 (1939), 1774. (F. J. S.)

Hydrogen-Ion Concentration. The theoretical aspects dealing with ions, hydrogen-ion, hydrolysis, p_H, indicators, physiological p_H, buffer action and dissociation constants.—Jung. *Deut. Apoth. Ztg.*, 54 (1939), 82, 177. (H. M. B.)

Iodine—New Microanalytical Method for. A quartz tube with an internal heating unit of coiled platinum wire was used between the gas-heated combustion furnace and the potassium carbonate absorbers to assure complete combustion. Biological materials high in protein and fat were liquefied with sodium hydroxide, then slightly acidified with cooling to facilitate smooth combustion. The final titration was made 0.001*N* sodium thiosulfate. Amounts of iodine between 2 and 10γ were measured with high accuracy.—A. ITANO, Y. TUZI, T. HASEGAWA and T. MORIYA. *Ber. Ōhara Inst. landw. Forsch., Japan*, 8 (1938), 97–101; through *Chem. Abstr.*, 33 (1939), 2437. (F. J. S.)

Isopropyl Alcohol in Tincture of Myrrh—Detection of. The test of Boehm and Bodendorf was studied in detail. In two tables are reported the colors of the various zones obtained in a test-tube in the cold and immersed in hot water and in a capillary in ordinary and in ultraviolet light when three tinctures are treated by one of four ways. The alcohol numbers of the tinctures are also reported.—JULIUS AUGUST MÜLLER. *Deut. Apoth. Ztg.*, 53 (1938), 1328–1329, 1339–1342. (H. M. B.)

Mercurous Ions—Microchemical Tests for. Augusti has shown that mercurous ions can be detected by the formation of a double thiocyanate of mercury and cobalt, which is a bluish green crystalline precipitate. The test will serve to detect 0.01γ of mercury, either as mercurous or mercuric salt if the solution is carefully evaporated to dryness on the slide, the residue taken up in collodion and then tested with the reagent. A similar complex thiocyanate can be obtained with a reagent in which zinc replaces cobalt. To distinguish between mercuric and mercurous compounds, picrolinic acid is useful. It reacts with mercuric ions and gives a dirty-white precipitate which, under the microscope, permits the detection of 0.01γ of mercury.—A. MARTINI. *Mikrochim. Acta*, 2 (1937), 296–298; through *Chimie & Industrie*, 40 (1938), 1069. (A. P.-C.)

Mercury—Microanalytical Determination of, in Organic and Inorganic Compounds. Exact Determination in the Presence of Chlorine, Bromine, Iodine, Nitrogen and Sulfur. By the procedure recommended, excellent results can be obtained with samples of 4–6 mg. The procedure consists in decomposing the sample in a heated tube under conditions such that the mercury is volatilized and driven over into a tube containing gold which absorbs it. The sample is usually decomposed by means of lead oxide but, if halogen is present, the gas is made to pass through pumice impregnated with silver. Organic compounds which also contain nitrogen are best heated in carbon dioxide and with copper powder to reduce oxides of nitrogen. Lead chromate is also used in the combustion tube when halogen is present.—MAX

BOETIUS. *J. prakt. Chem.*, 151 (1938), 279–306; through *Chem. Abstr.*, 33 (1939), 1628. (F. J. S.)

Metals of the First Group—Microchemical Identification of, in Situ without Previous Separation. Place a few drops of the liquid on a glass slide and divide by asbestos fibers into four parts. For the identification of silver, add a trace of nitric acid and of potassium chromate solution. For mercury, add a drop of a concentrated solution of cobalt acetate (1 part) and ammonium thiocyanate (2 to 3 parts) and dilute nitric acid. Lead is said to be identified by adding a solution of copper acetate and rubbing with a glass rod. The crystals formed in each case are characteristic and easily recognized microscopically.—B. BERISSO. *Rev. farm.* (Buenos Aires), 79 (1937), 427–431; through *Chimie & Industrie*, 40 (1938), 868. (A. P.-C.)

Methanol and (or) Isopropyl Alcohol—New Method for the Identification of, in Alcoholic Preparations. Various methods are reviewed. The xanthate reaction and the corresponding iodine values are recommended as a means of identifying the above alcohols in preparations.—W. MEYER. *Pharm. Zentralhalle*, 78 (1937), 669–676; through *Chimie & Industrie*, 40 (1938), 716. (A. P.-C.)

Methanol in Distilled Spirits—Application of the Neutral Wedge Photometer to the Quantitative Determination of. The use of a neutral wedge photometer in connection with a curve made from a set of standards makes it possible to determine accurately by means of Georgia and Morales' method (*Ind. Eng. Chem.*, 18 (1926), 1312–1313) very small amounts of methanol in distilled spirits especially if the conditions of temperature, age of reacting solutions, etc., specified in the paper are strictly observed. Inasmuch as the curves obtained by the use of the theoretical colored filters show that Beer's law is not being followed, it is necessary for each analyst to construct his own standard curve.—G. F. BEYER. *J. Assoc. Official Agr. Chem.*, 22 (1939), 151–156. (A. P.-C.)

Microhalogen Determinations. Fluorine and Bromine. A critical review with bibliography of 399 titles.—F. HERNLER and R. PFENINGBERGER. *Mikrochemie*, 25 (1938), 267–348; through *Chem. Abstr.*, 33 (1939), 1629. (F. J. S.)

