PHARMACEUTICAL ABSTRACTS

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ABSTRACTORS

CONTENTS

PHARMACY

MISCELLANEOUS (*Continued*)

Medicaments Coated with a Water-Insoluble Polymerization Product and Process of Preparing. A medicinal preparation is coated with a film-forming water-insoluble organic polymerization product containing a radical selected from the group consisting of —C(:O)OH and —C(:O)OC(:O).—MAX HAGEDORN, MAX BOCKMÜHL and GÜNTHER GORR, assignors to WINTHROP CHEMICAL CO., INC. U. S. pat. 2,066,105, Dec. 29, 1936. (A. P.-C.)

Medicinals—Tests for. The authors criticize the German Pharm. tests on citric acid, for aldehydes in amylene hydrate and comments are made on cacao butter and oil. With regard to phenylethylbarbituric acid, luminal and phenobarbital tablets experience indicates that (1) the method of Budde (*Apoth. Ztg.*, 49 (1934), 295) is easily performed and accurate and (2) recommend for admission in the German Pharm. the method as an identity test, a quantitative method and as a stability test in the following form for Acidum Phenylethylbarbituricum: "(*a*) 0.2 Gm. accurately weighed must give a clear solution with 1 Gm. dry sodium carbonate and 30 Gm. water; (*b*) the solution heated to boiling must remain clear and should not produce colloidal turbidities on cooling and (*c*) upon titration with 0.1*N* silver nitrate at least 8.4 and at the most 8.6 cc. must be used to give a permanent turbidity." (3) Luminal and similar trade products meet these requirements but the acids extracted from the phenobarbital tablets do not and should not be labeled as corresponding to the pharmacopœial product since the melting point of the phenobarbital is too low. The method of Handke (*Apoth. Ztg.*, 49 (1934), 1183) for the *determination of cresol in cresol soap solution* was found to be accurate and more easily carried out than the German Pharm. method. The pharmacopœial method for the *determination of volatile oils in drugs* was found to give non-comparable results and the following method suggested: "In order to shorten the distillation, collect the distillate in a 100-cc. graduated cassia flask containing 25 Gm. sodium chloride; collect 40 cc. of distillate according to the pharmacopœial method and into the distillation flask conduct a stream of steam from a tin generator and continue the steam distillation until the volume of the distillate is sufficiently great in the cassia flask so that the volume of the volatile oil can be read off. Dissolve the sodium chloride in the flask by tapping and a slight motion (avoid vigorous shaking) and the oil is allowed to separate for 24 hours and the volume read. If the separated oil is not clear add 2 cc. of pentane and read the volume deducting that occupied by the pentane." Consistent results are claimed for this method.—TH. BUDDE and GÜNTHER V. LAGIEWSKI. *Apoth. Ztg.*, 51 (1936), 1600–1603. (H. M. B.)

Microörganisms—Method for Suppressing the Injurious Effects of, Suspended in Air. A carboxylic acid containing one or more side chains in its molecule and having a low vapor tension, is atomized or sprayed into the air to be treated.—H. BECHHOLD. Belg. pat. 413,032, Jan. 31, 1936. (A. P.-C.)

Patent Medicines. A radio broadcast to the layman explaining the method of operating of patent medicine manufacturers.—D. ROSEBY. *Australas. J. Pharm.*, 51 (1936), 1170. (E. V. S.)

Plant Parasites—Chemicals Used against. Sodium nitrate, which is utilizable by the plant, is sometimes effective against certain parasites. Sodium arsenite may be used to prevent the spread of crickets. Insects bearing chitinous coats may be combated with potassium hydroxide solutions. The sulfides of potassium are very effective against certain types of insects. They act in a two-fold manner through their caustic action and their liberation of hydrogen sulfide on decomposing, which is just as poisonous for insects as hydrogen cyanide. Potassium sulfocarbonate, while toxic to plants if too concentrated, approaches in solution the activity of potassium cyanide against insects. For general purposes 60 cc. of commercial sulfocarbonate of potash (40° Baumé) in 10 liters of water may be used. Potassium xanthogenate (C_2H_5OCSSK) can replace carbon disulfide or potassium sulfocarbonate in all cases, but it is rather expensive for an insecticide. Potassium cyanide and hydrogen cyanide, which it liberates on moistening or on treatment with acid, is fatal to insects in extremely small amounts, but care must be exercised since it is also very poisonous for humans. The use of barium chloride is recommended for some insects in 1.5, 2 or 3% solutions to which has been added 0.12% sodium carbonate. Barium carbonate may also be used. Lime (CaO) applied to trees to destroy insects is very effective. Cal-

cium sulfide is an efficacious and economical means of combating widely varying types of insects as is also chlorinated lime.—A. and R. SARTORY. *Schweiz. Apoth.-Ztg.* 74 (1936), 617, 694. (M. F. W. D.)

Power—Production and Utilization of. A general discussion concerning steam power plants, internal combustion engines, power transmission, electric motors, air compressors, vacuum equipment, gas and electric heating which may be of interest to the manufacturing chemist.—ANON. *Chem. and Drug.*, 126 (1937), 91. (E. V. S.)

Prescription Pricing—Principles for Correct. A thorough discussion of this whole question, including a pricing schedule.—GEORGE LOUIS SECORD. *J. Am. Pharm. Assoc.*, 25 (1936), 1132. (Z. M. C.)

Prescription Pricing—Uniform Schedule for, in South Dakota. The State Association of South Dakota appointed a committee whose task was to prepare a uniform schedule of prescription pricing for consideration at its 1936 meeting. Report is made of the study made and of the schedule which was adopted for one year. The questionnaire and tabulated results are of value to those studying prescription pricing.—CLARK T. EIDSMOE. *J. Am. Pharm. Assoc.*, 25 (1936), 1146. (Z. M. C.)

Provitamin D and Antirachitic Food—Process for Obtaining Preparations Containing. A provitamin D preparation separated from duck eggs is irradiated.—N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Belg. pat. 415,556, June 30, 1936. (A. P.-C.)

Razor Blades—Increasing the Effective Life of. Brushless shaving creams (p_H 7.2) cause blades to become dull more readily than brush-type creams (p_H 9.4). Potassium chromate added to brushless creams, though it does not change the p_H value, retards corrosion. The chromate acts as a passivating agent forming a tightly adhesive invisible film of iron oxide.—R. H. FASH. *Ind. Eng. Chem.*, 29 (1937), 68. (E. G. V.)

Roentgenography—Product for Use in, and Process of Preparing. An aqueous suspension of thorium hydroxide and a peptizing agent is used for creating X-ray shadows when applied to the walls of the cavities or internal organs in the human body.—THOMAS O. MENEES and J. DUANE MILLER, assignors to THE UNION BENEVOLENT ASSOCIATION. U. S. pat. 2,065,718, Dec. 29, 1936. (A. P.-C.)

Sandalwood Oil—Medicinal Compound of. Sandalwood oil is mixed with a resinous acid capable of reacting with the alkaline intestinal secretion so as to emulsify the sandalwood oil.—EDWARD C. MOORE. U. S. pat. 2,066,572, Jan. 5, 1937. (A. P.-C.)

Sodium Formaldehyde Sulfoxylate.—Preservative Capacity of, in Certain Medicinal Preparations. The following solutions were studied: epinephrine, physostigmine salicylate, physostigmine hydrochloride, morphine sulfate, glycerite of phenol, resorcinol and sodium bicarbonate-sodium salicylate. In concentrations of 1–5,000 in which the alliaceous odor of its products of decomposition is not perceptible it is an effective preservative. Experiments were conducted to see if presence of the preservative affected medicinal potency of epinephrine, using the dog as test animal. Though pharmaceutical elegance was retained, pressor response was obliterated. Solutions of sodium formaldehyde sulfoxylate deteriorate quite rapidly developing an alliaceous odor. Buffering to p_H 6.2 with phosphates retards the rate of deterioration.—JOHN C. KRANTZ, JR., C. JELLEFF CARR and RUTH MUSSER. *J. Am. Pharm. Assoc.*, 25 (1936), 979. (Z. M. C.)

Thyroid Gland Product—Therapeutic. A therapeutic product composed of an active secretion product of the thyroid gland and an albumic acid or an alkali salt of such an acid such as sodium protalbuminate which serves to prevent flocculation.—MAX BOCKMÜHL, ERICH SIMONS and EUGEN DÖRZBACH, assignors to WINTHROP CHEMICAL CO. U. S. pat. 2,060,021, Nov. 10, 1936. (A. P.-C.)

Vegetable Matter—Method of Preserving. A stable ground product is obtained by grinding fresh plants in the presence of lactose to a finely divided state and then drying the product by means of an air current at a temperature not higher than 30° C. to gradually reduce the moisture content of the resulting product.—GERHARD MADAUS, assignor to DR. MADAUS & CO. U. S. pat. 2,065,863, Dec. 29, 1936. (A. P.-C.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY

Acetyl-β-methylcholine (Mecholyl)—Physiological Effects of, and Its Relationship to Other Drugs Affecting the Autonomic Nervous System. In a group of psychotic subjects, including eighteen various types of dementia praecox and two general paretics, mecholyl was first administered alone and then in combination with atropine, sodium amytal, benzedrine and adrenaline. In subcutaneous 30-mg. doses, mecholyl produced flushing, increased perspiration, salvation, rhinorrhea and lacrimation, a moderate fall in blood pressure, a rise in pulse rate and in cerebrospinal fluid pressure. All effects save that of increased pulse rate may be explained on the basis of parasympathetic stimulation. Atropine quickly overcomes the effects of mecholyl. The combined effect of sodium amytal and mecholyl is additive, the fall in blood pressure being very great. Adrenaline modifies the effect of mecholyl on the blood pressure but does not check or modify the other visible effects. The same holds true with reference to the sympathomimetic drug benzedrine.—A. MYERSON, J. LOMAN and W. DAMESHEK. *Am. J. Med. Sci.*, 193 (1937), 198. (C. R. A.)

Adrenaline-Like Substance in Broom. The action of extracts of Spanish broom on the rabbit's gut is similar to that of adrenaline. The fluorescence exhibited with ultraviolet light is the same for both. Broom resists oxidation more strongly and its action is much more intensified by cocaine.—T. WENSE. *Arch. int. Pharmacodyn.*, 54 (1936), 247–251; through *Physiol. Abstr.*, 21 (1937), 887. (E. V. S.)

Alkalinized Dextrose—Studies in the Metabolism of. Alkalinized dextrose causes additional glycogen to be stored in the liver of the white rat. It does not significantly raise the respiratory quotient of the white rat. By stomach tube and intravenously, the degree of hyperglycemia produced in rabbits is markedly less than that produced by dextrose.—J. C. KRANTZ, JR., R. MUSSER, C. J. CARR, F. BECK and T. N. CAREY. *Arch. int. Pharmacodyn.*, 55 (1937), 13. (W. H. H.)

Amytal—Repeated Administration of. In 10 dogs given orally approximately one-third of the minimum lethal dose 3 times a week for 2 to 4 months, and in 6 monkeys injected intravenously with an anesthetic dose 3 times a week for 6 months, no evidence of tolerance, withdrawal symptoms or decrease in toxicity was observed. These results are interpreted as proof against the possibility of habit formation by the prolonged use of Amytal. Two additional dogs treated for 20 weeks showed, after sacrifice, no uniform pathologic lesions attributable to the drug.—E. E. SWANSON, M. M. WEAVER and K. K. CHEN. *Am. J. Med. Sci.*, 193 (1937), 246. (C. R. A.)

Barbital Narcosis—Intracranial Pressure during. A cerebrospinal fluid pressure is described in 100 cases in which there was an abrupt fall at the onset of narcosis, succeeded by a slow rise, with a second fall at the moment of waking. The effect is common to various barbitals: nembutal, evipan sodium, pentothal sodium and soneryl sodium. It is constant in 99% of cases—the single exception being paradoxical. It depends on full narcosis and is absent with subhypnotic doses of barbital. It is suggested that cerebrospinal fluid pressure is controlled by a central neural mechanism.—J. S. HORSLEY. *Lancet*, 232 (1937), 141. (W. H. H.)

Caffeine—Pharmacology of, and of Tea and Coffee.—G. ROCHE LYNCH. *Analyst*, 61 (1936), 300. (A. H. C.)

Calcium-Potassium and Adrenaline on Coronary Arteries. Surviving rings of coronary arteries were examined in oxygenated saline solutions carrying proportions of Ca-K and then stimulated with adrenaline. The consequent influence on the tone and the adrenaline response concerned the author. Of 106 coronary arterial rings examined 92 responded to adrenaline stimulation with 318 dilations and six contractions. To 96 injections the rings did not respond but upon modification of the Ca-K ratio in the perfusion solution they responded to subsequent stimulation. The contractions were achieved with only one ring which also registered dilations. In the experiments the probability of dilation ran parallel to the condition of tone. A low tonus decreased or prevented the response, a high tonus caused pronounced reactions. K and Ca influence the tonus of coronary arteries and therewith the reaction to adrenaline. In the Ca-K ratio a concentration of one ion in excess of 0.2 Gm. per L. in combination with more than 0.1 Gm. per L. of the other ion is unfavorable to the adrenaline response. Calcium when not accompanied by potassium raises the tone of the coronary arteries. Each further addition successively increases

the tonus; decrease of calcium lessens the tonus. When alone in solution, potassium in low concentrations may raise or lower the tone, or may have no definite influence, but in high concentrations it depresses exclusively. With calcium in solution, potassium depresses the tonus of the coronary arteries. Supplementary experiments considered the magnesium ion, which action is depressant on the tonus.—S. E. COHEN. *Arch. int. Pharmacodyn.*, 54 (1936), 1. (W. H. H.)

Charcoal—Intravenous, in Febrile Diseases. Charcoal was given by intravenous injection to 123 patients suffering from acute febrile disease and to an equal number of controls. No benefit from the charcoal was observed. In half of a series of twenty afebrile patients an average leucocyte increase of 45% was found five hours after charcoal injections, while in half of a series of twelve patients (febrile) the corresponding finding was a 20% decrease. (Gum-saline produced a leucocytosis of 50% at the fifth hour in afebrile cases only.) No relation was found between the white cell changes and the severity of the reactions after charcoal. The response to charcoal injections in several ways resembles the response to injections of protein and colloids.—E. DAVIS. *Lancet*, 231 (1936), 1266. (W. H. H.)

Cholinesterase—Influence of Ergobasine on. Ergobasine has a definitely restrictive effect on serum cholinesterase *in vitro*. It is assumed that it similarly affects the acetylcholine of the organism and so sensitizes the parasympathetic system.—ERNEST NAVRATIL. *Klin. Wochschr.*, 16 (1937), 64. (C. R. A.)

Daphnia—Biological Reagent. This transparent crustacean, with well-developed muscular, nervous and glandular systems is a remarkable test animal. Report is made of some representative medicinal substances. Something of the scope of the report is shown by the sub-titles. Under locomotory muscles, strychnine and picrotoxin are discussed. Excretory organs cover cascara, aloe, rhubarb, senna, phenolphthalein, podophyllum, sodium and magnesium sulfates, yeast and enzymes. Action of aloin on kidneys and of insecticides, ammonia and benzaldehyde on respiratory organs is given. Digitalis, digitoxin, digitonin, gitalin, bigitalin and caffeine are reported for action on circulatory organs. Anesthetics, hypnotics, alkaloids and toxins were studied in connection with nervous system. Other headings are glandular system, blood, miscellaneous substances and metabolism.—ARNO VIEHOEVER. *J. Am. Pharm. Assoc.*, 25 (1936), 1112. (Z. M. C.)

Deuterium Oxide—Pharmacological Action of. I. Toxicity and Symptoms, Metabolic Rate, Water Exchanges. Deuterium oxide given over a period of days in from 40 to 99.5% solution produces in white mice a characteristic train of toxic effects followed by death. Deuterium oxide, 99.5%, 1 cc. per 10 Gm. per day, is fatal in about seven days when the body becomes from 40 to 50% saturated. With this dose a philomotor response on the first day is followed by anorexia and weight loss. The body temperature begins to fall about the fourth or fifth day, the decline continuing until death. The temperature fall is associated with or promptly followed by a decrease in metabolic rate as determined in "standard" six-hour runs. This may reach one-third the normal level before death. Marked jumping reflexes develop about the fifth day followed by ataxia with depression, cyanosis and dyspnea toward the end of life. The appearance and severity of the symptoms of poisoning vary with the quantity and concentration of heavy water given. Within wide limits the total amount of deuterium oxide administered is more significant than the concentration present or the time over which administration has been spread. Water retention by the body occurs on the first day of administration of adequate amounts of deuterium oxide in concentrations from 40 to 99.5%. This retention is due essentially to decreased flow of urine, but when the deuterium oxide concentration is high on this day the insensibly lost water is also diminished. Water balance studies show that the water retention is over-compensated within the next few days. Oliguria returns, often with anuria, as death approaches. The kidney is probably an important factor in the causation of heavy water poisoning, the high viscosity of the deuterium oxide appearing to impede glomerular filtration. The specific gravity of insensibly lost water is at all times an accurate index of the degree of saturation of the body water with deuterium oxide.—HENRY G. BARBOUR and JANE TRACE. *J. Pharmacol.*, 58 (1936), 460. (H. B. H.)

Digitalis Preparations—Bioassay of. Various methods are compared.—K. TOKITA. *Japan J. Med. Sci.*, IV, Proc., 7 (1933), 160; through *J. Soc. Chem. Ind.*, 55 (1936), B., 858. (E. G. V.)

Digitalis Purpurea—Effect of Conditions of Growth on Formation of Active Principles of. Methods Available for Their Evaluation. Krantz and Macht's method for the assay of digitalis

is modified by comparing the increase in length of rootlets, calculated to a definite control length (60 cm.). A modification of Berry's process permits the separation of the tonic from the toxic principles of tincture of digitalis. A new colorimetric method for determining total glucosides is described and results are correlated with phytochemical tests.—H. D. SEN. *J. Sci. Tech. India*, 1, No. 2 (1935), 103; through *J. Soc. Chem. Ind.*, 55 (1936), B., 475. (E. G. V.)

Ergot Alkaloids—Action of, on Diuresis. I. Action of Ergoclavine. Intramuscular injections of ergoclavine diminish diuresis in fasting and after ingestion of water, but not after ingestion of urea. They hinder the increase of chloride in the urine in the course of sodium chloride diuresis. When the injections increase urea diuresis they increase also the quantity of urea eliminated.—E. ZUNZ and O. VESSELOVSKY. *Arch. int. Pharmacodyn.*, 53 (1936), 388–412; through *Physiol. Abstr.*, 21 (1937), 857. (E. V. S.)

Estrin—Participation of Ovarian Factors Other Than, in the Estrus Phenomenon. Estrin cannot replace the ovary completely in the induction of uterine changes. It is concluded that the ovary produces besides estrin and progestin a third factor which causes: 1. Preliminary inhibition of the response of the uterus to estrin. 2. Rhythmic activity of the endometrium. 3. Augmentation of the uterine response to estrin.—S. C. FREED, T. GARVIN and SAMUEL SOSKIN. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936) 409. (A. E. M.)

Ferrous and Ferric Compounds—Absorption of, from the Intestines of Rabbits. The absorption of ferrous and ferric compounds was compared by injecting their solutions (5 cc. containing 50 mg. of Fe) into ligated intestinal loops of etherized rabbits. Three hours later the animal was killed. The content was analyzed according to the recent micromethod of Rappoport. The average percentage of iron absorbed was established for ferrous chloride 61.6% of the iron injected; in glutamiron, a complex ferrous compound (approximately composed of one molecule of ferrous glutamate, one molecule of glutamic acid and two molecules of ferrous chloride) the average absorption was still somewhat better (76.0%). Glutamiron appears to be a type of ferrous iron, which is suitable to absorption and far more stable than ferrous chloride. The absorption of ferrous sulfate in rabbits was incomparably poorer (average 39.7%) than of ferrous chloride and of glutamiron. The absorption of ferric compounds (ferric chloride and ferrum citricum ammoniatum oxydatum) was still more incomplete (19.8 and 30.5%). The analysis of the intestinal walls of the injected loops revealed that more iron is retained within the intestinal walls when injected in the ferric than in the ferrous form, probably owing to the precipitation of proteins by ferric iron. The absorption of ferrous iron is decidedly impaired by an acid reaction of the intestinal contents (produced by the addition of glutamic acid hydrochloride, which is very liable to dissociation).—OTTO FURTHAND RUDOLF SCHOLL. *J. Pharmacol.*, 58 (1936), 14. (H. B. H.)

3-Fluortyrosine—Antithyroideal Activity of. Fluorinated tyrosine (3-fluortyrosine) is studied as to acute and chronic effects in mice and guinea pigs, in normal humans and in hyperthyroid patients. Fluorine when bound to tyrosine exerts many hundred times stronger specific antithyroideal action than does free ionic fluoride and does not act as a general cellular and protoplasmic poison. The acetonitrile resistance of the mouse is raised, and the fluortyrosine is antagonistic to the effect of thyroxin and thyreotropic hormone on the acetonitrile reaction. The Reid Hunt reaction given by the serum from hyperthyroid or Basedow's disease patients is usually altered after the patients have received 1 mg. daily dose of fluortyrosine (90 micrograms fluorine). No histological changes indicating damage to the thyroid gland were observed. The effect does not appear due to a check of endogenous production of thyreotropic hormone of the hypophysis, rather fluortyrosine appears wholly or partly to counteract the activity of thyroid secretion circulating in the organism.—G. LITZKA. *Arch. exptl. Path. Pharmakol.*, 183 (1936), 436. (C. S. L.)

Forsythia—Flavanol Dye from, and Its Action on the Heart. Noting the pharmacological action of the yellow sap of *Forsythia suspensa viridissima*, the nature of the active principle is sought. It is extractable with ethyl acetate, insoluble in ether, petroleum ether, acetone, benzol or chloroform. By repeated recrystallization from alcohol it is obtained in needle crystals, m. p. 172–178° C. It has no optical rotation and no reducing power. It absorbs a band of light in the violet. It gives a dark green color with ferric chloride, and a color reaction with α-naphthol in sulfuric acid solution. It is hydrolyzed by acids to give a reducing substance forming an osazone with phenylhydrazine. It is a glucoside with the aglucone indentical with quercitin, the aglucone of quercitrin. The sugar component remains to be identified. The cardiac action is like that of other flavanols, restoring the function of the fatigued, hypodynamic heart, or the heart slowed or

paralyzed by anesthetics and protoplasmic poisons. The toxicity is low and there is no cumulative action. Frogs, rabbits, rats, guinea pigs or cats bear relatively large parenteral doses or repeated doses over a long period without symptoms.—A. CZIMMER. *Arch. exptl. Path. Pharmakol.*, 183 (1936), 587. (C. S. L.)

Fraxinus Borealis—Chemical and Pharmacological Examination of. The bark of *Fraxinus borealis* was extracted with hot water and the mixture precipitated with lead acetate; the lead salt was removed by hydrogen sulfide. The fraxin obtained resembled that of other fraxins. The compound is a white crystalline powder, m. p. 200–205°; insoluble in cold water; slowly soluble in warm water, alcohol, ether, chloroform and acetone; a water solution is acid in reaction, has a blue fluorescence and does not reduce Fehling solution. Fraxin stimulates the central motor system especially in frogs and warm blooded animals (mice and rabbits). It is not poisonous to the system. Paralysis in the warm blooded animals is retarded and the reflex and respiration centers are stimulated. In rabbits diuresis is increased. Intravenous injections raise the blood pressure. Fraxin reduces the tonicity and peristalsis. Its reaction is also antipyretic.—G. IIDA. *Chem. Zentralb.*, 107 (1936), 1258. (G. B.)

High Altitude Disease. Monge's Disease. Much has been written on the disturbances produced by high altitudes, but Monge was the first to establish the existence of definite clinical entities produced by maladaptation to life at a high altitude and has written this summary of the disease which is justly termed Monge's disease.—C. MONGE. *Arch. Internal. Med.*, 59 (1937), 32. (C. R. A.)

Jalapin and Gamboge—Pharmacological Properties of. The intestine of the rabbit, exposed to the action of jalapin, acquires a significant increase in tonus with reduction in contraction. On frog heart, massive doses produce first, increased amplitude, and secondly, increased tone with decreased contraction. Larger doses produce an increase in tone with simultaneous decrease in amplitude. Atropine abolishes the effect, which is therefore to a certain degree a direct stimulation. Jalapin paralyzes the parasympathetic nervous system, but has no effect on the sympathetic. Gamboge, in alcoholic solution or dispersed in water, has an inhibitory effect on rabbit intestine, producing a strong diminution in tonus and amplitude, which effect increases with increase in dose and finally results in paresis. It has only an occasional effect on the uterus when large doses produce greatly increased tonus. On frog heart it produces first a decrease in amplitude, then a decrease in contraction and increased tonus and finally paralysis in systole. It paralyzes the parasympathetic system, although it is not antagonistic to barium chloride. Unlike jalapin and coloquint, gamboge strongly reinforces the irritative action of adrenaline on the motor and inhibitory parts of the sympathetic system (intestine and uterus). Coloquint, jalapin and gamboge, which are drastic aperients, in large doses paralyze the parasympathetic nervous mechanism of the intestine.—N. HOLLANDER. *Upsala Läkarfören. Förh.*, 41 (1935), 231–285; through *Physiol. Abstr.*, 21 (1937), 889. (E. V. S.)

Lobar Pneumonia—Experimental Production of, Mucin as an Aid in. Intrabronchially sterilized gastric mucin injections aided greatly in the production of lobar pneumonia in white rats. One hundred bacteria doses of pneumococci, when inoculated with 0.1 cc. of mucin produced lobar pneumonia in about 50% of the animals inoculated. By increasing the number of organisms injected from 10 to 100 times, the incidence of pneumonia was increased to 84% in a series of 86 animals.—W. J. NUNGESTER and L. F. JOURDONAIS. *J. Infect. Diseases*, 59 (1936), 258–265. (A. H. B.)

Lobelia Inflata—Alkaloids of, Emetic Action of the Two Accessory. The chemically pure lobeline has no effect on the vomiting center. Lobelanine injected subcutaneously in a dose of 0.01 Gm./Kg. or injected directly into the fourth ventricle causes increased frequency of respiration and vomiting in dogs. Toxic doses of lobelanine cause general excitation and local clonic cramps, starting mainly in the muscles supplied by the cranial nerves. Lobelanidine (0.01 Gm./Kg.) stimulates the vomiting center. Usually it does not stimulate the respiratory center, but should it do so the effect is slight and temporary. Toxic doses of lobelanidine have a general depressing action. The emetic action of an extract of *Lobelia inflata* depends on the accessory alkaloids lobelanine and lobelanidine.—A. Clementi. *Arch. exptl. Path. Pharmakol.*, 181 (1936), 265–272; through *Physiol. Abstr.*, 21 (1937), 889. (E. V. S.)

Ointment Bases—Properties of. Using as ointment vehicles soft paraffin, lard and hydrous wool fat, a study has been made of the absorption of methyl salicylate, iodine, potas-

sium and quinine hydrochloride from the human skin. Forty-three human subjects were used, divided into groups of the same number of persons of the two sexes, complexions and age ranges. Ten grams of the ointment under test was rubbed in with the finger tips, at definite sites of application for thirty minutes at four definite times during one day. Specimens of urine were collected and tested qualitatively during a period of seventy-two hours and twenty-four-hour collections were made for quantitative determinations. The youngest subjects and the females, those with soft, finer skin textures—particularly the blondes—and the fat people, who were prone to sweat freely and thus enhance skin softening, showed prompter and more marked positive reactions. Another observer divides ointment vehicles on the basis of affinity, into "lipotropic" and "hydrotropic" applications.—ANON. *Pharm. J.*, 137 (1936), 407. (W. B. B.)

Physostigmine—Action on the Autonomic Ganglia. Acetylcholine preceded by physostigmine produces in atropinized animals a sharp rise in blood pressure. Pilocarpine has the opposite action.—THEODORE KOPPANYI, ROBERT P. HERWICK and CHARLES R. LINEGAR. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 369. (A. E. M.)

Physostigmine-Nicotine Antagonism. Nicotine in contrast to physostigmine, causes a depressor effect after the administration of acetylcholine in atropinized animals.—CHARLES R. LINEGAR, ROBERT P. HERWICK and THEODORE KOPPANYI. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 370. (A. E. M.)

Quercitrin and Quercitin—Action of, on the Frog Heart. Quercitrin and its aglucone, quercitin, the flavanol dyes of oak bark, chestnut bark, tea and other sources, are tested on the Straub preparation of the frog heart. The function of the undamaged heart is improved, the power of the fatigued or hypodynamic heart is restored, irregular beat is made regular and alternation ceases. The heart brought to stand still under anesthetics is set going again by these flavanols and restored to normal amplitude and beat. Quinine or lactic acid intoxication is likewise counteracted. It is suggested that these flavanols are worth study in higher animals and in man. Digitalis leaves contain the flavanols, luteolin and thapsin, and these may contribute to the therapeutic effectiveness of digitalis.—A. VON JENEY and A. CZIMMER. *Arch. exptl. Path. Pharmakol.*, 183 (1936), 571. (C. S. L.)

Quinine Derivatives—Action of, on Fibrilation of the Heart. Hydroquinone, hydroquinidine and epiquinine increase the resistance against fibrilation; the after-effect disappears entirely or nearly entirely, the irritability of lower centers for heterotopic rhythm is influenced in the same way. Apoquinine and quinidine ("chinidinum pruissimum") had no action on these phenomena. The well-known effect of quinidine is caused by the presence of hydroquinidine in this preparation. All the quinine derivatives (except "chinidinum pruissimum") lengthen the refractory period, the auricular and A–V conduction. "Chinidinum pruissimum" does not alter these qualities. Heterotopic rhythms, caused by barium chloride and adrenaline are neutralized by hydroquinone, hydroquinidine and epiquinine, not by apoquinine and "chihidinum pruissimum." The results obtained confirm the conclusions as published in previous papers.—K. VAN DONGEN and A. J. R. SANCHES. *Arch. int. Pharmacodyn.*, 55 (1937), 52. (W. H. H.)

Vitamin B_2 (Lactoflavin)—Asphyxia of the Isolated Frog Heart. Lactoflavin has a positive inotropic action on the frog heart rendered hypodynamic by washing out or lack of oxygen. The action is considerably increased in the presence of phosphates.—S. DIETRICH and E. PENDL. *Klin. Wochschr.*, 16 (1937), 13–15. (C. R. A.)

Zinc and Aluminum—Effect of, on the Hypoglycemic Action of Insulin. In a study of the effects of mixtures of insulin with zinc or aluminum on the hypoglycemic action of insulin, 16 experiments were performed on 5 unanesthetized and 10 experiments on 10 anesthetized cats, all in post-absorptive state. Zinc, when mixed with insulin prior to injection, was found to prevent diminution of blood sugar. A similar effect was observed with aluminum and to a lesser degree, with alcohol. Calcium and magnesium did not prevent the hypoglycemic response to insulin.—J. F. FAZEKAS and H. E. HIMWICH. *J. Pharmacol.*, 58 (1936), 260. (H. B. H.)

TOXICOLOGY

Dermatitis—Chemical Aspects of. Active substances may affect the skin in several ways; (1) by direct corrosion or destruction of the tissue (oxidizing agents); (2) hardening tissues and blocking sweat glands (*e. g.*, powders); (3) removing natural grease and disturbing metabolic processes (*e. g.*, non-aqueous solvents); (4) by affecting nerve endings (*e. g.*, croton oil). An organic

compound to produce dermatitis must be capable of penetration to the skin and must react with blood constituents, producing deleterious substances. Cases of dermatitis have developed due to handling of dyed furs, leather, foods, rubber, hair dyes, flour, sugar, soaps and perfumes.—H. E. Cox. *J. Soc. Chem. Ind.*, 55 (1936), 775. (E. G. V.)

Derris Root—Toxic Constituents of. The amount and nature of the toxic material in derris root vary widely, even from botanically identical specimens of equal maturity. Toxicarol is obtainable apparently only from the varieties of *Derris malaccensis* and not from *D. elliptica*. The root grown in the Kinta district gives an extract containing little or no rotenone or deguelin, but yielding toxicarol abundantly. The ordinary *D. malaccensis* extract is a fairly good source of deguelin, after removal of the toxicarol. From *D. elliptica* extract it is often difficult to isolate deguelin. In addition to deguelin, a new substance of melting point 183° has been isolated from *D. elliptica* root, as the most soluble component of the light petroleum extract. Both these substances are much less toxic than rotenone. The method of treating derris extracts in ether solution with aqueous alkali serves to remove toxicarol if present, but the subsequent separation of deguelin is extremely slow.—T. A. Buckley. *J. Soc. Chem. Ind.*, 55 (1936), 285T. (E. G. V.)

Fish Poison—Preparation of Highly Active, from Cortex Piscidiæ Erythrinæ. The activity of the cortex found in commerce is not attributable to its saponin content as is widely believed. Purely physical methods must be followed for the isolation of the active principle, which in dilutions of 1:80 million is still toxic to small fish, since saponification processes greatly reduce its activity. The relationship of this substance to rotenone and rotenone derivatives is discussed.—F. Hauschild. *Arch. Pharm.*, 274 (1936), 388. (L. L. M.)

Hydrocyanic Acid—Detoxification of Gaseous. Dogs, rabbits, chickens, white rats and guinea pigs were exposed to known concentrations of hydrocyanic acid for long periods, and it was found that below the critical level (as judged by the onset of convulsions) hydrocyanic acid is efficiently dealt with by the detoxifying mechanism for an unlimited time. There is no evidence of tolerance or increased susceptibility. It was found that methylene blue has but little value as a treatment for cyanide treatment above the critical level. On the other hand, this dye seemed to have considerable value as a prophylactic against concentrations of hydrocyanic acid above the critical level.—James N. Etteldorf. *J. Pharmacol.*, 58 (1936), 431. (H. B. H.)

Neoarsphenamine—Comparison of the Toxicity of, to Different Strains of Rats. Brief reference is made to the numerous statements in the literature that there is great individual difference in the susceptibility of animals. Report is made of an investigation of albino rats from different sources. Detailed information of the experimental work is given. The following conclusions were reached: 1. There is a definite and constant difference in the tolerance to neoarsphenamine of albino rats from different colonies. 2. The relative non-toxicity of several samples of neoarsphenamine remains constant when tested on animals from any single colony. 3. In order to standardize the resistance of animals from different colonies, a physical standard of reference, supplied by some central authority, should be used for comparison in every assay of neoarsphenamine.—William L. Sampson and Albert R. Latven. *J. Am. Pharm. Assoc.*, 25 (1936), 1106. (Z. M. C.)

Sodium Tetrathionate—Toxicity of. A reply to two authors who claimed that sodium tetrathionate prepared by themselves was absolutely non-toxic, when injected intraveneously, and that rabbits could bear a dose of 0.75 Gm. per kilo without showing any disturbance. Sodium tetrathionate solution was prepared by mixing equal volumes of a 20% sodium thiosulfate solution and a 10% solution of iodine in 13% sodium iodide; it therefore contained 5.3% of sodium tetrathionate and 12.4% of sodium iodide. Absolutely pure reagents were used. A rabbit which received an intravenous injection at the rate of 0.353 Gm. per kilo immediately manifested torpor and decrease in neuromuscular excitability, followed by various disorders, and died at the end of 4 days (characteristic kidney lesions). A second rabbit having received 0.176 Gm. per kilo manifested the same symptoms and recovered slowly. A control animal who received 14 cc. of 15% sodium iodide solution exhibited no troubles and increased in weight.—E. Meneguetti. *Boll. Soc. Ital. Biol. Sper.*, 11 (1936), 51–55; through *Chimie & Industrie*, 36 (1936), 556. (A. P.-C.)

Staphylococcus Food Poisoning—Experimental. One individual ate a bread sandwich, containing 125,000,000 yellow staphylococci per Gm., and the other volunteer ate the ham, containing 30,000,000 of these organisms per Gm., with no ill effects. Another person ate 55 Gm. of bread, containing 600,000,000 staphylococci per Gm. and experienced no reactions. However,

4¾ hours after eating 48 Gm. of ham, containing 1,000,000,000 organisms per Gm., the second individual developed a typical case of food poisoning. Meat of high salt content proved selective for staphylococci in general. The toxic factor in sandwiches which cause food poisoning may reside not only in the meat filling but also in the bread.—FLORENE C. KELLY and G. M. DACK. *J. Am. Pub. Health Assoc.*, 26 (1936), 1077. (A. H. B.)

Strychnine—Toxicity of, for Male and Female Rats of Different Ages. Strychnine as a sulfate, benzoate, salicylate and *o*-nitrobenzoate was injected in the form of 1–1,000 solution intraperitoneally. Four thousand rats were used in these studies. The lethal dose was selected as that amount causing a 50% mortality. For males the lethal dose for six-week-old animals was 1.4 mg. per Kg.; ten weeks, 1.9 mg. per Kg.; eighteen weeks, 2.3 mg. per Kg.; and old rats, 2.3 mg. per Kg. Females six weeks old, 0.9 mg. per Kg.; eighteen weeks, 1.1 mg. per Kg.; old females, 1.4 mg. per Kg. Hence, female rats seemed to be more susceptible to strychnine than male rats, and secondly, that it appears that the toxicity of strychnine decreases with the age of the animal.—CHARLES F. POE, JOHN F. SUCHY and NORMAN F. WITT. *J. Pharmacol.*, 58 (1936), 239. (H. B. H.)

Thiocyanates—Chemical and Toxicological Studies of Organic. Lauryl thiocyanate (I) was more toxic to *Aphis rumicis* than trimethylene thiocyanate (II), but less toxic than rotenone (III). Toxicity of 1:1 mixtures of (I) and (III) was the same as that of (I) at a total concentration corresponding to that of the mixture. (II), phenacyl thiocyanate and phenyl γ-thiocyanopropyl ether were ineffective as stomach poisons. Food sprayed with (II) has no ill-effect on rats.—A. HARTZELL and F. WILCOXON. *Contr. Boyce Thompson Inst.*, No. 7 (1935), 497; through *J. Soc. Chem. Ind.*, 55 (1936), B., 612. (E. G. V.)

Vitamin D—Further Studies on Intoxication with. Observations on 64 dogs and 773 humans receiving massive doses of vitamin D have been made as to the nature and process of intoxication. Both humans and dogs generally survive doses of 20,000 units per Kg. per day for indefinite periods without intoxication. Hypervitaminosis D first produces cell injury followed by calcium deposition. The process is reversible and reparable if administration is discontinued promptly. Apparently intoxication for short periods does not result in any permanent injury.—I. E. STECK, H. DEUTSCH, C. I. REED and H. C. STRUCK. *Ann. Internal Med.*, 10 (1937), 951. (C. R. A.)

THERAPEUTICS

Alkyl and Aryl Amides and Ureides as Hypnotics. A series of simple and substituted alkyl amides and ureas has been synthesized in connection with a study of their use as sedatives and hypnotics. A general discussion of their pharmacological properties is given.—E. H. VOLWILER and D. L. TABERN. *J. Am. Chem. Soc.*, 58 (1936), 1352. (E. B. S.)

***p*-Aminobenzenesulfonamide in Meningococcal Infection of Mice.** *p*-Aminobenzenesulfonamide given immediately after infection protects mice against approximately a million minimal infecting doses of meningococci. Protection is equally effective against Group I and Group II meningococci. When the administration of the drug is delayed for several hours after the injection of the organisms a much lower degree of protection is obtained.—H. PROOM. *Lancet*, 232 (1937), 16. (W. H. H.)

Ammonium Chloride in Edema. The author discusses the action of ammonium chloride in edema and arrives at the following conclusions. Ammonium chloride in doses of 4 to 11 Gm. in twenty-four hours is a valuable therapeutic agent in edema connected with disturbances of the hydro-mineral metabolism. Its action is so intense that it can be placed in the same category as the mercurial diuretics. It is beneficial in nephritic edema and in cases which do not respond to digitalis. Patients respond again to digitalis therapy following a course of treatment with ammonium chloride. Ammonium chloride also has a general tonic effect; it accelerates the general metabolism and this favors the elimination of the edema. Laboratory investigations prove that at the dissociation of the molecule of ammonium chloride in the body the chloride ions combine with the ions of the sodium and the elimination of the salt formed, leads to an elimination of the retained water. The author therefore considers ammonium chloride as a very potent although somewhat dangerous therapeutic agent.—T. C. KANFOR *Arch. des Sci. Biol.* (Russian) (1936), 40, Fasc. 3, 163; through *Brit. Med. J.*, 3957 (1936), 956B. (W. H. H.)

Anesthesia—Clinical Application of Recent Chemical Contributions. Attention is called

to trends in the use of special anesthetic agents and methods of administering them in the last ten years, including certain new local anesthetics, general inhalation anesthetics (both gaseous and volatile), intravenous anesthetics (especially those of the thiobarbituric acid series and evipal soluble) and rectal anesthesia. The author expresses his own ideas and does not pretend that they represent the general opinion of clinicians. The paper contains a clinical evaluation of the drugs only. The author's reasons for liking or disliking agents is expressed briefly together with his ideas of their clinical usefulness.—J. S. LUNDY. *Ind. Eng. Chem.*, 28 (1936), 1031. (E. G. V.)

Benzedrine—Cardiovascular Effects of. The authors report a most peculiar reaction upon the administration of benzedrine to patients who were paranoid. They also believe that until a more precise knowledge of the cardiological effects is obtained, caution should be exercised in the administration of doses of 10–20 mg. or more, particularly in elderly subjects; and because detailed cardiological investigation of the effects of the drug appears desirable.—E. W. ANDERSON and W. C. SCOTT. *Lancet*, 231 (1936), 1461. (W. H. H.)

Betel Nut as a Useful Teniafuge. Betel nut has been known for at least 1400 years in China as a remedy for tapeworm. Eight clinical cases are reported. Doses up to 120 grains are given without toxic results.—HSIAO-LIANG LIN. *Chinese Med. J.*, 50 (1936), 1273; through *Chem. Abstr.*, 31 (1937), 209. (E. V. S.)

Bromoethylmalonylurea and Diethylmalonylurea—Relation between Chemical Constitution and Hypnotic Action. The substitution of one bromine atom for an ethyl group in diethylmalonylurea resulted in a product with a much more intense hypnotic action, but the bromine compound caused too noxious secondary effects for practical use.—L. DONATELLI. *Arch. Farmacol. Sper.*, 60 (1935), 497–516; through *Chimie & Industrie*, 36 (1936), 561–562. (A. P.-C.)

Chemotherapeutic Agents—Their Mode of Action. Review with extensive bibliography.—H. SCHLOSSBERGER. *Klin. Wochschr.*, 16 (1937), 73. (C. R. A.)

Chinese Medicine. A brief review of early Chinese medicine, the philosophy of healing, the practice of acupuncture and modern developments.—W. P. P. KNELL. *Australas. J. Pharm.*, 51 (1936), 1236. (E. V. S.)

Cobalt Polycythemia—Mechanism of, Effect of Ascorbic Acid on. Cobalt polycythemia seems to be due to inhibition of the respiratory function of immature red cells. They are thrown into circulation as non-respiring mature cells. Ascorbic acid prevents the appearance of cobaltum polycythemia.—ALBERTO GUZMAN BARRON and E. S. GUZMAN BARRON. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 407. (A. E. M.)