Monarda Oils—Texas. The following species of Monarda were studied: *M. punctata* L. (annual), *M. citriodora* Cerv., *M. clinopodioides* A. Gray, *M. punctata* subsp. *typica* Epl., *M. dispersa* Small, Austin, *M. dispersa* Small, Brenham, *M. punctata* L., *M. tenuiaristata* (Gray) Small. Ash determinations, extracts with selective solvents, yields of oils, % phenols and constants of the non-phenolic portions are recorded.—C. C. ALBERS. *Pharm. Arch.*, 8 (1937), 33–46. (H. M. B.)

N. F. Ointments—Adaptation of Assay Methods for Some. II. Ointment of Calamine. The assay method for prepared calamine N. F. may be successfully adapted for use in the assay of ointment of calamine.—WM. B. BAKER and RICHARD C. BACHMANN. *Pharm. Arch.*, 10 (1939), 49–51. (H. M. B.)

Nitrites—Determination of, in Presence of Nitrates. To the neutralized solution, add 5 drops of sulfuric acid and 1 drop of tryptane red solution. In the presence of nitrites the orange-red solution changes gradually to a clear violet. The reaction ends in about ten minutes.—E. PERCS. *Magyar Gyógyszerésztud. Társaság Értesitője*, 14 (1939), 30; through *J. pharm. Belg.*, 21 (1939), 402. (S. W. G.)

Nitrogen—Determination of, in Betaine, Pyramidone and Sulfanilic Acid by Hydrogenation. Gauduchon-Truchot has reported difficulty in getting good values for nitrogen with the hydrogenation method, but the trouble must have been due to impurities or to the fact the most efficient catalyst was not used. Repetition of the experiments showed that it is easy to obtain excellent results. Nickel containing 10% thorium is a more active catalyst than pure nickel.—H. TER MEULEN and MELLE H. J. RAVENSWAAY. *Rec. trav. chim.*, 56 (1937), 1022–1023; through *Chimie & Industrie*, 40 (1938), 712. (A. P.-C.)

Ocher—Study of, from Water of Ardennes Liege. Chemical examination of the ochrous deposits gave different results; although macroscopically the different deposits appeared to be similar. Various strains of ferobacteria were found.—G. VAN BENEDEN. *J. pharm. Belg.*, 21 (1939), 423–426, 449–451. (S. W. G.)

Oil of Vetiver Java. Methods of production and the constants for six samples are offered.—ERNEST GUENTHER. *Drug and Cosmetic Ind.*, 44 (1939), 710–713, 728, 732. (H. M. B.)

Opium and Other Dangerous Drugs—League of Nations Commission on. V. Cannabis. The following conclusions are given: The Beam reaction and its modifications are at present the only tests indicating the biologically active principles, and only these principles, of cannabis. The great instability of cannabis and its preparations has not been proved. Petroleum ether is still the best solvent for these principles. The use of 1 Gm. of the plant instead of 0.5 Gm. as the amount of sample for the test is recommended.—F. DEMYTTENAERE. *J. pharm. Belg.*, 21 (1939), 571–574, 597–599, 615–617. (S. W. G.)

8-Oxyquinolin (Quinosol)—Ultrachromatographic Detection of, in Pharmaceutical Preparations. Since quinosol (A) can be adsorbed from alcohol solution in the upper part of an aluminium trioxide column and yields a characteristic fluorescence under ultraviolet light and a ferric chloride reaction, these properties may serve as a convenient method of detecting A. Substances occurring also in antiseptics and disinfectants possessing similar properties and likely to interfere are yatren (B) and vioform (C). They yield the ferric chloride reaction equally with A, B forming a brilliant yellow-green zone in ultraviolet light and C, a yellowish fluorescence. Absence of fluorescence, of course, indicates absence of all three. In the presence of B and C, the following procedure is recommended: Make a weak hydrochloric acid extract of the sample, neutralize with sodium bicarbonate, filter, distil from a flask with a long fractionating tube. Collect 1 cc. of the distillate and chromatophotographs, after the addition of 10 volumes of alcohol, showing a luminous greenish yellow fluorescence, 3 mm. wide indicate A. For a microdetermination the following procedure is recommended: Use in place of the usual adsorption tube, a non-fluorescent glass tube 20 cm. long and 4 mm. clear width. Contract the lower end of the tube by drawing to a clear width of 2 mm., mount on a suction flask without an adapter by means of a rubber stopper; introduce in the upper end of the contraction of the tube a small pledget of cotton, followed by aluminum trioxide, suction being applied meanwhile. Add sufficient oxide until 10 cm. remains free, to which part the liquid (maximum 1 cc.) is added and drawn through. The oxide and liquid is introduced by a filling funnel consisting of a drawn out test-tube. Regulate the velocity so that a drop flows every 3–4 seconds; for microdetection a specially standard oxide (by Brockmann) is necessary; for macrowork ordinary oxide may be used. Experiments are reported for the detection of A in a methylene blue solution and for the separation of A from Rivanol and A from Certuna (dimethylaminohydroxyquinolylaminobutane).—WALTER HOFFMAN. *Deut. Apoth. Ztg.*, 54 (1939), 185–187. (H. M. B.)