Cod Liver Oil—Valuable Wound Dressing. The oil is usually bacteria-free, even when not sterilized, and the bacteria usually encountered in infected wounds perish when introduced into cod liver oil. The oil permeates the tissues and causes a rapid liquefaction of necrotic tissue, followed by a powerful stimulation of growth, which affects all tissues, including the epithelium. Large areas fill with granulation tissue and become covered with regenerated epithelium. This treatment is not applicable to wounds badly soiled with earth or highly infected; such wounds are treated by incision and the application of disinfecting agents. It is used advantageously in many households burns already treated with oil. The change of dressings is not painful. Many workers believe that the vitamin content is responsible for the beneficial results obtained, hence the oil may be fortified with vitamin A, as this shows a favorable influence on the healing process. The cod liver oil may be applied directly, soaked on lint or mixed with an equal amount of soft paraffin having the consistency of a paste. The only disadvantage of the treatment lies in the somewhat unpleasant smell from the dressing, but this can be mitigated by frequent change of bed linen.—R. F. LOWE. *Australas. J. Pharm.*, 51 (1936), 1934. (E. V. S.)

Curtacain Salve—Experiences with, in Dermatology. Curtacain salve (Curta & Co., Berlin) contains 2% of *p*-butylaminobenzoyl-dimethylaminoethanol in an alkaline salve base together with 0.01% of a quinoline derivative as antiseptic and sufficient aluminum hydroxide to act as an astringent to restrict the rate of absorption. The salve is an effective local anesthetic and is indicated in pruritus ani and pruritus vulvæ, in senile pruritus and in all types of fungus eczemas. It is recommended for the allaying of itching and other painful dermatological conditions—H. WENDT. *Münch. Med. Wochschr.*, 84 (1937), 141. (C. R. A.)

Digitalis Therapy—Cardiac Decomposition with, Rectal. The effectiveness of oral digitalis therapy is greatly reduced by liver stasis. The parenteral administration of digitalis is not a

satisfactory substitute for oral dosage. Intravenous injections require the presence of a physician, may injure the veins and may result in fatalities; subcutaneous and intramuscular injections are slow in action and ineffective in patients with anasarca. The rectal administration of digitalis is a highly satisfactory way of giving the drug especially to patients with passive congestion of the liver. The use of digilanid suppositories, because of the ease of their administration and the freedom from irritating effects, provides a convenient and reliable preparation suitable for long continued dosage and definitely superior to aqueous preparations and bulky dilutions of digitalis tincture.—J. SMITHLINE. *Med. Rec.*, 2584 (1936), 27. (W. H. H.)

Diphtheria Carriers—Arsenical Disinfection of. The authors have had successful results in disinfection of infant carriers of diphtheria from intranasal instillation of insoluble arsenic compounds are recommended by Lereboullet. Stovarsol was effective but spirocide in a 10% watery suspension is preferred, instillation being done thrice daily for five days. From one to three such series of treatments are commonly required; occasionally six to eight. The successful cases numbered forty-seven; one only had toxic symptoms, consisting of morbilliform and erythematous eruptions.—A. IANCOU, TURCOU, DARIOU and DAVID. *Nourrisson* (Nov. 1936), 359; through *Brit. Med. J.*, 3965 (1937), 56B. (W. H. H.)

Doryl in Post-Operative and Post-Partum Retention of Urine. A series of thirty-eight cases is reported in which post-operative or post-partum retention of urine was treated by injection of doryl (carbaminoylcholine). Doryl is often remarkably successful in causing the patient to void urine naturally, and is worthy of trial in patients for whom catherization would otherwise be necessary. Its most successful use is after abdominal section or after a simple vaginal operation. It is least successful in patients suffering from overdistension of the bladder—especially after childbirth, and in cases in which there is mechanical obstruction to the passage of urine. One of the chief errors to guard against is the assumption that a patient has completely emptied her bladder by the micturition induced by the drug. Often the evacuation is only partial. Side-effects are seen in about a third of the cases, but are seldom serious.—C. MOIR. *Lancet*, 232 (1937), 261. (W. H. H.)

Doryl—Treatment of Post-Operative Retention of Urine with. The author states that Doryl is carbaminoylcholine chloride, $(CH_3)_3.NCl.CH_2.CH_2.O.CO.NH_2$. Doryl given by subcutaneous injection is a useful remedy for post-operative retention of urine. The results obtained in this series of cases appear to justify its trial in retention of urine due to any cause other than extreme mechanical obstruction. The most common side-effect was sweating. It was never very profuse. A few patients complained of nausea and a feeling of weakness. Sometimes the pulse-rate was not affected, but more frequently there was a decrease of about ten beats per minute fifteen minutes after injection. The systolic blood pressure also fell, 10–30 mm. Hg fifteen minutes after injection. After one hour the blood pressure again became normal.—J. S. MAXWELL. *Lancet*, 232 (1937), 263. (W. H. H.)

Drug—How Does a, Act? The selective action of drugs depends on several factors: (1) The permeability of the cell-wall to the drug. (2) The delicacy or sensitivity of the cell's functions. (3) Chemical affinity of cell protoplasm for drugs. With any chemotherapeutic remedy, the action of a drug must be in part dependent on the modifications of the drug produced thereon by the tissues, on the storage and excretion rates, on the ways in which the drug affects natural tissue resistance to infection, and so on.—A. D. MACDONALD. *Pharm. J.*, 137 (1936), 653. (W. B. B.)

Estrin Treatment of Gonorrhœa. The authors report twenty-four cases of successful treatment of gonococcal vaginitis in girls aged 2 to 9 years by nightly insertions into the vagina of capsules containing 75 rat units of amniotin (estrin). Estrin treatment in these cases is not new, and its success has been ascribed to exfoliation of the epithelium; formation of a cornification zone; increase of the acidity of the vaginal secretion as shown by Hall and Lewis to occur in monkeys after hypodermic estrin injections. The present writers accept the latter view, and found that thirteen to fifty-four days of treatment induced an alkaline secretion (p_H 7.2 to 8) to become somewhat strongly acid (p_H about 4.8 to 6). In no case could gonococci be found in a smear when the p_H was 6 or below. The acidity of the vaginal secretion could be accurately determined by colorimetric examination of washings in sterile normal saline. On adding a drop of bromthymol blue a dark yellow color shows a p_H near to or greater than 6; if the color is very light green, or shades into a heavy green or light blue, the reaction is more alkaline than that of such a concentra-

tion. In normal children the average figure was 7.2. Doederlien's lactic acid vaginal bacillus was found infrequently and seemed to have no relation in these children to the reaction of the vaginal tract.—R. M. LEWIS and L. WEINSTEIN. *Surg. Gynec. Obstet.* (Nov. 1936), 640; through *Brit. Med. J.*, 3965 (1937), 56B. (W. H. H.)

Fluorine Compound—Organic, with Specific Antithyroideal Activity. An organic fluorine compound, 3-fluortyrosine, is described and is shown to have much higher specific fluorine activities than inorganic fluorine preparations. Humans tolerate without symptomology of toxic nature an oral dose of 6 mg. fluortyrosine in a glass of water, or 1 mg. daily over many weeks. Four hundred hyperthyroid and Basedow's disease patients of both sexes and ages from 15–60 years have received 1 mg. daily dose for from 4 to 20 weeks without toxic symptoms. The antithyroideal effects of fluortyrosine are described in another paper.—G. LITZKA. *Arch. Exptl. Path. Pharmakol.*, 183 (1936), 427. (C. S. L.)

Insulin Compounds—Insoluble. The author reports and discusses the results of treating eighteen cases of diabetes mellitus with insulin tannate for periods varying from a few days to two weeks. Control of the disease was possible when this compound was used alone or supported by commercial insulin. Insulin and tannic acid combine in the proportions of six parts of insulin to four parts of tannic acid to form an insoluble salt. These proportions correspond to 3 mg. of tannic acid to 100 units of insulin. The tannate was absorbed more slowly and had a more prolonged effect on the blood sugar than insulin alone. Equal volumes of commercial insulin of U-100 strength and of a sterile tannic acid solution of appropriate strength were thoroughly mixed in the injection syringe immediately before injection, mixing being continued till an opalescence developed. The appropriate dose of this mixture was then injected rather deeper than usual and the area of the injection massaged for a few seconds. Except in patients who frequently suffered from local reactions to commercial insulin, and when the solutions were not strictly sterile, local reactions were confined to occasional "stinging" during injection and occasional tender subcutaneous lumps at the site of injection. The mixture can be used without detriment to the skin. Eleven cases were treated with insulin tannate alone, the disease being controlled in each case. Five patients required fewer injections, and in nine cases the tannate was more effective than ordinary insulin, as shown by the 20 to 25% reduction of requirement of insulin or lower blood sugar, or both. The prolonged action of the tannate was shown by the lower morning blood-sugar levels following injections of the salt at night. In five cases insulin tannate was compared with protamine insulinate; the two new preparations were about equally effective and both were better than commercial insulin. Details of cases are given. The preparation is particularly useful in treating diabetic children, since the prolonged action of the tannate avoids the necessity of a late night injection. Further work is required to establish routine treatment when ordinary insulin is being used along with the tannate. The delayed liberation of insulin from the tannate may coincide with the low blood-sugar period of a subsequent injection of ordinary insulin and hypoglycemia result. The author also used an insulin-zinc compound and found that it acted like insulin tannate in giving a more prolonged and effective action and requiring less dosage.—P. A. GRAY. *Endocrinology* (July 1936), 461; through *Brit. Med. J.*, 3959 (1936), 1066B. (W. H. H.)

Iodine Problem—Contribution to. Using superheated steam, calcium hydroxide or strontium hydroxide to effect hydrolysis of iodo-albumin (Jodtropon), strontium hydroxide alone yielded a fraction possessing weak biological activity resembling that of thyroid. The other products were inactive.—E. NOLTE. *Arch. Pharm.*, 274 (1936), 415. (L. L. M.)

Iodized Oil Instillations in Bronchial Asthma. Intratracheal instillations of iodized oil were administered to fifty cases of bronchial asthma, thoroughly studied and continuously treated by routine therapeutic measures for a minimum of three years. Twenty of these cases were infectious in origin, eight allergic and the remaining a combination of both. Intratracheal instillations of iodized oil were administered at weekly, biweekly and monthly intervals, according to the improvement noted in each individual case. Four received complete freedom of attacks; twenty-four good results; fourteen fair results; eight entirely unrelieved. Adequate anesthesia of the pharynx and larynx is necessary for proper oil instillations. This prevents unpleasant gagging, swallowing or coughing which otherwise may occur. The intratracheal instillation of iodized oil is a valuable therapeutic agent in bronchial asthma to be used where eradication of the cause is difficult, limited or impossible. It may be utilized as an adjunct therapeutic measure while in-

vestigating the basis of attacks, during the removal of the infectious foci, and coincident with the process of desensitization.—M. C. HARRIS and H. L. TURKEL. *Med. Rec.*, 145 (1937), 123. (W. H. H.)

Iron—Availability of, in Wheat. The iron from wheat is well utilized; its availability is equal to that of ferric chloride, which means that all is probably absorbed.—ALFRED H. FREE and FRANKLIN C. BING. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 453. (A. E. M.)

Nightblindness—Chemical Examination of Chinese Remedies for. Twenty animal and 65 vegetable products used as Chinese native remedies give physico-chemical indications of the presence of vitamin A or provitamin A. *Atractylis ovata* shows 15–20 times the value of cod liver oil.—P. G. MAR and B. E. READ. *Chinese J. Physiol.*, 10 (1936), 273; through *J. Soc. Chem. Ind.*, 55 (1936), B., 812. (E. G. V.)

Oils Containing Vitamin A—External Uses of. There seems to be conflicting evidence about what in cod liver oil that makes it help in the healing of wounds. One investigator undertook experiments to study the tissue response to cod liver oil and to find out how far this response could be related to the vitamin A content of the oil, since there has recently appeared on the market a preparation containing vitamin A in liquid paraffin designed for local application in the treatment of wounds. He found that subcutaneous injections of fish liver oils into rabbits produced a marked stimulation of phagocytes, fibroblasts and young capillaries, while liquid paraffin and olive oil (each without vitamin A being added) were relatively inert. Halibut liver oil undiluted gave very similar results to cod liver oil. The experimenter concluded that, while the cellular stimulation produced by cod liver oil appears to help wounds to heal quicker, this property is not due to the vitamin A content of the oil. Another investigator, however, has done further work with a vaseline ointment and a paraffin oil which contain 2,000 international units of vitamin A per cc. This second investigator considers that the use of these preparations constitutes a real advance in the treatment of injuries affecting a very large area. Although many consider the rancid odor often developed by the fish liver oils a disadvantage, one worker suggests that rancidity itself may be the therapeutic agent, as it is commonly accompanied by the development of "active oxygen," and that wheat germ oil (a sample has been prepared with a peroxide number of 1,000) or an oxidized derivative from it, being almost colorless and having a somewhat pleasant smell, might overcome the disadvantage in the use of smelly cod liver oil. Cod liver oil and halibut liver oil have been used successfully by direct application in certain eye affections.—ANON. *Phar. J.*, 137 (1936), 572. (W. B. B.)

Pain—Agents for Alleviating. A review dealing with narcotics, febrifuges, etc.—ROHMANN. *Chem.-Ztg.*, 60 (1936), 713; through *J. Soc. Chem. Ind.*, 55 (1936), B., 954. (E. G. V.)

Pentothal Sodium Anesthesia. Pentothal gives a smooth and pleasant induction to anesthesia. Dose for dose, pentothal gives a deeper degree of anesthesia than evipan sodium. Respiratory depression is more pronounced with pentothal than with evipan. Recovery is more rapid with pentothal than with any other barbiturate. A greater variety of surgical operations can be performed with pentothal than with any other short-acting barbiturate. The same contraindications exist for pentothal as with other barbiturates. All intravenous anesthetics, but especially pentothal require the constant attention of a skilled anesthetist. In unskilled hands their use is dangerous and not to be recommended. Care should be taken that pentothal is not injected into the tissues—a painful reaction may result.—O. J. MURPHY. *Brit. Med. J.*, 3964 (1936), 1308. (W. H. H.)

Physico-chemical Properties and Local Anesthetic Activity. Capillary Activity, Adsorption and Displacement Adsorption. Colloidal Flocculation and Lipoid Solubility. Although a very close parallelism frequently exists between these physical attributes and local anesthetic activity, this relationship is not quantitative or even general for all classes of homologous anesthetics.—C. ROHMANN and B. SCHEURLE. *Arch. Pharm.*, 274 (1936), 225, 236. (L. L. M.)

Protamine-Insulin. The action of protamine-insulin administered subcutaneously generally lasts about four hours and, in one case, six hours longer than ordinary insulin. There is also less fluctuation of the blood sugar. This effect, however, is not a constant feature; hence the preparation is not ready for general use.—JAC. J. DE LONG. *Nederland. Tijdschr. Geneeskunde*, 80 (1936), 4293; through *Chem. Abstr.*, 31 (1937), 452. (E. V. S.)

Protamine-Insulin—Experiences with. If normal persons and diabetics are used and a single injection is given the prolonged action of protamine-insulin cannot be demonstrated. Of

13 diabetics treated with protamin-insulin only two cases showed clearly the prolonged effect. The preparation is still unsuitable for use.—L. A. HULST and E. H. VOGELENZANG. *Nederland. Tijdschr. Geneeskunde*, 80 (1936), 4128; through *Chem. Abstr.*, 31 (1937), 452. (E. V. S.)

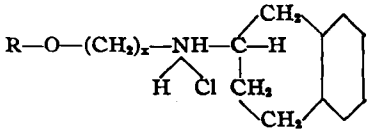
Silver—Germicidal Properties of, in Water. The disinfectant action of silver is independent of the way in which it is introduced, whether as soluble silver salts or as metallic silver which dissolves in the water or by electrochemical methods; the dose depends on the original purity of the water. Temporary use of such water will not cause symptoms of poisoning, but constant use may be harmful as shown by tests on rats. The amount of electro-katadynized silver added cannot be determined solely from the current used as certain substances, *e. g.*, chlorine, influence the degree of utilization of the current.—J. JUST and A. SZNIOLIS. *J. Amer. Water Works Assoc.*, No. 28 (1936), 492; through *J. Soc. Chem. Ind.*, 55 (1936), B., 622. (E. G. V.)

Sodium Evipan—Use of. Following injection of 10 to 15 mg. of morphine, the 10% evipan solution is injected at the rate of 1 cc. during 15 sec. until the patient stops counting and does not answer when addressed. One-half of this dose is then injected and a period of 1 min. allowed to elapse before the operator begins. If 100 cc. fails to produce analgesia, ether is used as the principal anesthetic. Postoperative embolism and bronchial pneumonia appear to be less frequent after evipan than other anesthetics.—H. G. SKARBY. *Upsala Läkarfören. Förh.*, 41 (1935), 345–353; through *Chimie & Industrie*, 36 (1936), 560. (A. P.-C.)

Suicide—Scientific Study of. A committee for the study of suicide has recently been incorporated to make a study of suicide as a social and psychological phenomenon. The following general outline has been adopted by the committee: (1) intramural studies of individuals inclined to suicide in selected hospitals for metal diseases; (2) extramural studies of ambulatory cases with suicidal trends or with obsessional wishes for their own death; (3) social studies of suicide; (4) ethnological studies, that is, comprehensive investigation, of suicide among primitive races; (5) historical studies.—*Nature* (October 3, 1936); through *Australas. J. Pharm.*, 51 (1936), 1932. (E. V. S.)

Testosterone Propionate and the Prostate. Testosterone propionate will inhibit the effects which daily injections of œsterone have on the prostate and urethra of immature rhesus monkeys if the total amount given (divided into weekly doses) is equivalent by weight to seven or more times the amount of œstrone that is administered. According to this index of activity testosterone propionate is a much more potent compound than either testosterone, androstanediol or progesterone. Its action is still powerful as long as a fortnight after its injection and it seems likely that in clinical work the hormone need not be given more frequently than at either weekly or fortnightly intervals.—S. ZUCKERMAN. *Lancet*, 231 (1936), 1259. (W. H. H.)

***ac*-Tetrahydro-β-naphthylamine Pressor Group—Local Anesthetics Containing the.** Two new alkanol derivatives of *ac*-tetrahydro-β-naphthylamine, namely, β-(*ac*-tetrahydro-β-naphthylamine)-ethanol hydrochloride and γ-(*ac*-tetrahydro-β-naphthylamine)-propanol hydrochloride), esters of the type



where R represents the benzol, *o*-, *m*- and *p*-nitrobenzoyl, *o*-, *m*- and *p*-aminobenzoyl, *p*-chlorobenzoyl, *p*-iodobenzoyl, cinnamoyl, phthaloyl or β-phenylpropinonyl radical, and x is 2 or 3. Although possessing in most cases satisfactory local anesthetic properties, the compounds lacked vasopressor characteristics.—HAROLD W. COLES and WILLIAM A. LOTT. *J. Am. Chem. Soc.*, 58 (1936), 1989. (E. B. S.)

Typhoid Carrier State—Chemotherapy of the Experimental, in the Immature Rabbit. Leuco-brilliant green medium has been employed for the examination of the contents of the duodenum and rectum for the presence of pure *B. typhosus* colonies. Oral administration of hexamine-sodium acetate is shown to be preferable to hexamine and within 15 days of the commencement of daily treatment the organisms entirely disappeared from the infected animals. Where treatment was commenced 10 days prior to infection the organisms could no longer be found 7 days after the date of infection.—M. COPLANS. *J. Path. & Bact.* (British), 43 (1936), 517–535. (A. H. B.)

Typhoid Fever—Serum Treatment of. Of fifty-two Chinese patients who received Lister Institute antityphoid serum, thirty cases showed definite improvement indicated by a drop in temperature and a decrease in toxic symptoms. Seven cases showed reduction in toxemia but no noticeable effect on the temperature curve. The remaining fifteen cases showed no appreciable effect of the serum. Of the four cases treated with Felix's Lister Institute serum two showed dramatic improvement. One further case showed lessening of toxemia. The remaining case showed no change. It is the authors' impression that the new antityphoid serum is definitely beneficial when given to the typhoid patient during the first or second week of illness in decreasing the toxemia and shortening the febrile course.—R. C. ROBERTSON and H. YU. *Brit. Med. J.*, 3961 (1936), 1138. (W. H. H.)

Veterinary Posology Table. A comprehensive table of 73 commonly used drugs showing the dose for the horse, cow, sheep, pig, dog, cat and fowl, similar to a table published in the November 1922 (page 825) issue.—*Australas. J. Pharm.*, 51 (1936), 1246. (E. V. S.)

Vitamin B_1—Experiences with, in the Treatment of all Kinds of Cases of Neuritis and Polyneuritis. Favorable reports of injection treatment with vitamin B_1 of all kinds of neuritis and polyneuritis may support the assumption of avitaminosis as a cause of neuritis or polyneuritis.—P. SCHWOCHOW. *Münch. Med. Wochenschr.*, 84 (1937), 98. (C. R. A.)

Vitamin P. Pure vitamin C does not cure "purple disease" (blood points on the skin) but lemon juice does. This effect is due to vitamin P, which is present in the amount of 2 Gm. in 200 Kg. of lemons. This vitamin increases the resistance of the capillaries.—FRITZ WALTER. *Die Umschau*, 40 (1936), 826; through *Chem. Abstr.*, 31 (1937), 435. (E. V. S.)

Whooping Cough. Krueger's pertussis undenatured bacterial antigen (commercial) was used as a prophylactic agent in two groups of children, totaling 618. Protection against whooping cough was found to be insufficient to justify its use in prophylaxis before exposure. In prophylaxis after exposure, and in the treatment of early cases of whooping cough, modification of the expected course of the infection followed the administration of large daily doses of antigen. The average duration of coughing in 39 children given injections was 2.7 weeks, with a paroxysmal stage of 1.2 weeks; in an equal number of controls the average duration was 6.5 weeks, with a paroxysmal stage of 2.7 weeks.—J. M. FRAWLEY. *Calif. and West Med.*, 45 (1936), 467. (W. H. H.)

Whooping Cough Intradermal Tests. The complement-fixation test is of value in confirming the clinical diagnosis of whooping cough. In atypical cases the test may by itself establish the diagnosis of pertussis by conversion from the negative to a positive reaction during the course of the illness. Although the majority of the patients in this series were admitted in the later stages of the infection, there is evidence from the numbers admitted in the first three weeks of the disease that the complement-fixation test becomes positive early in the infection in a high proportion of the cases. Negative results were most commonly obtained in very young children in whom there seems to be a poor antibody response. Other apparent causes of a negative reaction were short duration of the disease, very severe infection or presence of complications, and anticomplementary sera. The intradermal test failed to give specific results. A high percentage of patients with whooping cough gave positive reactions, but so also did a group of control patients with no history of whooping cough. There was no correlation between the intradermal test and the complement-fixation reaction.—J. P. J. PATON. *Lancet*, 232 (1937), 132. (W. H. H.)

NEW REMEDIES

SYNTHETICS

Atoquinol (Ciba Ltd.), allylphenylcinchoninic ester, is a uric acid solvent and eliminator having analgesic and antipyretic properties. It is used for acute and chronic gout, articular rheumatism, uric diathesis, arthritic gastralgia and enteralgia. The dose is two tablets two to four times a day for 4–5 days, then stopped for a similar period. Atoquinol should not be prescribed for patients with defective hepatic function. It is marketed in 4-gr. tablets (tubes of 20 and bottles of 100 and 500) and 20% ointment (tubes of 25 Gm.).—*Australas. J. Pharm.*, 51 (1936), 1205. (E. V. S.)

Benzedrine Tablets (Smith, Kline and French Lab., Phila., Pa.) contain in each 10 mg. of benzyl methylcarbinamine sulfate ($C_6H_5CH_2CH(NH_2)(CH_3)_2.H_2SO_4$). It is structurally related to both epinephrine and ephedrine, giving greater stimulation to the central nervous system than

ephedrine. Its use is indicated in the treatment of narcolepsy and certain other neurological conditions. Benzedrine tablets are marketed in bottles of 50.—*Am. Drug.*, 95, No. 1 (1937), 70. (E. V. S.)

Causyth is cyclohexatriene-pyridine-sulfonate marketed in tablets. It is used as an antirheumatic, antipyretic and analgesic.—*Pharm. J.*, 137 (1936), 589. (W. B. B.)

Epigran Salve (Pharma G.m.b.H., Fabrik chem.-pharm. Präparate, Aussig), a wound-healing remedy, contains as active ingredient an azo dyestuff, an azotoluolazo-oxyquinoline derivative.—*Pharm. Zentralh.*, 78 (1937), 9. (E. V. S.)

Eucupin Base (Rare Chemicals, Inc.), isoamylhydrocupreine base, is an alkaloid of the quinoline group which possesses a high and prolonged anesthetic power coupled with a bactericidal effect for staphylococci and streptococci, which is approximately 40 times that exerted by phenol and 25 times the anesthetic power exerted by cocaine. It is a white almost tasteless powder, soluble in alcohol, ether and oils; insoluble in water, benzene and liquid petrolatum. Eucupin Base is used chiefly for the preparation of soluble salts, and for solutions in oily vehicles for infiltration anesthesia or topical application. It is supplied in bottles of 5 Gm.—*Am. Drug.*, 95, No. 2 (1937), 70. (E. V. S.)

Isobroval Tablets (Fa. F. J. Kwizda, Korneuburg), marketed in packages of 10 and 20 tablets, consist of 0.5 Gm. bromdiethylacetylcarbamide in each tablet.—*Pharm. Post*, 69 (1936), 526. (H. M. B.)

Kryofine (Ciba Co., New York), methylglycolphenetidin, does not contain the pyrazolone nucleus, differing thus from aminopyrine. It is an analgesic, acting promptly and without undesirable effects when used in recommended dosage; lowers febrile temperature; decreases restlessness; exerts a slight hypnotic action. Kryofine is indicated for use in the treatment of neuritis, arthritis, myalgia, lumbago, acute infections, sinusitis, etc. It is marketed in 5-gr. tablets (boxes of 10, bottles of 100) or in powder (bottles of 10 Gm.).—*Drug. Circ.*, 81, No. 1 (1937), 43. (E. V. S.)

Mandelamin (Pitman-Moore Co., Indianapolis) is an elixir of ethylenediamine mandelate, $C_2H_4(NH_2)_2.2C_6H_5CHOHCOOH$, in which the amine splits in the body and releases mandelic acid, 150 gr. to the fluidounce. It is used in the treatment of bacilluria, acute and chronic cystitis, acute and chronic pyelitis and pyelitis of pregnancy, chronic *B. coli* infections of the urinary tract and other infections heretofore treated largely by the ketogenic diet. Mandelamin is supplied in pints. —*Drug. Circ.*, 81, No. 2 (1937), 41. (E. V. S.)

Nizin (Burroughs Wellcome and Co., London) is a water-soluble zinc salt of sulfanilic acid. It is used as an astringent irrigation in cystitis and in gonorrheal urethritis or vaginitis, as a wash in conjunctivitis or trachoma and as a dressing for sluggish ulcers, moist eczema, etc. It is marketed in 2- and 20-gr. tablets.—*Australas. J. Pharm.*, 51 (1936), 1205. (E. V. S.)

Novophyllin Ampuls (Destin-Werk, Karl Klinke, Hamburg) are supplied in packages of six ampuls containing 0.50 Gm. of novophyllin (theophylline-phenylethylbarbituric acid ethylenediamine). **Novophyllin Suppositories** are supplied in packages of four and contain in each 0.40 Gm. novophyllin. **Novophyllin Tablets** contain 0.11 Gm. novophyllin in each and are sold in packages of 10.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Prontylin (Winthrop Chemical Co., Inc., New York), *p*-aminophenylsulfonamide, is a white crystalline powder; insoluble in water, but soluble in mineral acids and caustic alkalis; possesses the same curative activity as Prontosil in streptococcus infections but is intended for peroral use; exerts lesser effect on staphylococci; does not stain the urine or tissues and is generally well tolerated by the stomach. Prontylin is used in streptococcus infections including puerperal and postabortal septicemia, peritonitis from ruptured viscus, erysipelas, supurative mastoiditis, phlegmonous tonsillitis; also used in severe staphylococcus infections including carbuncles and cellulitis. It is supplied in 5-grain tablets (bottles of 25).—*Drug. Circ.*, 81, No. 2 (1937), 40. (E. V. S.)

Stramid (Alba Pharmaceutical Co. Inc., New York), *p*-aminobenzenesulfonamide, is a white powder, insoluble in water, but soluble in acids and alkalis; exerts a specific effect upon *Streptococcus hemolyticus;* its action is prompt owing to its rapid absorption. It is well tolerated in the customary doses. Stramid is indicated in infections with *Streptococcus hemolyticus*, these comprise general septicemia, puerperal and postabortal sepsis, peritonitis of streptococcic origin, erysipelas, suppurative mastoditis, septic sore throat, scarlatina and cellulitis; also recommended as a pro-

phylactic in all cases in which, because of exposure to contagion, infection may be anticipated. It is supplied in $7^1/_2$ grain tablets (bottles of 25).—*Drug. Circ.*, 81, No. 2 (1937), 40. (E. V. S.)

Trasentin Ampuls (Gesellschaft f. chem. Industrie, Basel) contain in each ampul 0.0075 Gm. trasentin (hydrochloride of diphenylacetyldiethylaminoethanol ester) in 1.50 cc. of normal saline solution. The packages contain 5 ampuls. **Trasentin Suppositories** contain 0.10 Gm. trasentin in a suitable suppository base, packed in 5's. **Trasentin Tablets** are supplied in packages of 20 tablets containing in each 0.0075 Gm. trasentin in a suitable tablet mass.—*Pharm. Presse*, 42 (1937), 31. (M. F. W. D.)

SPECIALTIES

Acigen (May and Baker, Ltd., London), for urinary infection, is a combination of mandelic acid, sodium bicarbonate and ammonium biphosphate. The dose is two teaspoonsful, equivalent to 3 Gm. mandelic acid, in water four times daily after meals for 10–14 days, repeat in ten days in cases of relapse. Acigen is available in bottles of 6 oz. as granules.—*Australas. J. Pharm.*, 51 (1936), 1205. (E. V. S.)

Agobyl (George J. Wallau, Inc., New York) is a combination of lithium succinate, desiccated magnesium sulfate and peptone in an aromatic base. It is indicated in all liver disturbances, acute or chronic icterus, chronic cholecystitis, except that of a syphilitic nature, or those where surgical intervention is necessary; digestive disturbances of hepatic origin; and metabolic disturbances. Agobyl is supplied in metal boxes of 125 Gm.—*Drug. Circ.*, 81, No. 2 (1937), 83. (E. V. S.)

Aldarsone with Kaolin (Abbott Lab., North Chicago, Ill.) is a mixture of sodium methylene-sulfoneaminohydroxyphenyl arsonate 16.6% and kaolin 83.4%. It is used by insufflation into the vagina for the eradication of *Trichomonas vaginalis*. It is marketed in 3-Gm. vials (boxes of 6).—*Am. Drug.*, 95, No. 1 (1937), 70. (E. V. S.)

Alepsal Tablets (Labor. A. Generier Neuilly/Seine) are sold in packages of 20 tablets containing in each 0.10 Gm. phenobarbital, 0.02 Gm. of stabilized belladonna, caffeine and magnesium silicate.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Aluzyme is a brewer's yeast tablet.—*Pharm. J.*, 137 (1936), 456. (W. B. B.)

Amend's Solution (Thos. Leeming & Co., Inc., New York) is a stable aqueous solution of organic and inorganic iodine requiring no alcohol, glycerin or inorganic iodide to hold the iodine in solution. It provides iodine in a potent, readily available form that is non-toxic and non-irritating. It is indicated in all conditions requiring iodine or iodide medication, as thyroid disease, respiratory disorders, circulatory disturbances, syphilis and various skin affections. Amend's Solution is supplied in bottles of 2 oz.—*Drug. Circ.*, 81, No. 1 (1937), 42. (E. V. S.)

Anticholelith (M. R. Minaty, Fabrik pharm. Spezialitäten, Köln a. Rh.) is a powder mixture of the sulfates, chlorides and carbonates of calcium, potassium, sodium, aluminum and iron. The preparation is used as a drink for the painless removal of gall and kidney stones.—*Pharm. Zentralh.*, 78 (1937), 9. (E. V. S.)

Asmolin contains in each tablet disodiofluorescein 0.0015 Gm., ephedrine hydrochloride 0.02 Gm., trimethylxanthine 0.032 Gm., theobromine 0.04125 Gm. and calcium gluconate 0.04125 Gm. with starch and milk sugar. It is used for asthma, catarrh and bronchitis.—*Pharm. J.*, 137 (1936), 678. (W. B. B.)

Asthmapuran (E. Scheurich, chem.-pharm. Fabrik, Hirschberg i. Schles.), an asthma species, is a mixture of salvia and stramonium leaves, grindelia and lobelia herbs, potassium nitrate, potassium chloride and paregoric.—*Pharm. Zentralh.*, 78 (1937), 9. (E. V. S.)

Bilron Pulvules (Iron Bile Salts, Lilly) is a mixture of iron and bile salts which yields ferric bile salts. It is practically insoluble in water and acid media, but soluble in alkaline solutions; almost odorless and tasteless and not hygroscopic; stimulates the enterohepatic circulation of bile salts; is thought to increase the solubility of cholesterol; aids in the absorption of fat from the intestines; used for oral bile salt therapy of liver and gall bladder diseases. Bilron is supplied in 5-gr. pulvules (bottles of 40 and 500).—*Drug. Circ.*, 81, No. 1 (1937), 43. (E. V. S.)

Bismosol (Merck & Co., Inc.) is a sterilized, aqueous glucose solution containing in each cc. 0.1 Gm. neutral potassium sodium bismuthotartrate, corresponding to 35 mg. of bismuth, and 0.003 Gm. of piperazine. It is a colorless or slightly yellow solution, is administered intramuscularly and is rapidly absorbed from the site of injection; exerts a rapid and intensive spirocheticidal action

of special value as an aid for controlling the infection in the early stages of the disease. Bismosol is supplied in boxes of ten 1-cc. ampuls.—*Drug. Circ.*, 81, No. 1 (1937), 43. (E. V. S.)

Calcium Gluconate and Iron (Effervescent) is for use in conditions arising from a deficiency and to meet the physiological demands for calcium and iron.—*Pharm. J.*, 137 (1936), 589. (W. B. B.)

Cal-Zo (Ulmer Parmacal Co., Minneapolis) is a stiff ointment containing calamine, zinc oxide and phenolated camphor which softens at body temperature without liquefying. It is used in the ambulatory treatment of varicose ulcers; acting as a protecting cushion between the open face of the ulcer and the threads of the gauze dressing; thus preventing destruction of the newly forming skin. Cal-Zo is supplied in $^1/_2$, 1 and 5-lb. jars.—*Am. Drug.*, 95, No. 1 (1937), 70. (E. V. S.)

Catarrh A-Vee (G. H. Sherman, Inc., Detroit) is a solution containing combined antigens of streptococcus, pneumococcus, staphylococcus and *Micrococcus catarrhalis*, suitably preserved. It is used as a spray in coryza, sinusitis, chronic catarrh and other nasal infections. Catarrh A-Vee is supplied in bottles of 2 oz.—*Drug. Circ.*, 81, No. 1 (1937), 43. (E. V. S.)

Ciff Capsules (Vedepha, Vienna, 1st dist.) are sold in packages of 10 capsules, containing in each 20.0 Gm. of carbon tetrachloride, 2.50 Gm. istizin, 0.75 Gm. arsenious acid and 10 Gm. emulsifying agent.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Compound Halibut Oil Ointment contains halibut liver oil, "Collosol" kaolin, resorcin and oil of white birch, and is standardized to contain 500 international units of vitamin A per gram.—*Pharm. J.*, 137 (1936), 678. (W. B. B.)

Corphyllamine-Strophanthin Ampuls (Syngala, G.m.b.H., Vienna, 16th dist.) occur in packages of 3 ampuls containing 2 cc. each with 0.48 Gm. corphyllamine (theophylline-ethylenediamine) and 3 ampuls of 8 cc. each with 0.25 mg. strophanthin. **Corphyllamine-Glucose Ampuls** contain in addition to the 3 ampuls of corphyllamine, 3 ampuls containing 8 cc. each of 20% glucose solution. **Corphyllamine Suppositories, strong**, are sold in packages of 5 and 10 containing in each 0.60 Gm. corphyllamine.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Decufer Tablets (Degewop A. G., Berlin-O) are sold in packages of 60 tablets containing in each 500 international units of vitamin D, 20 mg. reduced iron and 0.20 mg. copper carbonate.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Ditoxoid "Asid" (Anhaltisches Serum-Institut G.m.b.H., Dessau-Berlin) is a tested diphtheria-alum-formol toxoid used as a single injection for an active immunization against diphtheria.—*Pharm. Zentralh.*, 78 (1937), 9. (E. V. S.)

Echinacea Salve Reinecke is a second dilution of echinacea in petrolatum used as a remedy for knot formations and swellings.—*Pharm. Zentralh.*, 78 (1937), 9. (E. V. S.)

Ergone (Parke, Davis & Co., Detroit) is a slightly acidic solution of sensibamine, a new alkaloid isolated from ergot. Its chemical formula appears to be $C_{31}H_{37}O_5N_5$. It occurs in white crystals, m. p. 180–184° C., soluble in ethanol, methanol, benzene, chloroform and dichlorethylene. Administered hypodermically, ergone is well absorbed and has prompt and vigorous oxytocic effect. It is marketed in 1-cc. ampuls (boxes of 6 and 100) standardized to the same activity as the fluidextract of ergot.—*Amer. Drug.*, 95, No. 1 (1937), 70. (E. V. S.)

Ferox Tablets (Wm. S. Merrell Co., Cincinnati, O.). **Ferox with Cascara** contains in each tablet iron succinate 4 gr., extract oxgall 1 gr. and extract cascara 1 gr.; **Ferox with Sodium Salicylate** contains in each tablet sodium salicylate 1 gr. in place of the cascara in Ferox with Cascara. They are indicated in early cholecystitis where the pain is bearable, for the relief of the paroxysms following cholecystectomy, biliary stasis, catarrhal jaundice and functional alterations of the digestive tract with resultant disturbances of the liver and gall bladder. Ferox Tablets are marketed in bottles of 100 and 1000.—*Drug. Circ.*, 81, No. 2 (1937), 41. (E. V. S.)

Ferratose (Rare Chemicals, Inc.), a palatable elixir of sodium biferratin, contains in each teaspoonful sodium ferrialbuminate equivalent to $^1/_4$ gr. of iron in a special blended aromatic vehicle designed to promote the appetite. Biferratin is bland and practically tasteless, does not respond to tests for free iron and is completely devoid of astringent properties. Ferratose is used as a hematinic and tonic supplying assimilable and non-astringent iron in hypochromic anemia; particularly suitable in those cases of anemia where the prolonged administration of iron is desired. Ferratose is marketed in bottles of 8 oz.—*Am. Drug.*, 95, No. 2 (1937), 70. (E. V. S.)

Ferrophyl (The Ferrophyl Co., East Port Chester, Conn.) is a ferruginous tonic combining

chlorophyll, ferrous gluconate, the catalysts copper and manganese, together with active pepsin sufficient to digest the white of a hard-boiled egg in the presence of hydrochloric acid. It is indicated in hemorrhagic anemia, chlorosis, nutritional anemia and other mycrocytic anemias accompanied by a reduced red blood corpuscle count and a low color index. Ferrophyl is supplied in liquid (bottles of 10 oz.) and tablet (bottles of 42) form.—*Drug. Circ.*, 81, No 1 (1937), 78. (E. V. S.)

Folipex Ampuls (Sanabo-Chinoin, G.m.b.H., Vienna, 12th dist.) contain 10,000 or 50,000 units of benzoylated follicular hormone in oil solution. The packages contain either 5 ampuls of 10,000 units each or 1 or 5 ampuls of 50,000 units each.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Fugoa Reducing Tablets (E. Scheurich, chem.-pharm. Fabrik, Hirschberg i. Schles.) contain in each extract fucus 0.2 Gm., extract rhubarb 0.1, extract frangula 0.1 and extract cascara 0.1.—*Pharm. Zentralh.*, 78 (1937), 27. (E. V. S.)

Gerulcin Ampuls (Fa. Sanabo-Chinoin G.m.b.H., Vienna), marketed in packages of 5 x 5.50-cc. ampuls, consists of 0.20 Gm. histidine hydrochloride in sterile isotonic solution.—*Pharm. Post*, 69 (1936), 525. (H. M. B.)

Gluco-Fedrin (Parke, Davis & Co.) is an aqueous, rose-colored, slightly aromatized dextrose base containing 1% ephedrine, 0.5% chloretone, 0.1% menthol and 2% alcohol. It affords the vasoconstrictive action of ephedrine, plus the antiseptic and anesthetic effects of chloretone and menthol; its isotonic aqueous dextrose base is relatively non-irritating to the mucous membranes. Gluco-Fedrin is used in the palliative treatment of colds, hay fever and allergic rhinitis; supplied in bottles of 1 and 16 oz.—*Drug. Circ.*, 81, No. 2 (1937), 41. (E. V. S.)

Halycalcyne Capsules (Crookes Lab., Inc., New York) contain in each dicalcium phosphate 2 gr. with Crookes High Potency halibut liver oil 2½ min. It is indicated in dental caries in the low calcium state often associated with pregnancy, etc. Halycalcyne is supplied in bottles of 50.—*Drug. Circ.*, 81, No. 2 (1937), 41. (E. V. S.)

Helletten (N. Hellmann, Chem.-pharm. Präparate, Breslau) are 0.45-Gm. tablets containing dimethylaminophenazone 0.12, phenacetin 0.15, acetylsalicylic acid 0.15 and caffeine 0.03. They are used as an antirheumatic and antipain remedy.—*Pharm. Zentralh.*, 77 (1936), 786. (E. V. S.)

Imadyl Unction "Roche" is a 1% histamine dihydrochloride combined with 5% acetylglycol salicylic ester "Roche" and adequate amounts of methyl salicylate, synthetic menthol, thymol, in a specially prepared, readily absorbable wool fat-water-wax-petrolatum base. It is used for the treatment of arthritic and rheumatoid conditions; supplied in tubes of 1½ oz.—*Drug. Circ.*, 81, No. 1 (1937), 42. (E. V. S.)

Lymph Extract Ampuls (Chem.-Pharm. Werke des Landes Steiermark, Graz) are put up in packages of 3 ampuls of 1 cc. containing in each lymph extract equivalent to 2 Gm. of fresh glands.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Mercurin (Campbell Products, Inc., New York) is an organic mercurial containing 39.2% mercury. It is a powerful diuretic comparable to that of the parenterally administered diuretics. It is used to remove excess fluid in edema of congested heart failure, nephrosis and cirrhosis of the liver with ascites. It is contraindicated in advanced chronic nephritis and acute renal disease, and should be used with caution in the presence of diarrhea, enterocolitis and hemorrhoids or other rectal disorders. Mercurin is supplied in the form of cocoa butter suppositories for rectal administration, each containing 0.5 Gm. Mercurin (boxes of 5, 25 and 100).—*Am. Drug.*, 95 No. 2 (1937), 70. (E. V. S.)

Naftalan orig. purum (Naftalan G.m.b.H., Dresden) contains 95 to 96% crude naphtha and 4 to 5% of a special soap. It is packaged in tubes of 50 and 100 Gm. **Naftalan-zinc Ointment** contains 50% of original naftalan, zinc oxide and ointment base, and is sold in tubes of 25 and 50 Gm.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Neo-Lacmanese (G. A. Breon & Co., Inc., Kansas City, Mo.) is a true solution derived from cow's milk, condensing proteins of lactalbumin and casein, with which is incorporated colloidal manganese butyrate 1.5% and including 1% procaine hydrochloride. Injections result in a plasma-activation especially in the cells of the liver, spleen, bone-marrow and cutaneous connective tissue. It is indicated in chronic and acute infections to stimulate the body's own powers

of resistance. Injections cause a slight discomfort. Neo-Lacmanese is supplied in 1-cc. ampuls (boxes of 12, 25 and 100).—*Am. Drug.*, 95, No. 2 (1937), 70. (E. V. S.)

Neptal Ampuls (Societe Parisienne, Specia, Paris) contain in each cc. 0.092 Gm. of the hydroxymercuripropanolamide of *o*-acetyloxybenzoic acid, 0.005 Gm. scurocaine (benzoate of *p*-aminobenzoyldiethylaminoethanol) and 0.15 Gm. ammonium benzoate. The packages contain 3 ampuls of 1.5 cc. each.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Novasorb, magnesium trisilicate, is used for dyspepsia, hyperacidity, etc.—*Pharm. J.*, 137 (1936), 589. (W. B. B.)

Pellitol (Pitman-Moore Co., Indianapolis) is resorcin (5%), bismuth subgallate, bismuth subnitrate, oil of cade, zinc oxide, calamine and echinacea in a special lanolin-petrolatum base. It is a smooth ointment with an unusually high content of medicinal ingredients (43%). Its very weight and minute porosity increase its covering power and promote exosmosis in burns. Pellitol is used for the treatment of a wide variety of skin conditions(eczemas, pruritus, wounds, abscesses, burns and abrasions). It is supplied in ounce collapsible tubes and 1¼ oz. jars.—*Am. Drug.*, 95, No. 2 (1937), 70. (E. V. S.)

Planacrine Antiseptic Lozenges contain a mixture of 2,8-diamino-10-methylacridinium and diaminoacridine, with glycyrrhizin. These lozenges are used for disinfection of the mouth and throat.—*Pharm. J.*, 137 (1936), 678. (W. B. B.)

Ponapsin Tablets (Palmsche Apotheke, Schwandorf, Wttbg.) contain in each 0.15 Gm. amidopyrine, 0.01 Gm. codeine phosphate, 0.015 Gm. narcotine hydrochloride, 0.0075 Gm. papaverine hydrochloride, 0.0001 Gm. atropine methylbromate and 0.03 Gm. theophylline. The packages contain 10 tablets.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Quabaol Ampuls (F. J. Kwizda, Korneuburg) are put up in packages of 3 and 6 ampuls containing in 1 cc. 0.25 to 0.50 mg. *g*-strophanthin.—*Pharm. Presse*, 42 (1937), 30. (M. F. W. D.)

Tannol, an emulsion of acriflavine with 10% of tannic acid, is used in the treatment of burns and scalds.—*Pharm. J.*, 137 (1936), 589. (W. B. B.)

Theogarco (Prescription Pharmacal Co., Pasadena, Calif.) are enteric coated tablets containing *Allium sativum*, activated vegetable charcoal, theobromine alkaloid and phenobarbital; "℞ A" contains 1/8 gr. and "℞ B" 1/4 gr. of phenobarbital. They are indicated in the treatment of hypertension and tends to prevent the vascular crises incident to this disease. Theogarco is supplied in bottles of 100.—*Drug. Circ.*, 81, No. 2 (1937), 83. (E. V. S.)

Tussipuran (E. Scheurich, Hirschberg i. Schles.) is a chocolated tablet containing extracts of primrose, senega and pimpinella, phenylmethylaminopropanol hydrochloride and sugar. It is used for coughs.—*Pharm. Zentralh.*, 78 (1937), 28. (E. V. S.)

Urolithon (E. Scheurich, Hirschberg i. Schles.), a uric acid-solvent effervescent salt, contains a mixture of diethylenediamine, tartaric acid, citric acid, sodium sulfate, sodium bicarbonate and magnesium oxide.—*Pharm. Zentralh.*, 78 (1937), 28. (E. V. S.)

Vegemucin is a hyperacidity powder.—*Pharm. J.*, 137 (1936), 456. (W. B. B.)

Verigoa Tablets (E. Scheurich, Hirschberg i. Schles.), for pain relief, contains in each aminophenazone 0.3 Gm. and diethylmalonylcarbamide 0.1 Gm.—*Pharm. Zentralh.*, 78 (1937), 28. (E. V. S.)

Zant is an antiseptic and disinfectant.—*Pharm. J.*, 137 (1936), 456. (W. B. B.)

BACTERIOLOGY

Antiseptic—Mixture of High Molecular Alkyl-dimethylbenzylammonium Chlorides as an. The fourth radical in the ammonium molecule consists of alkyl groups as derived from fatty acids of coconut oil. The substance has a phenol coefficient between 274 and 429 depending on the type of test organism. It compares favorably with some of the best commercial antiseptics.—CECIL G. DUNN. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 427. (A. E. M.)

Antiseptic Testing. A Criticism of the Allen Method of Testing Antiseptics. The Allen Method (*Am. J. Surg.* (N. S.), 23 (1934), 371) is not reproducible and the results obtained do not represent the true value of the antiseptic used. The Food and Drug Adminstration test is recommended.—GEORGE F. REDDISH. *Soap* (Sanitary Products Sect.), 12, No. 10 (1936), 96; through *Chem. Abstr.*, 30 (1936). 8526. (E. V. S.)

Antiseptics—Comparative Study of Laboratory and Practical Tests. Report is made of

a study of methods of testing antiseptics over a term of years. Some of these methods are now standard in testing antiseptics by the U. S. Food and Drug Administration. Since 1925 liquid antiseptics that are recommended for short time application must kill approximately 350 million *Staphylococcus aureus* by the standard test within five minutes. Liquor Antisepticus N. F. IV employed in this study meets the requirement. Experience has shown that germicides passing this test also kill other pyrogenic organisms in larger numbers. Study was made of the practical use. Bacterial counts were made of the oral cavity by a method developed in Johns Hopkins University. Detailed procedure is given. Tabulation of a number of tests is given. An average reduction of 96.7% was demonstrated.—GEORGE F. REDDISH. *J. Am. Pharm. Assoc.*, 25 (1936,) 1117. (Z. M. C.)

Antitoxins—Flocculating and Immunizing Properties of, Purified by Precipitation with Trichloroacetic Acid. The purification of antitoxins by means of trichloroacetic acid has previously been described (*Ibid.*, 203 (1936), 284). Diphtheria antitoxin thus precipitated was dissolved in physiological salt solution and in bouillon and the flocculating and immunizing powers compared with the crude antitoxin. The three samples showed the same flocculating power and the same antigenic value *in vitro*. The immunizing power was tested *in vivo* on guinea pigs. The immunizing power of the precipitated antitoxin dissolved in physiological salt solution was sharply superior to that of the crude antitoxin although the same precipitate redissolved in bouillon was very inferior to the crude antitoxin. Using rabbits, results obtained were comparable to those with guinea pigs.—GASTON RAMON, ANDRÉ BOIVIN and REMY RICHOU. *Compt. rend.*, 203 (1936), 634. (G. W. H.)

Bacterial Spores—Heat Resistance of, Attempts to Increase the. An attempt was made to increase by artificial selection the heat resistance of the spores of the following organisms: *Bacillus subtilis, B. graveolens, B. mycoides, Clostridium Pasteurianum, C. acetobutylicum, C. butylicum* and *C. sporogenes*. After 8 or 10 selective series with each organism, no significant increase was observed except in the case of *Bacillus mycoides* with delayed germination of spores.—F. T. WILLIAMS. *J. Bact.*, 32 (1936), 589–597. (A. H. B.)

Coliform Bacilli—Growth of, in Water. Coliform bacilli of various types are capable of multiplying in water from various sources which has been autoclaved and which, after inoculation, has been kept at 37° C. Growth of coliform bacilli in water may occasionally occur under natural conditions, especially in warm countries.—J. W. BIGGER. *J. Path. and Bact.* (British), 44 (1937), 167–210. (A. H. B.)

Cystine-Tellurite Agar for C. Diphtheriæ. In a study of the relations of cystine and tellurite in blood agar for the study of *C. diphtheriæ*, it was found that these two reagents have a compensatory relationship and that adjustment of one in the presence of the other is necessary. The addition even of 1% of blood gives fairly satisfactory results, while the results obtained with 5% are quite as good as those obtained with twice this amount.—M. FROBISHER, JR. *J. Infect. Diseases*, 60 (1937), 99–105. (A. H. B.)

Dysentery Toxin—Preparation of Soluble. The bacilli are suspended in water and disintegrated by 7 days' treatment in a ball mill. Microscopic examination shows that no whole bacilli remain. The toxin in the fluid is purified by adsorption on aluminum hydroxide, elution with phosphate, precipitation with ammonium sulfate and dialysis. From the purified toxin a formal-toxoid with very satisfactory immunological properties has been prepared.—A. HANSEN. *Biochem. Z.*, 287 (1936), 35–39; through *Physiol. Abstr.*, 21 (1937), 895. (E. V. S.)

Frei Test—Observations on the. The Frei intracutaneous test appears to be specific for lymphogranuloma inguinale, while other venereal, infectious and miscellaneous diseases give negative reactions. Repeated testing in negative patients does not appear to raise the allergic properties of the skin to the Frei antigen.—W. H. CONNOR, E. A. LEVIN and E. E. ECKER. *J. Infect. Diseases*, 60 (1937), 62–63, (A. H. B.)

Hemolytic Streptococci—Heat-Liable Toxin of. A heat-liable toxin may be obtained from hemolytic streptococci. There is no correlation between hemolytic titre and toxicity. There is no correlation and none between the virulence of a strain and its ability to give toxic extracts.—R. HARE. *J. Path. and Bact.* (British), 44 (1937), 71–90. (A. H. B.)

Hemolytic Streptococci—Immunizing Activity of Certain Chemical Fractions Isolated from. Fractions capable of inducing active immunity in mice have been isolated from strains of hemolytic streptococci belonging to Groups A and C as described in the report. The active fraction from the

Group C is soluble in dilute acids, but insoluble in ammonia and is probably a protein. It appears to be comparatively stable and is not inactivated by ammonia. The active fraction from the Group A strain resembles that from the Group C strain in being acid-soluble, but is inactivated by ammonia and loses its potency more readily on keeping. It also appears to be protein in nature.—T. C. STAMP and E. B. HENDRY. *Lancet*, 232 (1937), 257. (W. H. H.)

Mycobacterium Tuberculosis—Glycerol and Carbohydrate Utilization by. Quantitative analyses for reducing sugar indicate that human bovine and BCG types of *Mycobacterium tuberculosis* utilize glucose, mannose, fructose, galactose, arabinose, xylose and maltose, but not lactose. Human, bovine and avian tubercle bacilli can utilize as much as 96% of all oxidizable matter in Long's medium. This indicates that the glycerol was completely oxidized to carbon dioxide and water and that there was no appreciable accumulation of organic waste products.—A. G. WEDUM. *J. Bact.*, 32 (1936), 599–611. (A. H. B.)

Quinine Compounds—Bactericidal Studies of, especially Apoquinine Derivatives. III. Antiseptic concentrations of 18 apoquinine derivatives are determined for *Streptococcus hæmolyticus* and *Staphylococcus aureus*. With pneumococci ethylapoquinine (I) was more effective than optoquin. The potency of (I), propyl- and isooctyl-apoquinine decreased in the order named.—N. ISHIZAKA, H. OKAMOTO, K. MIURA, S. MATSUDA and T. SHAKO. *Japan. J. Med. Sci., IV, Proc.*, 7 (1933), 42; through *J. Soc. Chem. Ind.*, 55 (1936), B., 858. (E. G. V.)

Relapsing Fever—Field and Laboratory Studies on. Relapsing fever is endemic in California. Thirteen strains of spirochetes resembling *T. recurrentis* were isolated from rodents in the field. Spirochetes of both human and animal origin show remarkable resistance to freezing. Hyperimmune guinea pig serums have been produced from chipmunk and Tamarack squirrel strains of spirochetes. Protection was obtained with homologous and heterologous rodent strains.—M. D. BECK, *J. Infect. Diseases*, 60 (1937), 64–80, (A. H. B.)

Salmonella Meningitis. Thirty-four cases of Salmonella meningitis have been reported. Cultural characteristics alone cannot be relied upon to establish the identity of an organism belonging to the Salmonella group.—J. H. BAHRENBURG and E. E. ECKER. *J. Infect. Diseases*, 60 (1937), 81–87. (A. H. B.)

Streptococcus Rheumatism and Climate. Warmer climates have a reputedly favorable effect on the progress of arthritic ailments, and are less liable to be chronic. The southern climate tends to prevent or mitigate the attack of acute rheumatic affections. The influence reaches its peak in the summer but is pronounced throughout the year. Carriage of hemolytic streptococcus is at a low level during the summer season, but not throughout the year like rheumatism.—W. B. SHARP and M. B. JOHN. *J. Infect. Diseases*, 60 (1937), 15–24. (A. H. B.)

Typhoid and Paratyphoid Vaccines—Standardization of. Typhoid vaccine made from smooth Rawlings strains is standardized at a correct Gates reading of 3.40. The likelihood of its containing exactly 1,000 million bacilli per cc. is greater than if it is standardized by direct count.—ROY F. FREEMSTER, LESLIE H. WETTERLOW and JOSEPH CIANCIARULO. *J. Am. Pub. Health Assoc.*, 26 (1936), 1176. (A. H. B.)

Virus Diseases—Immunity to. Some of the facts concerning immunity to virus infection are that most virus diseases are followed by a protective immunity. Viruses act as though they are antigenic substances. Immunes may be carriers of virus for a considerable period of time. Individuals may become immune to certain viruses without having suffered clinical evidences of diseases. Treatment of susceptible tissue with chemicals may increase or decrease resistance in infection by some viruses. Subjects immune to a virus following infection usually contain specific neutralizing antibodies in their blood. Prophylactic adminstration of serum of immunes may passively protect for a relatively short time. Administration of serum from an immune during the course of virus infection is of little or no avail. Recurrent attacks of a virus infection may take place in individuals whose blood contains neutralizing antibodies. Immunity to reinfection by a virus may occur before the active disease or lesion becomes quiescent or healed. Some viruses may be so modified by passage through an alien host that subsequent infection in an original host may be very mild, but sufficient to confer solid immunity to the virulent strain. There may be distinct antigenic strains of the same virus, which do not effectively immunize against each other. Adminstration of apparently non-infectious or killed virus as a vaccine usually does not result in protection. All acquire immunity from the administration of virus vaccine results from active.

though unrecognized, infection.—ERNEST W. GOODPASTURE. *J. Am. Pub. Health Assoc.*, 26 (1936), 1163. (A. H. B.)

BOTANY

Chondrus Crispus—Seasonal Variations in. The ash, nitrogen and carbohydrate contents of a series of monthly collections were compared with the polysaccharide complex extracted from them. The results indicate that the carbohydrate complex synthesized during the summer months is largely of the normal ester sulfate types and after the supply of these is used up, the acid ester alone remains to be metabolized.—M. A. BUTLER. *Biochem. J.*, 30 (1936), 1338; through *Chem. Abstr.*, 30 (1936), 8309. (E. V. S.)

Drug Collecting and Cultivation in Mississippi. Climatic and oil conditions in the state are briefly discussed. Topographically and geologically there are ten more or less distinctly marked regions. There being no commercial demand, crude drugs come from small collectors, each community usually having one. The natural supply has been reduced as agriculture has progressed. A list of Mississippi drug plants is included.—W. W. BARKLEY. *J. Am. Pharm. Assoc.*, 25 (1936), 1156. (Z. M. C.)

Leaf Carotenes. In a survey of leaf carotenes from 59 different plant species, distributed in 40 botanical families, it is shown that the major fraction is in all cases β-carotene; 40 of the 59 sources contain α-carotene in proportions varying from traces to 35% of the total carotene present. —G. MACKINNEY. *J. Biol. Chem.*, 111 (1935), 75–84; through *Physiol. Abstr.*, 21 (1937), 806. (E. V. S.)

Yeasts. An address reviewing the factors which influence the growth of yeast and indicating the precautions which should be taken to obtain optimum fermentation results.—J. RAUX. *Brasserie & Malterie*, 26 (1936), 154–159, 169–175. (A. P.-C.)

CHEMISTRY

ORGANIC

Alkaloids

Alkaloids—Purification of, from Alkaloid-Like Substances. The alkaloid is washed in water and then carbon dioxide is introduced as a carbonate in solution. The carbonate-like substance is left to settle in open vessels. In this manner the following alkaloids were purified from other alkaloid-like substances: morphine, cocaine, atropine, *p*-aminobenzoyldiethylaminoethanol, benzoyltetradiaminoethylisopropanol, 2,6-trimethyl-4-benzoyloxypiperidine, benzoylethyldimethylaminoisopropanol, dimethylaminomethyl-*p*-aminobenzoylbutanol and *p*-butylaminobenzoyldimethylaminoethanol.—W. SCHAEFFER. D. R. P. 622689, (1929); through *Chem. Zentralb.*, 107 (1936), 1459. (G. B.)

Banisteria Caapi. A complete botanical and chemical study of *Banisteria caapi*, which has been employed as a hypnotic since the time of the Incas. The active substance of this plant, yageine, is an alkaloid ($C_{13}H_{12}ON_2$), which is soluble in alcohol but not in water. It crystallizes as prisms, m. p. 206°. Yageine has powerful anesthetic properties.—OSWALDO DE ALMEIDA COSTA and LUIZ FARIA. *Bol. assoc. brasil. farm.*, 17 (1936), 265–309; through *Chem. Abstr.*, 31 (1937), 501. (E. V. S.)

Caffeine—New Soluble Derivative of. Bromocaffeine, on mixture with malonic ester and sodium ethylate is converted into caffeine malonic ester. This is saponified with sodium and neutralized with hydrochloric acid, freeing caffeine malonic acid which decomposes into caffeine acetic acid and carbon dioxide. Experiments on rabbits and frogs show that caffeine acetic acid behaves identically with caffeine.—G. BARGIONI. *Boll. chim.-farm.*, 74 (1935), 869–871; through *Chimie & Industrie*, 36 (1936), 560. (A. P.-C.)

Chin-shih-hu—Alkaloid of. The Szechuan variety of the Chinese drug chin-shih-hu contains an average of 0.52% total alkaloids. A method is described for the isolation and crystallization of the alkaloid dendrobine, $C_{16}H_{25}O_2N$. A series of eleven salts and derivatives has been prepared and characterized. The Kweichow variety of chin-shih-hu yields no dendrobine.—K. K. and A. L. CHEN. *J. Biol. Chem.*, 111 (1935), 653–658; through *Physiol. Abstr.*, 21 (1937), 804. (E. V. S.)

Dihydrobrucine—Isomers of. The compound obtained from dihydrobrucine using sodium

methylate is not a hydrate but isodihydrobrucine (I); the mono-*o*-acetyl derivative is also derived from its anhydrous form as the perchlorate. (I) has the following properties: $\alpha = -195°$ in chloroform and $-150°$ in alcohol; contains about 10% of a different isomer (III), which separates out from chloroform in colorless needles, m. p. 235–245°, $\alpha = +28°$ in alcohol. Finally a third isomer (II) separated to the extent of 60%, m. p. 215–216°, $\alpha = -10°$ in chloroform; it also yields a monoacetyl derivative which is changed to (I) with sodium methylate. All three isomers belong to the isostrychnine type group: the ether group is changed to a hydroxyl group, when the compound either forms a double bond or a new ring. For (I) and (II) a hydrating or oxidating group is out of the question, so that, the isomerism seems to depend on the formation or presence of a new asymmetric C atom. The dihydrobrucine derivative isomers correspond to a well-known derivative dihydroisostrychnine, m. p. 250°, $\alpha = +23°$; this compound reacts with PtO_2 adding two H atoms to form $C_{21}H_{26}O_2N_2$; the position of attachment to the ring is not known. Dihydrobrucine renders only one iodomethylate which separates from hot water, m. p. 245°; from methanol it separates in prismatic crystals, m. p. 290–295°.—H. LEUCHS and A. DORNOW. *Ber. der Deutsch. Chem. Gesell.*, 68 (1935), 2234; through *Chem. Zentralb.*, 107 (1935), 1230.
(G. B.)

Equisetum Palustre—Alkaloid of. A hydrocarbon, $C_{17}H_{42}$, m. p. 77°, and an alkaloid palustrine, $C_{12}H_{24}N_2O_2$, b. p. 205–210°/0.1 mm.; hydrochloride, m. p. 181°, are isolated from the swamp horsetail (Durvock). The dried plant contains 0.95% of the alkaloid.—E. GLET, J. GUTSCHMIDT and P. GLET. *Z. physiol. Chem.*, 244 (1936), 229; through *Chem. Abstr.*, 31 (1937), 811. (E. V. S.)

Ergot Alkaloids. VI. Lysergic Acid. This is an account of an investigation into the structure of lysergic acid, which is considered to be the chief component of the ergot alkaloids. The authors advance a formula which incorporates the indole ring and a propylene side chain.—W. A. JACOBS and L. C. CRAIG. *J. Biol. Chem.*, 111 (1935), 455–465; through *Physiol. Abstr.*, 21 (1937), 804. (E. V. S.)

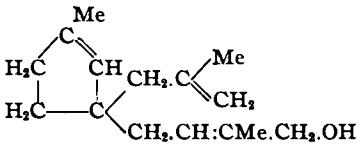
Formosanine—New Alkaloid Extracted from Ourouparia Formosana. A new alkaloid designated as formosanine from *Ourouparia formosana* is assigned the formula $C_{21}H_{26}N_2O_4$ or $C_{21}H_{34}N_2O_4$ and contains one methoxy group. It occurs in the form of fine white needles which melt at 202–218° according to the rapidity of heating. Its rotatory power is +91.3° in chloroform and 80.3° in 95% alcohol. It does not give any color reaction with conc. sulfuric acid, nitric acid or Frohdes' reagent. It colors Mandelin's reagent reddish orange, then orange, yellowish orange, yellowish green and finally green.—RAYMOND HAMET. *Compt. rend.*, 203 (1936), 1383.
(G. W. H.)

Mitraphylline. Mitraphylline, the alkaloid extracted by Michiels from the bark of *Mitragyna stipulosa* O. Kuntze, is not identical with mitrinermine, obtained from the same source The former melts at 258° to 267° C., has an optical rotation of −7.7° and probable formula $C_{21}H_{26}N_2O_4$; the latter melts at 209° to 216° C., has an optical rotation of −23.1° and formula $C_{22}H_{28}N_2O_4$. Zeisel's method shows the presence of one methoxyl group in mitraphylline and of two such groups in mitrinermine, which is probably the methylated derivative of mitraphylline.—RAYMOND HAMET and L. MILLAT. *Bull. sci. pharmacol.*, 42 (1935), 602–611; through *Chimie & Industrie*, 36 (1936), 559. (A. P.-C.)

Strychnine—Alkaline Degradation of. Mild action of potassium hydroxide on strychnine yielded three bases, isolated as picrates: $C_8H_{11}N.C_6H_3O_7N_3$ (m. p. 143–144°), $C_{10}H_{11}N.C_6H_3O_7N_3$ (m. p. 192°) which are yellow and $C_{10}H_{12}N_2.C_6H_3O_7N_3$ (m. p. 245°, decomp.) which is bright red. The latter was found to be tryptamine; its difference from previously described tryptamine is explained on the basis of two tautomeric forms.—G. R. CLEMO. *J. Chem. Soc.* (1936), 1695–1698. (G. W. F.)

Essential Oils and Related Products

Lanceol. The reactions of lanceol, a sesquiterpene alcohol from oil of *Santalum lanceolatum*, are reported. It is a monocyclic, primary alcohol with three non-conjugated ethylene linkages. It can be most easily identified by means of the allophanate (m. p. 114-115°). The characteristics of the alcohol are: b. p. 175–176°/17 mm., $d_{15°}^{15°}$ 1.5074, $[\alpha]_{5461}$ −77.4°, $[\alpha]_{780}$ −67.8°, $C_{15}H_{24}O$. The following is suggested as its possible structure:



—A. E. BRADFORD, E. M. FRANCIS, A. R. PENFOLD and J. L. SIMONSEN. *J. Chem. Soc.*, (1936), 1619–1625. (G. W. F.)

Oil of Artemisia Kryloviana Steinb. (A. Sieversiana Willd. var. Pygmaea Kryl.). *Artemisia kryloviana*, a grass growing in the Altai region, gives an oil that boils at 56° to 80° C. under 9-mm. pressure and contains 9% *l*-α-pinene, 12.1% cineol, 16.3% camphor, 6.5% azulene and 28.3% alcohols, mostly tertiary.—M. A. FAVORSKAIA. *J. Obchtch. Khim.*, 5 (1935), 1804–1810; through *Chimie & Industrie*, 36 (1936), 569. (A. P.-C.)

Oil of Artemisia Sacrorum var. Minor Ledb. Wild Altai grass, *Artemisia sacrorum* var. *minor* Ledb., contains about 1% of oil having a specific gravity at 20° C. of 0.9109 to 0.9152, refractive index at 15° C. of 0.464 to 1.4645 and boiling at 59° to 126° C. under 8-mm. pressure. It contains 19.26% cineol, 5.96% camphor, 16% phenols, 14% aldehydes, together with alcohols and hydrocarbons.—Z. G. TCHISTOVA. *J. Obchtch. Khim.*, 5 (1935), 1801–1803; through *Chimie & Industrie*, 36 (1936), 569. (A. P.-C.)

Oil of Hyssopus Ambiguus (Traut.) Iljin. *Hyssopus ambiguus*, growing in the Altai region, gave an oil that boiled at 64° to 94° C. under 12 to 40-mm. pressure, had a specific gravity at 20° C. of 0.9354 to 0.9412 and a refractive index at 20° C. of 1.483 to 1.4869. It contains 8.21% cineol, 22% β-pinene, 12% *l*-pinocamphone and 37% of a substance $C_9H_{12}O$, easily polymerized to an insoluble white powder which decomposed at high temperature.—I. A. DRANITSINA. *J. Obchtch. Khim.*, 5 (1935), 1811–1816; through *Chimie & Industrie*, 36 (1936), 569. (A. P.-C.)

Thymol—Arsenical Derivatives of. Thymolarsonic acid, prepared by treating diazotized *o*-aminothymol with sodium arsenite, using copper sulfate as catalyst, consists of pale yellow plates that melt at 189° to 190° C. with decomposition. It does not give a color reaction with ferric chloride. It is reduced to the arsino derivative only on prolonged boiling with phosphorous acid. With sulfur dioxide in the presence of hydriodic acid the oxide is formed. With iodine it is re-oxidized with the introduction of an iodine atom into the nucleus, forming 2, 3, 5, 6-$ICH_3(C_3H_7)(OH)C_6HAsO_3H_2$. When the oxide is treated with hydrochloric or hydrobromic acid and sulfur dioxide, held for 3 days, and the excess gas allowed to evaporate, the corresponding halide is formed; the chloride melts at 60° to 62° C. and the bromide at 40° C. The bromide analog of the above-mentioned iodine derivative melts at 195° C.—V. VELLAVITA and M. BATTISTELLI. *Ann. chim. applicata*, 25 (1935), 631–634; through *Chimie & Industrie*, 36 (1936), 558. (A. P.-C.)

Glycosides, Ferments and Carbohydrates

Gliadin and Lein—Preparation of. Methods are described for the preparation of gliadin from wheat and of zein from corn. The products are of a grade suitable for many types of nutrition investigations.—LAURENCE S. NOLAN and HUBERT BRADFORD VICKERY. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 449. (A. E. M.)

Shekanin—New Glucoside in Pardanthus Chinensis. Two hundred grams of the powdered root of *Pardanthus chinensis* is extracted with ether and yields 2 Gm. of a glucoside, m. p. 257°, to which is given the name shekanin. The glucoside contains pentose and of the four free hydroxyl groups, one is phenolic.—YUN-HSI WU. *J. Chinese Chem. Soc.*, 4 (1936), 89–92; through *Chem. Abstr.*, 30 (1936), 8298. (E. V. S.)

Squill—Active constituents of. A glucoside, $C_{16}H_{20}O_6$ which is responsible for the toxic effect of squill on rats, has been isolated. The diuretic action of tincture of squill is presumably due to the presence of sinistrin.—U. G. BIJLSMA and F. H. J. PICARD. *Acta Brevia Neerland. Physiol., Pharmacol. Microbiol.*, 6 (1936), 94–95 (in English); *Chem. Abstr.*, 30 (1936), 8522. (E. V. S.)

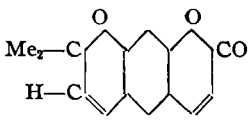
Other Plant Principles

Clerodin from Clerodendron Infortunatum. Indian bhat, *Clerodendron infortunatum*, is a common medicinal plant used extensively in Ayur-Vedic practice. Extraction of the leaves with

light petroleum ether has given hexagonal plates of a non-bitter principle and crystalline colorless needles of a bitter substance (I), $C_{18}H_{18}O_8$, melting 161–162°, $[\alpha]_D^{30}$ −37.6°, soluble in organic solvents, soluble 0.06 part in 100 parts of water at 30°. I shows no hemolytic effect in saline solution but has the following anthelmintic properties: earthworms contract immediately, become paralyzed in four minutes, and die in thirty minutes in aqueous solution; tadpoles die in fifteen minutes; tubifex, rotifera and vorticella are inactivated in one hour; worms from the intestines and peritoneal cavities of fish are killed in seven minutes; amoeba and protozoa are rather resistant.—HIRENDRA NATH BANERJEE. *Science and Culture*, 2 (1936), 163 through *Chem. Abstr.*, 31 (1937), 209. (E. V. S.)

Oleuropein—Bitter Principle of the Olive. The bitter principle has been separated and purified by a method which gives a product with a higher specific rotation than that obtained by the method of Bourquelot and Vintilesco (*Chem. Abstr.*, 2,3345; 3,28). It is a glucoside which hydrolyzes easily under the action of an enzyme found in the leaves of the olive and under the action of "pectinol," a commercial preparation from Penicillium. Emulsin hydrolyzes slowly and invertase not at all. Acid hydrolysis liberates *d*-glucose and an ether-soluble product. The bitter esters does not exist before the hydrolysis. During the hydrolysis by the enzyme pectinol or by mineral acids, the optical rotation becomes strongly levo-rotatory. The ester is easily hydrolyzed by alkalies with disappearance of the bitter taste. The glucoside when treated with sodium hydroxide loses its bitter character but retains its levo-rotation, if the treatment is not too severe. From the products of the alkali hydrolysis, a crystalline acid has been isolated which posses the same qualitative reactions, the same X-ray spectrum and the same melting point as caffeic acid. Its melting point is not lowered by a mixture of the two acids. A crystalline phenol has also been isolated but not identified, but it is not a pyrocatechol. One can conclude from the properties detected that the bitter principle apparently posses a glucoside and an ester grouping. The former is dissociated by mineral acids, emulsin and other enzymes of an analogous nature, while the latter is dissociated by alkalies and apparently by an enzyme found in the olive. An average of 1% of the bitter glucoside is found in the olive pulp, but its concentration is much greater in the green fruit of the Mission and Manzanillo varieties and much lower in the mature fruits of the varieties of Seville and Ascolano.—W. V. CRUESS. *IV Congr. intern. tech. chim. ind. agr., Brussels* 3 (1935), 638–645; through *Chem. Abstr.*, 31 (1937), 211. (E. V. S.)

Xanthyletin. The alcoholic liquors from preparation of xanthoxyletin, obtained from the bark of *Xanthoxylum americanum*, yielded, by fractional crystallization, xanthyletin, $C_{14}H_{12}O_3$



(m. p. 128–128.5°).—J. C. BELL and ALEXANDER ROBERTSON. *J. Chem. Soc.* (1936) 1828–1831. (G. W. F.)

Fixed Oils, Fats and Waxes

Fats and Fatty Acids—Dependence of Viscosity of, on Temperature. Determinations of viscosity (η) for sunflower-seed oil (natural and hydrogenated), linseed, cottonseed and seal oils at 15–100° show that η decreases as the degree of saturation increases, and varies with temperature according to $\log \eta = c/(t - t_0) + \log \eta_0$, where c is a constant.—G. B. RAVITSCH. *Kolloid-Z.*, 76 (1936), 338; through *J. Soc. Chem. Ind.*, 55 (1936), 1053B. (E. G. V.)

Simmondsia Californica—Seed Wax of. The seeds, extracted with light petroleum, yield 48% of golden yellow oil which, when completely hydrolyzed, gave approximately equal weights of fatty acids and fatty alcohols. The chief acid was found to be $\Delta^{11:12}$-eicosenoic acid with small amounts of higher acid (possibly docosenoic) and a small amount of oleic and palmitic acids. The alkyl portion was a mixture of C_{20} and C_{22} unsaturated alcohols; $\Delta^{13:14}$-docosenol was identified and an equal or slightly larger proportion is probably $\Delta^{11:12}$-eicosenol.—T. G. GREEN, T. P. HILDITCH and W. J. STAINSBY. *J. Chem. Soc.* (1936), 1750–1755. (G. W. F.)

Wheat Germ—Fat and Phosphatide Content of. Nearly 63% of the phosphatides in the wheat are "bound" and the total amount of phosphatides is 0.611%, with 80% of the lecithin type and 20% of the kephalin type. The amount of petrol-ether soluble fat is 6.7% and another

amount of 0.85% fat can be extracted in a second extraction with a mixture of solvents.—BRUNO REWALD. *J. Soc. Chem. Ind.*, 55 (1936), 1002. (E. G. V.)

Unclassified

Antimoniothiomalic Acid—Alkali Metal Salts of. By reactions such as those of sodium and lithium hydroxides with pure thiomalic acid, therapeutic salts are obtained which are quite stable when kept in the absence of oxygen. Various details of preparation are given.—MARCEL DELÉPINE and PAUL GAILLOT, assignors to SOCIÉTÉ DES USINES CHIMIQUES RHÔNE-POULENC. U. S. pat. 2,060,181, Nov. 10, 1936. (A. P.-C.)

Bactericidal Properties—Aromatic Derivatives Possessing, Process for the Preparation of. An aralkyl group is substituted in the amino group of *p*-aminobenzenesulfamide. The aralkyl group may contain various substituents in the nucleus, such as hydroxy- or sulfo-.—SOC. DES USINES CHIMIQUES RHÔNE-POULENC. Belg. pat. 415,911, July 31, 1936. (A. P.-C.)

Bismuth Salts in Oil—Organic Assimilable, Improvement in Processes for Obtaining. A solution of a bismuth salt is treated with an aqueous solution of an alkali metal salt of a hydrocarboxylic acid and of an alkali metal salt of an unsaturated higher fatty acid of the oleic acid series. The precipitated bismuth oleate-hydrocarboxylate is dissolved in oil.—D. GARDNER. Belg. pat. 412,734, Jan. 31, 1936. (A. P.-C.)

Chlororesorcinols—Alkyl. Compounds such as secondary hexyl chlororesorcinol, secondary heptyl chlororesorcinol and secondary octyl chlororesorcinol are obtained by chlorinating alkyl resorcinols or by alkylating the chlororesorcinol nucleus, and are suitable for use as antiseptics and may be used for internal administration.—WILLIAM E. AUSTIN, assignor to BANK OF THE MANHATTAN CO. U. S. pat. 2,060,654, Nov. 10, 1936. (A. P.-C.)

Chromium—Oxyacids of, Aryl Mercury Salts of. Germicidal and therapeutic compounds such as phenylmercury chromate and dichromate may be used in mouth washes, tooth pastes, soaps, ointments, etc. (details of their preparation being given).—CARL N. ANDERSEN, assignor to LEVER BROS. CO. U. S. pat. 2,059,196, Nov. 3, 1936. (A. P.-C.)

Cytisine—Synthesis of Local Anesthetics from. Condensation of the appropriate γ-chloropropyl esters with cytisine yielded the benzoate, cinnamate, phenyl- and α-naphthylcarbamates and *p*-aminobenzoate of N-γ-hydroxy-propylcytisine, which, except the α-naphthylcarbamates, were non-crystalline and isolated as hydrobromides. Cytisine combines with ethylene oxide to form N-β-hydroxyethylcytisine. Its benzoate and cinnamate were prepared as hydrobromides. All, except the *p*-aminobenzoate, had pronounced local anesthetic properties, and, except for the *p*-aminobenzoate, appeared less toxic than cocaine. The introduction of alkyl ester group removes the characteristic pharmacological properties of cytisine.—H. R. ING and R. P. PATEL. *J. Chem. Soc.* (1936), 1774–1775. (G. W. F.)

Formaldehyde—Condensation of Ketones with, in Alkaline Media. In the condensation of formaldehyde with ketones in the presence of potassium carbonate, working in the cold in the presence of a large excess of ketone, ketoglycols are obtained. From methylethylketone, methyl-2-acetyl-2-propanediol-1, 3, b. p. 142–144° at 14 mm., after recrystallization from anhydrous benzene, melts at 66°; from diethylketone, methyl-2-propinonyl-2-propanediol-1,2, boils at 148–150° at 16 mm., m. p. 55°; from methylisopropylketone, dimethyl-2, 2-butanol-1-one-3, b. p. 85–86° at 16 mm.; from diisopropylketone, methyl-4-dimethyl-2, 2-pentanol-1-one-3, b. p. 97–98° at 20 mm. Derivatives of the above are given.—JEAN DECOMBE. *Compt. rend.*, 203 (1936), 1077. (G. W. H.)

Hexamethylene Compositions Suitable for Therapeutic Uses. Calcium thiocyanate is used with methenamine or ammonia-formaldehyde.—HEINRICH JUNGMANN, assignor to KALI-CHEMIE A. G. U. S. pat. 2,059,462, Nov. 3, 1936. (A. P.-C.)

Mercury Aromatic Carboxylates—Aryl. Germicidal and therapeutic compounds such as phenylmercury salicylate (m. p. 158° C.), phenylmercury gallate, phenylmercury anisate (m. p. 132° to 133° C.), phenylmercury thiosalicylate, phenylmercury acetylsalicylate (m. p. 158° to 159° C.), phenylmercury syringate and phenylmercury *o*-cresotinate (m. p. 107° to 108° C.), are, in general, prepared by reaction of phenylmercury hydroxide with the corresponding acid (various details of procedure being given.—CARL N. ANDERSEN, assignor to LEVER BROS. CO. U. S. pat. 2,059,195, Nov. 3, 1936. (A. P.-C.)

Methenamine and Nitroprussides—Combinations of. Combinations of methenamine

with alkali or alkaline-earth metals and nitroprusside have been prepared corresponding to the general formulas: I. Me^{++} $Fe(Cn)_5.NO.2(CH_2)_6N_4.nH_2O$. II. Me^{++} $Fe(CN)_5.NO.(CH_2)_6N_4.nH_2O$. Compounds of the first type are prepared by adding a solution of sodium nitroprusside to a hot concentrated solution of an alkali, alkaline-earth or magnesium salt and methenamine, almost immediately a crystalline precipitate is formed which is washed with alcohol and air dried. Well crystallized salts are formed which are soluble in water and insoluble in the ordinary organic solvents. Mineral acids decompose them with the evolution of formaldehyde. Combinations of calcium, strontium, barium, magnesium, potassium, sodium and lithium are described. Compounds of the second type are obtained if a concentrated solution of sodium nitroprusside is added to dilute solutions of alkaline-earth or magnesium salts. Compounds of calcium, strontium and magnesium are described.—EMMANUEL VOYATZAKIS. *Compt. rend.*, 203 (1936), 1365.

(G. H. W.)

Phenols and Tri-isobutylene—Condensation Products of. Equimolecular proportions of tri-isobutylene and a phenol are treated with less than an equimolecular proportion of concentrated sulfuric acid to produce a condensation product which contains one free phenolic hydroxyl group such as tetramethylbutylphenol (an antiseptic and dye intermediate).—WILLIAM F. HESTER, assignor to RÖHM and HAAS Co. U. S. pat. 2,060,573, Nov. 10 1937. (A. P.-C.)

Polynuclear Cyclic Ketones—Process for the Preparation of Unsaturated Substituted, from Sterols and Bile Acids. Sterols and bile acids are treated with oxidizing agents, and the neutral products are separated from the reaction mass. The double bonds are regenerated and the cyclic ketone derivatives are isolated by means of appropriate reagents. The free ketones are regenerated from these derivatives and the protected hydroxyl groups are reconverted into free hydroxyl groups.—SOCIÉTÉ POUR L'INDUSTRIE CHIMIQUE & BÂLE. Belg. pat. 414,067, March 31, 1936. (A. P.-C.)

Thymols—Arsenic Derivatives of. Thymolarsenic acid-2 (I) is obtained from a diazotate 2-aminothymol and sodium arsenite in a solution of dilute sodium hydroxide. This compound is slightly soluble in hot water but very soluble in dilute alcohol. The alkaline solution, light yellow in color, yields with bromine, in an acid solution, 6-bromothymolarsenic acid-2 (needles, m. p. 204°). With iodine in alkaline solution it forms a new compound 6-iodothymolarsenic acid-2 which also separates in needle-like crystals, m. p. 195°. I is comparatively stable against reducing agents; however on long standing it reacts with sulfur dioxide to form small quantities of thymolarsenic acid anhydride, an amorphous powder which does not change at 320°. It is oxidized to arsenic acid with the use of peroxide and iodine. With iodine in the presence of sodium bicarbonate, the AsO not only changes to AsO_3H_2, but also introduces iodine into the ring. I when reduced with PO_2H_3 yields arsenothymol, a brown powder. Thymoldichloroarsenic acid is formed in using hydrochloric acid during the oxidation process, m. p., 60–62°.—V. BELLAVITA and M. BATTISTELLI. *Atti Cong. Naz. Chim. Pura*, 5 (1935), 3; through *Chem. Zentralb.*, 107 (1936), 1412. (G. B.)

Trichloroiodide—Reaction of, on Acetanilid. The author makes the attempt to put in application the reaction between trichloroiodide and acetanilid with the formation of N-dichloroiodoacetanilid. The trichloroiodide in the form of its double salt KCl = $KCl.ICl_3$ is reacted with acetanilid in chloroform. The reaction occurs at room temperature with the separation of potassium chloride. The dichloroacetanilid formed separates as a brownish oil which crystallizes slowly. The yellow crystals melt at 127°. If boiled with water or a dilute solution of alkali or sodium carbonate the crystals change from yellow to colorless crystals of 4-chloroacetanilid, (needles, m. p., 174°). The compound can also be obtained by heating dichloroacetanilid for 80 hours in a paraffin bath at 105°; then again heated for 8 hours with glacial acetic acid at 130°. The constants of the compound are ascertained through the addition of nitric acid at 0° when a new compound forms: 4-chloro-2-nitroacetanilid, m. p., 101°; this compound is saponified to 4-chloro-2-nitroaniline (yellow needles, m. p., 116°). When dichloroiodoacetanilid is dissolved in nitric acid and the solution kept at 0° for two hours, and then poured over ice, two compounds separate out: 4-nitroacetanilid and 4-chloro-2-nitroacetanilid. These two compounds can be separated by cooling the mixture to 0° and adding dilute alcohol (20%); when 4-chloro-2-nitroacetanilid goes in solution and 4-nitroacetanilid separates (crystalline needles, m. p., 214°; when saponified with alkali they yield in the cold 4-nitroaniline (yellow crystals, m. p., 146°).—E. CREPAZ. *Atti. R. Ist. Veneto Sci. Lettere Arti*, 94 (1934), 555–562; through *Chem. Zentralb.*, 107 (1936), 1411.

(G. B.)

Whisky—Acid Content of. Titration curves were obtained on different aged samples of the same whisky by means of a glass electrode potentiometric method using carbon dioxide-free 0.046 *N* sodium hydroxide as titer. From the variation of the successive displacements of the curves as the age of the whisky increases, the conditions and evironment of the storage warehouse can be predicted approximately. The dissociation of the weak organic acids present in whisky is governed, to a considerable extent, by the concentration of ethyl alcohol and shows a marked change when the whisky is diluted with distilled water, 95% ethyl alcohol, or a 50% ethyl alcohol solution.—S. T. SCHICKTANZ and A. D. ETIENNE. *Ind. Eng. Chem.*, 29 (1937), 157.

(E. G. V.)

BIOCHEMISTRY

Aneurin—Vitamin B_1. Review of historical development from initial nutritional observations to present day syntheses. The hope is expressed that vitamin B_1 can be prepared commercially by synthesis for less than a Dutch guilder (54.65 cents) per gram so that it may be available for general treatment in the Orient. It is believed that each new vitamin should receive a trivial chemical name as soon as it is isolated in the pure state and, accordingly, the name "aneurin" is preferred for the antineuritic vitamin B_1.—B. C. P. JANSEN. *Klin. Wochschr.*, 16 (1937), 9.

(C. R. A.)

Ascorbic Acid—Stability of, in Urine and in Watery Solution, with a View to the Conditions in the Urinary Tract. The stability of ascorbic acid in the urine appeared to be dependent upon the p_H and oxygen tension; with a weakly acid, neutral or alkaline urine the ascorbic acid may be largely oxidized while still in the urinary tract. Phosphate reduced or abolished the stability of ascorbic acid even at p_H of 4.8, whereas sodium citrate, lactate or acetate prevented oxidation even at higher p_H values. The phosphate effect was counterbalanced by chloride, so that up to a phosphorus concentration of 80 mg./100 cc. and a p_H of 5.2 there was a quantitative relation between the phosphorus ion and the chloride ion concentration required to maintain the stability of ascorbic acid. Above this concentration of phosphorus ions no further chloride was required unless there was a p_H shift toward the neutral point. Uric acid and creatinine would also maintain the stability of ascorbic acid in dilute phosphate mixtures, but creatine and urea accelerated the oxidation. The reversibility of oxidized ascorbic acid on treatment with hydrogen sulfide was found to be approximately quantitative in dilute mixtures with additions of urea or creatine.—H. LUND and H. LIECK. *Skand. Arch. Physiol.*, 74 (1936), 255–268; through *Physiol. Abstr.*, 21 (1937), 851. (E. V. S.)

Biological Material—Spectrographic Analysis of. II. Bismuth. A method is reported for the spectrographic determination of bismuth in biological material. The method is capable of detecting 0.00004 mg. of bismuth and can be used to determine quantities from 0.001 to 3.00 mg. with an average error of ±10%. Samples as small as a fraction of a gram of tissue or 25 to 50 cc. of urine may be used.—J. CHOLAK. *Ind. Eng. Chem., Anal. Ed.*, 9 (1937), 26. (E. G. V.)

Bromine—Gastric Secretion of, in the Course of Therapeutic Bromination. Minute quantities of bromine have been shown to be a normal constituent of the gastric juice (*Ibid.*, 203 (1936), 1293.). The bromine of the gastric juice was determined at intervals in a subject who received 33 Gm. of sodium bromide in the course of two weeks. The quantity of bromine steadily increased, reaching a maximum of 281 mg. per 1000. The quantity of chlorine was 155 mg. per 1000, thus inversing the ordinary ratio of Br/Cl.—CAMILLE CHATAGNON. *Compt. rend.*, 203 (1936), 1938. (G. W. H.)

Bromine in the Gastric Juice. Bromine and chlorine were determined in the gastric juice of 18 subjects by the method of A. Damiens (*Ibid.*, 171 (1920), 779). A variation of from 0.087 mg. to 2.57 mg. per 1000 was found. The average ratio of Br/Cl per 1000 in the gastric juice is 2.43. The ages of the subjects ranged from 18–72 and bromine was found in the gastric juice of all. It was concluded that bromine has a part in the normal secretion of the stomach.—CAMILLE CHATAGNON. *Compt. rend.*, 203 (1936), 1293. (G. W. H.)

Calcium—Determining, in Blood Serum. Place 2 cc. of serum in a test-tube, dilute with 2 cc. of water and 0.5 cc. of saturated ammonium oxalate, shake and allow to stand over night. Filter by the use of a 30-cc. sintered-glass Buchner funnel and wash with ammonia water (4 cc. of concentrated ammonia to 250 cc.). After removing the funnel, rinse out the portion below the filter, place the funnel on top of test tube in the suction flask, dissolve the precipitate through the

filter with three 2-cc. portions of hot *N* sulfuric acid, applying suction after each addition of acid and wash the filters with water. Remove and rinse the test-tube and lower portion on filter into a 50-cc. beaker, heat to boiling and titrate with dilute permanganate from a Koch automatic microburette.—H. K. MURER. *Ind. Eng. Chem., Anal. Ed.*, 9 (1937), 27. (E. G. V.)

Carotene. IX. Carotenes from Different Sources and Some Properties of α- and β-Carotene. Crystalline α-carotene was isolated from carrot leaves and found to be identical with that from carrot roots and from palm oil. All sources of carotene examined contained β-carotene as the principal component of the carotene mixtures, and fifteen kinds of leaves were found to contain β-carotene, with no α-carotene. Most sources of carotene, including leaves, contained colorless substances which influenced the adsorption of carotene, and which often crystallized with the carotene even after the latter had been isolated by adsorption. With the exception of the behavior upon adsorption columns, no properties of the carotenoids have been discovered which are more characteristic or more readily determined with equally small quantities of material than the absorption spectra or the wave lengths at maximum absorption.—H. H. STRAIN. *J. Biol. Chem.*, 111 (1935), 85–93; through *Physiol. Abstr.*, 21 (1937), 806. (E. V. S.)

Copper—Determination of, in Organ Tissues. The tissue is ashed and the ash dissolved in dilute nitric acid. Iron is precipitated by ammonia. The filtrate is heated to boiling and a solution of α-nitroso-β-naphthol in 50% acetic acid added to precipitate the copper. The precipitate is ignited to cupric oxide.—Z. GRUZEVSKA and MME. G. ROUSSEL. *Compt. Rend. Soc. Biol.*, 120 (1935), 934–936; through *Chimie & Industrie*, 36 (1936), 493. (A. P.-C.)

Dehydroascorbic Acid Reductase. Preliminary studies on the determination of vitamin C in vegetables with 2,6-dichlorophenolindophenol; studies will be made to determine biologically whether increased reducing effect is accompanied by an equivalent antiscorbutic effect.—E. F. KOHMAN and N. H. SANBORN. *Ind. Eng. Chem.*, 29 (1937), 189. (E. G. V.)

Estrogenic Substances—Artificial Production of, from Certain Sterols. I. Synthesis of the Estrogenic Substance from Animal Sterols. The authors give the following summary: Theoretical considerations are set out for the synthesis of the follicular hormone from agnosterol on the basis of data obtained from an analysis of the ultraviolet absorption spectra of both compounds and the statements are confirmed by chemical analysis of agnosterol. The synthesis, starting from agnosterol, was based on the oxidative fission of the side chain of agnosterol, the ring and structure and substituents being previously protected. This synthesis, however, is to be considered from the chemical point of view only as preliminary; both intermediate and final products, could not be definitely identified under the circumstances given. For the time being, it is still an open question whether the synthetic product is similar in its chemical constitution, to the follicular hormone (theelin), or should be considered as a new product, possibly a sterol derivative possessing a high estrogenic activity even when not completely purified. The biological assay by the Allen-Doisy test, as well as by tests on rabbits and monkeys, gave evidence that the final product from the synthesis is of high estrognetic activity when subcutaneously injected in 0.1-mg. doses in oil.—IGOR REMESOW and N. TAVASTSTJERNA. *Rec. trav. chim.*, 55 (1936), 791. (A. C. DeD.)

Estrogenic Substances—Artificial Production of, from Certain Sterols. II. Synthesis of an Isomer of the Follicular Hormone from Vegetable Sterols. The following summary is given: The synthesis of the follicular hormone (theelin) or an isomer equivalent in activity has neo-ergosterol as its starting product. This compound is obtained by the photochemical oxidation of ergosterol. The synthesis is based on the oxidative degradation of the side chain and its replacement by an oxygen atom in the neo-ergosterol molecule, which contains in its ring structure a system of aromatic rings, identical with that in natural theelin. The synthetic product, obtained in crystalline condition, had the empirical formula $C_{18}H_{22}O_2$ and a physiological activity amounting to 10 million mouse units per gram. It remains to determine the constitutional formula of the product and to compare its physico-chemical properties with those of chemically pure, natural, crystalline theelin.—IGOR REMESOW. *Rec. trav. chim.* 55 (1936), 977. (A. C. DeD.)

Fishing Industry—By-Products of. Among the by-products of the fish industry are fish meal, fish manure, fish glue, isinglass, leather and fish oils. Possibilities for the production of further by-products lie in the field of glandular extracts, such as insulin and liver extracts.—J. A. LOVERN. *J. Soc. Chem. Ind.*, 56 (1937), 75. (E. G. V.)

Human Serum—Precipitate of the Proteins from Normal, by Ammonium Sulfate. Pre-

cipitation of globulins begins at 30% saturation with ammonium sulfate and is not complete until 60% saturation is reached, instead of 50% as commonly believed. Precipitation of albumin begins at 60% saturation and is complete by 70% saturation.—ANDRÉE ROCHE, M. DORIER and L. SAMUEL. *Compt. rend. soc. biol.*, 121 (1936), 1019–1021; through *Chimie & Industrie*, 36 (1936), 493. (A. P.-C.)

Insulin—Distribution of Sulfur in Crystalline. The sulfur in insulin is similarly distributed, as in wool; 94% are in cystine linkage, 5% as methionine.—BEATRICE KASSELL and ERWIN BRAND. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 444. (A. E. M.)

Insulin—Inactivation of. The Effects of Certain Metal Derivatives and of Sulfydryl Compounds. The metallic compounds, cuprous oxide and phenylmercuric hydroxide, which are known to form with certain sulfydryl compounds relatively stable mercaptides, and to inactivate reversibly certain enzymes, have no effect upon the activity of crystalline insulin under the conditions used. Insulin is readily inactivated when treated with benzoquinone in a nitrogen atmosphere in $M/15$ sodium acid phosphate solution, but not in $0.01N$ hydrochloric acid. Hydroquinone does not influence the physiological activity under the same conditions. Unlike cysteine and glutathione, the thiolglyoxalines, thiolhistidine and argothioneine do not inactivate insulin; thiolsalicylate ion, under comparable conditions, does. Ascorbic acid, alone or in presence of ferrous ions, under a variety of conditions tried, alter the activity of insulin.—E. D. SCHOCK, H. Jensen and L. HELLERMAN. *J. Biol. Chem.*, 111 (1935), 553–559; through *Physiol. Abstr.*, 21 (1937), 807. (E. V. S.)

Marine Foodstuffs—Arsenic Content of. The normal arsenic content of various fish, crustacea, etc., from the coast of Norway has been determined. Values obtained range from 0.2 mg. for mussels to 1.3 mg. per 100 Gm. for shrimps.—N. LUZANSKI. *Tids. Kjemi*, 15 (1935), 154; through *J. Soc. Chem. Ind.*, 55 (1936), B., 568. (E. G. V.)

Menhaden Fish Oil—Vitamin D Content of. Menhaden fish oil tested by the chick assay method was found to be relatively high in vitamin D content. A sample of oil from so-called thin fish was found to be at least twice as potent as a sample of oil from medium fat fish from the same catch. Oil from thin fish gave a bone ash of 45.84% when fed at a $^1/_8$% level, and medium fish oil gave a value of 45.91% at a $^1/_4$% level. The tentative 4-week chick assay method was used.—W. C. SUPPLEE. *Ind. Eng. Chem.*, 29 (1937), 190. (E. G. V.)

Provitamin D Products—Preparation of, Which Can Be Activated toward Chicks. A mixture of sterols containing provitamin D is esterified by means of an acid which does not give rise to considerable absorption. The provitamin D content is increased by fractional absorption carried out to such a degree that the increase can be continued by subsequent purification by crystallization from a solvent.—N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Belg. pat. 416, 160, July 31, 1936. (A. P.-C.)

Sodium in Wine—Detection and Determination of, and the Sodium Content of Palatinate Wines. Precipitation of sodium as $NaOAc.Mg(OAc)_2.3UO_2(OAc)_2.6H_2O$ is a sensitive and specific means of determination. A procedure is outlined for its determination in wine and the ash and sodium contents of 70 Palatinate wines of 1934 and 1935 are recorded.—O. REICHARD. *Z. Unters. Lebensm.*, 71 (1936), 501; through *J. Soc. Chem. Ind.*, 55 (1936), 1064B. (E. G. V.)

Sterol Group—Biochemistry of. A lecture on the sex hormone group.—A. BUTENANDT. *J. Soc. Chem. Ind.*, 55 (1936), 990. (E. G. V.)

Vitamin A—Destruction of, by Rancid Cod Liver Oil. The curve of a potency (Vitameter test) plotted against peroxide value falls much more steeply when rancidity develops naturally at room temperature than in accelerated oxidation tests at 100°.—D. V. WHIPPLE. *Oil and Soap*, 13 (1936), 231; through *J. Soc. Chem. Ind.*, 55 (1936), 1106B. (E. G. V.)

Vitamin C—Do Common Liver Preparations Contain. Commercial liver preparations give positive I and Tillmans titrations, but show no antiscorbutic activity.—F. DIEHL, H. MOLL and H. SCHRODER. *Klin. Woch.*, No. 14 (1936) 1073; through *J. Soc. Chem. Ind.*, 55 (1936). B., 715. (E. G. V.)

Vitamin C—Stability of, and Absence of Ascorbic Acid Oxidase in Citrus Fruits and Milk. Neither citrus fruits nor milk contain an oxidase which would destroy vitamin C. The partial destruction occurring in milk is probably due to traces of copper.—HENRY TAUBER. *Proc. Soc. Exptl. Biol. and Med.*, 35 (1936), 422. (A. E. M.)

Vitamin Control. An address describing the biological assay of vitamins A and D.—G. DUBOIS. *Ann. zymol.*, 3 (1936), 163–175. (A. P.-C.)

Yeast. For increasing the ergosterol content of yeast, it is cultivated in the presence of a nontoxic oxidizing agent such as a persulfate, percarbonate, peracetate, hydroquinone, indigo carmine, methylene blue or a peroxide of sodium, potassium or calcium in an aerated nutritive medium deficient in assimilable nitrogen, at a temperature of about 30° to 38° C.—WILLIAM G. BENNETT, assignor to STANDARD BRANDS, INC. U. S. pat. 2,059,980, Nov. 3, 1936. (A. P.-C.)

ANALYTICAL

Adsorption Indicators. III. Indicators Used for the Titration of Bromides. Fluorescein in neutral solution, bromophenol blue in acid medium, congo red, *o*-cresolphthalein, sodium alizarinsulfonate, chlorophenol red and safranin in weakly alkaline solution can be used as adsorption indicators in the titration of bromides by silver nitrate. With the last two mentioned dyestuffs it is necessary to add a protective colloid and to stir vigorously during titration.—T. AKIYAMA. *J. Pharm. Soc. Japan*, 55 (1935), 224–225; through *Chimie & Industrie*, 36 (1936), 486. (A. P.-C.)

Adsorption Indicators. IV. Use of Chlorophenol Red for Titrating Iodides and Thiocyanates with Silver Solutions. In presence of chlorophenol and in weakly alkaline solution, complete precipitation of silver thiocyanate is indicated by a change in color from violet-red to violet-blue, that of silver iodide by a change from violet-red to bluish green which tends more to blue as the iodide concentration is smaller. The limit of sensitiveness does not exceed a concentration of thirtieth-normal.—T. AKIYAMA and Y. MINE. *J. Pharm. Soc. Japan*, 55 (1935), 225–226; through *Chimie & Industrie*, 36 (1936), 486. (A. P.-C.)

Bismuth Pharmaceuticals—Colorimetric Assay of. Bismuth in bismuth creams, salves, and "Tabloid" products is determined more rapidly and conveniently by a modification of Leonard's method than by either the gravimetric sulfide or bismuth oxide method. The sulfide method has a positive error (average 2.7%) which is higher if the sulfide is dried at 100° than if dried *in vacuo*, apparently due to the formation of oxysulfide. The oxide method is about as accurate as the colorimetric.—C. S. LEONARD and A. CHAMPLIN. *Compt. rend. Cong. pharm. Liège*, Reprint 47, 197 (1934), 8 pp.; through *J. Soc. Chem. Ind.*, 55 (1936), B., 43. (E. G. V.)

Critic Acid—Determination and Content of, in Wine. Some improvements in the pentabromoacetone method are described. Citric acid is present in all grape musts, but may be completely destroyed during fermentation. In wines of the Palatinate the maximum content is approximately 300 mg. per liter, and in imported dessert wines 400 mg.—O. REICHARD. *Z. Unters. Lebensm.*, 72 (1936), 50; through *J. Soc. Chem. Ind.*, 55 (1936), 1122B. (E. G. V.)

Civet. A discussion of the use and collection of civet. Civet melts at 36–37°, soluble in ether-alcohol (equal parts), not more than 45% insoluble in cold alcohol, refractive index 15–20, free fatty acids not over 60%, saponification index higher than 100 (high qualities 140–180).—VICTOR HASSLAUER. *Am. Perfumer*, 33 (1936), No. 3, 53–55. (G. W. F.)

Cotarnine—Demonstration of, in Cotarnine Chloride and Other Pharmaceutical Preparations. Dissolve 0.05 Gm. of cotarnine chloride in 5 cc. of water and add to 2–3 cc. of a 15% sodium hydroxide solution; boil for a few minutes. The solution acquires an orange color, while an amorphous precipitate forms (at first white, then brown-yellow). Simultaneously a characteristic odor is developed—D. BARKOVIĆ. *Almanah. Kongr. Slov. Apot., 3rd Congr. Belgrade-Zagreb-Spalato*, 1934 (1935), 252; through *Chem. Abstr.*, 30 (1936), 8521. (E. V. S.)

Derris Extract—Approximate Colorimetric Determination of. A brief review of colorimetric methods for the determination of the constituents of derris extract is given. The method used is an improvement of the method of Fischer and Nitsche. *Procedure.*—One gram of air-dried derris powder is extracted with 10 cc. of acetone in a tightly stoppered test-tube for 5 minutes. The supension is then filtered and 1 cc. of the filtrate is diluted to 25 cc. with distilled water. Two-tenths cc. of the well-shaken milky solution is pipetted into a dry test-tube and then 5 cc. of a solution of sodium nitrite in concentrated sulfuric acid (100 mg. in 1000 cc.) is slowly added. The addition of the sulfuric acid to the aqueous solution causes sufficient heat to produce the maximum color. The color is measured in a Pulfrich "Stufenfotometer" with a S 53 (wave-length 530) filter. The percentage of ether extract can be easily calculated from the measurements as the relation between color intensity and ether extract is practically that required by Beer's Law. The

data on the measurements for the various light filters are recorded in a table. The extinction coefficient curve of derris extract and also the absorption curve of a sample with 10.8% extraction is given.—T. M. MEIJER. *Rec. trav. chim.* 55 (1936), 954. (A. C. DeD.)

Digitalis—Colorimetric Estimation of. Use is made of the orange-red color obtained with cardiac glucosides in alkaline picric acid solution. By comparing the photometer readings with a calibration curve made with *k*-strophanthidin, the glucoside content can be determined and the molecular weight calculated. The readings do not predict the pharmacological activity of a glucoside, since inert allocymarin gives the same color intensity as the highly active cymarin.—W. NEUMANN. *Hoppe-Seyl. Z.*, 240 (1936), 241; through *Physiol. Abstr.*, 21 (1937), 799. (E. V. S.)

Essential Oil Esters—Estimation of. The method of Duclaux (*Ann. chim. phys.*, 121 (1874), 289), in which the volatile acids of wine are characterized by fractional distillation with steam was applied to the study of the volatile acids, free or combined, in various essential oils. Apparently it furnishes a good indication of purity. The data obtained in the examination of oils of lavender, bergamot, clary sage, jasmine and violet are tabulated.—BERNARD ANGLA. *Parfums de France*, 14 (1936), 238–246 (in French and English). (A. P.-C.)

Essential Oils—Acetyl Number, of the French Codex. The acetyl number is expressed as Gm. acetic acid fixed by 100 Gm. of essential oil. Acetylation in pyridine determines only primary and secondary alcohols. It is of value for the following oils: neroli 3.4; peppermint 52.3, rose 58.5, sandalwood 78.1–79.6. It is necesssary to take into consideration the initial acidity and a possible ethyl alcohol content. The determination of esters and of free alcohols permits the calculation of total alcohols; this avoids the long and often inaccurate determination by acetylation. —R. DELABY and Y. BREUGNOT. *Bull. sci. pharmacol.*, 42 (1935), 589–596; through *Chimie & Industrie*, 36 (1936), 559. (A. P.-C.)

Eucalyptus Rostrata—Essence of, Analysis of. The essence of *Eucalyptus rostrata* has been fractionally distilled, pinene, *l*-limonene, cuminaldehyde, phellandral, isoamyl alcohol, isovaleric alcohol, cryptal, piperitone, linalol and geraniol, caproaldehyde, hexyl alcohol and formic, acetic and butyric acids are present in the distillate.—ANDREA GANDINI. *Ann. chim. applicata*, 26 (1936) 344–351; through *Chem. Abstr.*, 31 (1937), 210. (E. V. S.)

Fluorine—Determination of Small Quantities of, in Plant and Animal Material. After a short survey of various microchemical view points of proved methods, a procedure is given based on an indirect determination of fluorine by a colorimetric estimation of silicon. The principle of the method is simply the treatment of the fluoride with glass powder and sulfuric acid and the silicon tetrafluoride formed distilled into sodium hydroxide solution. The detection of the silicon is shown in the absorption liquid by a color reaction using ammonium molybdate, hydroquinone and sodium carbonate-sulfite solutions. The quantitative determination is based on a colorimetric comparison with a standard. The standard is prepared by adding ammonia water to a copper sulfate solution until the precipitate dissolves, then adding a picric acid solution and an exact quantity of a sodium silicate solution. Organic materials, such as vegetables, plant parts or foods, are first ashed and the fluoride in the water soluble portion is precipitated as lanthanum acetofluoride. This precipitate is mixed with the insoluble portion of the ash and subjected to the distillation of the procedure.—A. Mayrhofer and A. Wasitzky. *Mikrochem.*, 20 (1936), 29. (E. V. S.)

Glycerophosphates—Analysis of. II. Determination of Small Amounts of Orthophosphates in Glycerophosphates. Attention is directed to the need for a "sensitive quantitative routine" for determining orthophosphates in glycerophosphates. The time of formation of ammonium phosphomolybdate depends on so many factors that it is unreliable as a qualitative limit test. Presence or absence of a particle of dust or an air bubble, manner of addition of reagent, rate of agitation all have an effect. Experimental details are reported and the following method worked out. *Precipitation Reagent: Solution A.*—100 Gm. molybdic anhydride A. R., 120 cc. conc. ammonium hydroxide, and 300 cc. distilled water. Dissolve the molybdic anhydride by warming, add 380 cc. distilled water and cool. *Solution B.*—300 cc. conc. nitric acid, 20 Gm. ammonium nitrate, A. R., and 900 cc. distilled water. Add solution A to solution B with constant stirring. Allow to stand at least 24 hours. Filter through a fine quantitative paper immediately prior to use. This reagent must be stored in a cool place. At higher temperatures molybdic acid is precipitated, rendering the reagent insensitive. In case such precipitation occurs the reagent

should be discarded. *Procedure:* Place in a 150-cc. beaker sufficient sample (1 to 5 Gm.) to give no more than 0.15 Gm. yellow precipitate. Add 10 cc. distilled water. In the case of sodium, calcium and manganese salts add nitric acid drop by drop until acid to methyl orange and solution is complete; in the case of the ferric salt effect solution by warming on the steam-bath with constant stirring. If solution is incomplete, filter, keeping the volume below 20 cc. In a second beaker warm to 55° C. *on the steam-bath* 100 cc. of freshly filtered precipitation reagent, then pour into the beaker containing the sample. Stir, let stand fifteen to twenty minutes, filter through a Gooch crucible dried at 120–130° C., transferring the precipitate by means of a rubber policeman; wash thoroughly with a solution of 5 cc. of nitric acid per 100 cc. of water, and dry to constant weight at 120–130° C. Percentage orthophosphate as $P_2O_5 = \frac{\text{Wt. yellow precipitate} \times 0.0376 \times 100}{\text{Wt. sample}}$.

The method is accurate to ±0.003% phosphate as P_2O_5.—R. M. HITCHENS and M. S. MCCAULEY. *J. Am. Pharm. Assoc.*, 25 (1936), 990. (Z. M. C.)

Horned Rye—Determination of the Alkaloids in. The methods of Broom and Clark and of Smith are modified.—M. AUSTONI. *Boll. Soc. Ital. Biol. Sper.*, 10 (1935), 643; through *J. Soc. Chem. Ind.*, 55 (1936), B., 571. (E. G. V.)

Morphine—Microdetermination of, in Poppy Plant and Opium. A disintegrated specimen (0.3–0.4 Gm.) is extracted with 8 cc. of concentrated barium hydroxide solution by 2 alternate heatings and centrifuging. An aliquot part of the supernatant solution is treated with acetic acid to p_H 0.5, and morphine is determined by the colorimetric method of Déniges (*Compt. rend.*, 151 (1910), 1062).—A. GINSBERG and N. KRASHEVSKII. *Org. Chem. Ind.* (*U. S. S. R.*), 2 (1936), 104–107; through *Chem. Abstr.*, 31 (1937), 501. (E. V. S.)

Oils—Indian Vegetable. II. Dielectric Constant and Electric Moment. The dielectric constants of castor, olive, sesamé, coconut, linseed, poppy and rape oils were determined by the Nernst bridge method and their molecular weights were found by the cryoscopic method. The electric moments are calculated and the results discussed in connection with the constitutional formulas of the oils.—G. N. BHATTACHARYYA. *Indian J. Physics*, 10 (1936), 281; through *J. Soc. Chem. Ind.*, 55 (1936), 1053B. (E. G. V.)

Peppermint Oil—English. The physical constants of the 1936 crop oil is compared with the 1935 crop obtained from the same fields and plants.—ERNEST J. PARRY and G. FERGUSON. *Chem. and Drug.*, 125 (1936), 408. (E. V. S.)

Percaine—Determination of, as Silicotungstate. The saturation of silicotungstic acid with an alkaloid is made theoretically in the proportion of 1:4. Percaine is an exception to this rule, and in the formula $SiO_2.12TuO_3.2H_2O$. n(alkaloids). n H_2O, n = 2. The limit of sensibility of precipitation is expressed in the percaine base and it acts according to Bertrand's method. In the cold there was obtained under proper conditions a turbidity in two minutes at a dilution of 1:400,000 and at 1:2,500,000 when the solution is boiled after the addition of the reagent and allowed to cool. An exact quantity of percaine was weighed and dissolved in 80–100 cc. of distilled water and acidified with 2% of concentrated hydrochloric acid, a 5% aqueous solution of silicotungstic acid was added by means of a burette, shaking after each addition until there was no turbidity. Let stand 24 hours, filter and wash the precipitate with a solution of 2% hydrochloric acid. The precipitate of percaine-silicotungstate is white. The filter is dried at 100° and calcined in a tared crucible. The coefficient found experimentally was 0.2467 and was nearly that of the theoretical coefficient $\frac{2 \times \text{molecular weight of percaine}}{\text{Molecular weight } SiO_2.12\ TuO_3} = \frac{686}{2844.06} = 0.24.12$.—CRISTOFORO MASINO. *Giorn. farm. chim.*, 84 (1935), 288. (A. C. DeD.)

Phenolphthalein in Mineral Oil Emulsions—Determination of. A detailed procedure is given. The agar is separated by treating with alcohol and ether. The mixture containing the phenolphthalein is extracted with dilute alkali, then precipitated with sulfuric acid. After further treatment it is weighed.—C. F. BRICKFORD and R. E. SCHOETZOW. *J. Am. Pharm. Assoc.*, 25 (1936), 1128. (Z. M. C.)

Potassium—Microdetermination of. A review of the methods of microanalysis of potassium using the following: sodium cobaltihexanitrite, chloroplatinic acid, perchloric acid, perrhenium acid, zirconium sulfate, tartaric acid, organic reagents, and physico-chemical methods.—CH. CIMERMAN and C. J. RZYMOWSKA. *Mikrochem.*, 20 (1936), 129. (E. V. S.)

Primary Alcohols—Rapid Method of Detection and Approximate Determination of, in the Presence of Secondary and Tertiary by Formation of the Triphenylmethyl Ethers. It has been found that on heating an alcohol with excess of triphenylchloromethane in a neutral solvent such as benzene, toluene or xylene (toluene has been found as the best solvent for alcohols used in perfumery or present in essential oils) the reaction takes place principally on the primary alcoholic function. The resulting hydrogen chloride is titrated with silver nitrate and gives a measure of the etherification. There are several theoretical arguments against this method such as action of hydrogen chloride on the solvent, on the esters or ethers, on the double bonds, chlorination of the hydroxyl or fixation of the triphenylmethyl group on the benzene nucleus in the case of aliphatic aromatic alcohols, but practice has shown that if any of these reactions take place it is only in a negligible degree. The following procedure is used: 2 Gm. of triphenylchloromethane is dissolved in 20 cc. of pure toluene. The apparatus must be thoroughly dried. The mixture is kept at gentle boiling for a half-hour while bubbling dry carbon dioxide through the solution. On cooling 0.1–0.5 Gm. of dried sample is added and the mixture boiled from 40 to 90 minutes according to the particular case. The resulting gas is received in a flask containing 20 cc. of $N/5$ alcoholic silver nitrate, the excess is titrated with thiocyanate and the percentage of primary alcohol calculated according to the formula: $\frac{\text{cc. } N/10\ AgNO_3 \times \text{M. W.}}{s \times 100 \times n}$ (s = wt. of sample, n = valence of alcohol). Figures are given for numerous primary, secondary, tertiary alcohols, glycols, phenols, amines and mixtures.—SEBASTIEN SABETAY. *Compt. rend.*, 203 (1936), 1164. (G. W. H.)

Pyrethrin I—Determination of. The isolation of chrysanthemum-monocarboxylic acid (I) is described. In Seil's method (*Ber.* (1934), 603) for determining pyrethrin I, loss of (I) occurs during steam distillation. The distillate contains other acids soluble in light petroleum which are titrated as (I). (I) may be determined by Deniges reagent, reduction of Hg being ascertained by titration with potassium iodate.—F. WILCOXON. *Contr. Boyce Thompson Inst.*, 8 (1936), 175; through *J. Soc. Chem. Ind.*, 55 (1936), 1177B. (E. G. V.)

Rotenone—Determination of. Ethyl acetate is a new and very efficient solvent for rotenone in derris and Mundulea samples. With ethyl acetate the soxhlet extraction is replaced by a hot percolation taking only $^3/_4$–$2^1/_2$ hours, according to the quantity of material required to be extracted. A weighed amount of pure rotenone is added to all extracted resins so as to bring the content up to at least 40%; 1 Gm. is added even if already up to or above 40%. Rotenone is separated as its carbon tetrachloride complex and some precautions are discussed. The purity of the complex is accurately determined by stirring with alcohol, and apart from occasional samples is always between 91 and 96%, with a mean value of about 94%. The purity of the rotenone after the alcohol recovery treatment is on the average 99.2%, with a range from 89.9 to 99.6% except in a few exceptional cases. Purity of the complex can be determined by optical rotation and gives on the average results 2.6% high. For routine estimations it is sufficiently accurate in most cases to take the complex as being 94% pure. The addition of 5% by weight of decolorizing charcoal (B. D. H.) to derris, or 10% to Mundulea samples, gives better colored and purer extracts.—R. R. LE G. WORSLEY. *J. Soc. Chem. Ind.*, 55 (1936), 349T. (E. G. V.)

Salicylic acid, Thymol and Betanaphthol—Quantitative Determination of, by Iodine Titration. The modification of Wilkes method of iodine titer of phenols described by Gjaldbaek (*Skand. Arch. Physiol.*, 69 (1934), 151) for titration of *o*-cresol is applied to the titers of salicylic acid, thymol and β-naphthol in aqueous solution. Excess iodine is titrated with thiosulfate (starch indicator). For salicylic acid, 15 minutes reaction time is allowed in a 1% solution of salicylic acid is buffered with 30 cc. of molar sodium bicarbonate and 20 cc. of molar sodium hydroxide. One gram mole of salicylic acid is equivalent to 60,000 cc. of $N/10$ iodine. For thymol, 5 minutes reaction time is sufficient if an 0.25% solution is buffered within a range given in a table. One gram mole of thymol is equivalent to 40,000 cc. $N/10$ iodine. For β-naphthol, titrating a solution of 33 mg. in 60 cc. the buffering should be very alkaline, between 20 cc. molar bicarbonate plus 30 cc. molar sodium hydroxide or 50 cc. of sodium hydroxide alone. One gram mole of β-naphthol is equivalent to 20,000 cc. of $N/10$ iodine.—A. HEIDE and S. STENSIG. *Dansk Tids. Farm.*, 11 (1937), 13. (C. S. L.)

Silver—Electrolytic Determination of. The electrolysis is carried out in a total volume of about 7 cc. to which a little concentrated sulfuric acid and 1 cc. of 20% tartaric acid have been added. If an aqueous solution is to be analyzed, the addition of a few drops of the acid is sufficient,

but if a wet oxidation has been accomplished the acid solution should be reduced to less than 1 cc. At the start, the potential difference between the terminals is 1.3 to 1.4 volts, but after 15 min. it is increased to 1.8 volts and kept so for half an hour. Before breaking the circuit it is necessary to replace the electrolyte with water. In determining up to 3.6 mg. of silver the largest error was 0.005 mg.—A. FRIEDRICH and S. RAPOPORT. *Mikrochemie*, 18 (1935), 227–234; through *Chimie & Industrie*, 36 (1936), 488. (A. P.-C.)

Sodium Chlorite as a Volumetric Oxidizing Agent. Sodium chlorite of high purity is now available in quantities which permit it to be considered as a laboratory reagent, particularly as an oxidant in volumetric analysis. A sodium chlorite solution is easily prepared and standardized and is stable over a period of several months if kept in a dark bottle. Standard sodium chlorite solutions have been successfully used in the determination of sulfur dioxide, sulfites and bisulfites, and preliminary work indicates that their use can be extended to the quantitative oxidation of other reducing substances.—D. T. JACKSON and J. L. PARSONS. *Ind. Eng. Chem., Anal. Ed.*, 9 (1937), 14. (E. G. V.)

Tea Seed Oil—Test for, in Olive Oil. Three cc. of oil are mixed with 3 cc. each of chloroform and acetic anhydride and, after chilling in an ice-bath, 0.8 cc. of a freshly prepared mixture of 100 cc. of sulfuric acid with 10 cc. of glycerol is added dropwise while constantly shaking and chilling; the mixture is left for 1 hour at room temperature (shaking every 5 minutes until nothing more separates) and then rechilled at 0° for 5 minutes and while 3 cc. of water are very slowly admixed. After keeping for 5–10 minutes the final maximum (but fugitive) color is noted. The dark green color appearing in the first stages of the test persists in the case of pure olive oils (I), but changes dark red at the end in the case of tea seed oil (II); mixtures give intermediate tints the red-brown being recognizable with as little as 5% of (II) in (I). [If the final reaction mixture is cleared by addition of ethyl alcohol, pale yellow-brown colorations are obtained with (I).] Strongly rancid (I) and cottonseed oils give positive (red) reactions and sesamé (but not arachis) oil may also interfere.—W. SIEBENBERG and W. S. HUBBARD. *Oil and Soap*, 13 (1936), 194; through *J. Soc. Chem. Ind.*, 55 (1936), 1053B. (E. G. V.)

Urea—Colorimetric Determination of. The urea is destroyed with nitrous acid and the excess of the latter estimated by a diazo reaction with sulfanilic acid and phenol. Mix 1 cc. of blood or serum with water, 1 cc. of a 10% sodium tungstate solution and 2 drops of sulfuric acid, and bring to a volume of 10 cc. Heat to 100° C. and filter. Mix 5 cc. of the filtrate with 1 cc. of 2:10,000 solution of sodium nitrite and water to make 10 cc. Cover with a layer of liquid petrolatum. Add 30 drops of sulfuric acid, shake and heat to 65° C. for 25 min. Add 1 cc. of a solution of 1 Gm. sulfanilic acid and 1.5 Gm. phenol in 200 cc. of 2.5% sulfuric acid, shake, add 4 cc. of ammonia solution and compare with a standard after 5 min. The latter is prepared by using from 1 to 5 cc. of a 1:10,000 urea solution. The method is suitable for determining up to 1 Gm. of urea per 1000 cc. if 1 cc. is used. For higher concentrations use a correspondingly smaller quantity. Amino acids and ammonia do not interfere with the determination.—J. A. SANCHEZ. *Monitor Farmacia*, 47 (1936), 77–81; through *Chimie & Industrie*, 36 (1936), 491. (A. P.-C.)

Zinc Ointment—Zinc Oxide Content of, Volumetric Estimation of. It is shown that the zinc oxide content of zinc ointments can be determined easily by means of saturation analysis. A mixture of chloroform and a measured quantity of hydrochloric acid is used as a solvent for the ointment. It is suggested that the next edition of the D. A. B. use a two-phase liquid mixture for the examination of ointments in general, *e. g.*, the ointment base in an organic medium, such as chloroform, the active substance in an inorganic solvent, such as the metallic oxides in an acid, mercuric oxide or calomel in alkaline potassium iodide or sodium thiosulfate solution.—WALTHER AWE. *Pharm. Zentralh.*, 77 (1936), 589. (E. V. S.)

TOXICOLOGICAL CHEMISTRY

Glucosides—Supposed Presence of, in Corpses. Extracts of organs of fresh corpses exert an action on the heart of the frog (increase of systole, slowing of the rhythm) which has led to believe that viscera contain, *post mortem*, digitalis type glucosides. Organs that were putrefied or that were preserved in alcohol yielded a substance having a definite vagotonic action on the heart of the frog. Addition of digitalis to putrefied organs seems to inhibit the above-mentioned cardiographic action which is considered as being due to cadaveric poisons. The extracts of organs of putrefied corpses giving a positive Keler-Kiliani reaction (carmine coloration of digitalin), do

not reduce Fehling's solution (absence of glucosides) and sometimes give a precipitate with the most sensitive reagents for alkaloids (ptomaines?). It cannot be concluded that action of corpse extracts is due to a cadaveric glucose compound, and in all probability the cardiographic action is due to the presence of choline. These investigations are of particular interest in medico-legal toxicology (poisoning by digitalin).—V. SIRACUSA and O. SPADARO. *Riv. Patol. Sper.*, 16 (1936), 1–34; through *Chimie & Industrie*, 36 (1936), 490. (A. P.-C.)

PHARMACOGNOSY

VEGETABLE DRUGS

Elemi—Source of. Several species of *Bursera* have been exploited commercially, mainly on account of the high percentage of fragrant essential oil in the wood and fruit and also to a less extent for the sake of their resins. Many are used locally as a source of incense, and all Mexican works on materia medica contain references to their value in medicine, particularly in the treatment of uterine diseases; they are also used in the preparation of surgical dressings. The resin of some species is valued for the manufacture of varnishes; when the resin is dissolved in turpentine, varnish of high quality is obtained. Perhaps owing to the unsettled nature of large areas in Mexico, states A. A. Bullock (*Kew Bulletin* (1936), 346), the commercial possibilities of the individual species have never been thoroughly tested or fully exploited, and the taxonomic difficulties encountered in dealing with the genus render it impossible to refer with certainty any product to a definite species. With regard to elemi, this is the name given to a number of oleoresins derived from different botanical sources. Bullock considers that probably all belong to the family Burseraceæ. Manila elemi is the most important commercially, but some comes from Mexico, probably collected from several species, including *B. jorullensis* and *B. copallifera*. It is doubtful whether *B. elemifera* can be regarded as a source of supply.—ANON. Through *Pharm. J.*, 137 (1936), 662. (W. B. B.)

Hydrastis—Alkaloidal Content of. During the last decade, hydrastis appears to have steadily deteriorated in the alkaloidal content of the commercial drug as shown by results obtained in one of the analytical laboratories. The results varied from 3.02–3.12% in 1927 to 1.74–2.59% in 1936. The drug sold based on the alkaloidal content using the U. S. P. X method is higher than the results obtained after a fluidextract has been prepared and assayed according to the present B. P. C., 1934.—W. A. N. MARKWELL. *Chem. and Drug.*, 126 (1937), 90. (E. V. S.)

Hsuan Tsao Ren—Chinese Drug. Hsuan Tsao Ren, which consists of the seeds of *Zizyphus vulgaris* Lam., has been used in China as a tonic. The seeds are extracted with petroleum ether, ether, chloroform, alcohol and water. Alkaloids are absent. The extracted oil yields 89.16% fatty acids, of which 90.75% are unsaturated including oleic, α-linoleic and β-linoleic acids. The saturated acid is palmitic acid. From the ether extraction a phytosterol is isolated with the formula $C_{26}H_{42}O_2$, m. p. 288–290°. From the chloroform extraction a phytosterol is obtained, m. p. 259–260°—TENG-HAN TANG and YUAN-HSIANG CHAO. *J. Chinese Chem. Soc.*, 4 (1936), 278–286, (in German); through *Chem. Abstr.*, 31 (1937), 209. (E. V. S.)

Plant World—Short Practical System of the. A comprehensive outline of the plants of the vegetable kingdom used in pharmacy. The following is given where possible for each plant mentioned: order, family, genus and species; part used, whether fresh or dried; habitat; and short descriptions of the leaf, flower and fruit.—ALFRED MOSIG. *Pharm. Zentralh.*, 76 (1935), 361, 373, 441, 518, 566, 596, 643; 77 (1936), 37, 86, 100, 144, 162, 192, 210. (E. V. S.)

Rhus Glabra L.—Berries of, Preliminary Investigation of. A report of experimental work done, including constants of the oil.—G. H. MCFADDEN and R. L. MCMURRAY. *J. Am. Pharm. Assoc.*, 25 (1936), 1154. (Z. M. C.)

Vegetable Waxes. A survey of the occurrence of waxes in plants. It includes the Balanophora used as sources of illumination, the cow tree wax (*Brosimum Galactodendron*), the wax palm (*Ceroxylon andicola*, H. and B.), the cocos (wax present in the sediment in which coconut oil from *C. nucifera* has been stored), carnauba wax, candelilla wax (*Euphorbia cerifera*, Alc.), fig wax, flax wax, myrtle waxes (Myrica species), Japan waxes, sugar cane and Esparto grass waxes.—F. N. HOWES. *Kew Bulletin of Miscellaneous Information*, No. 10 (1936); through *Chem. and Drug.*, 126 (1937), 114. (E. V. S.)

PHARMACY

GALENICAL

Emulsions. A discussion of the theory of emulsions, emulsification agents and stability of emulsions.—ALBERT VERLEY. *Am. Perfumer*, 33 (1936), No. 3, 49–52. (G. W. F.)

Ferrous Iodide—Stabilized Syrup of. Reference is made to previous work on this preparation and report is made of experimental work undertaken by the authors. They substituted dextrose for sucrose but viscosity was low and taste very bitter. Adding glycerin increased viscosity and improved taste and the sample containing 28% by volume showed no discoloration at the end of a year. Adding varying amounts of citric acid did not affect p_H or stability, but substituting citric for hypophosphorous acid gave a p_H of 2.0 and at the end of a year it was pale yellow with no precipitate. Substituting powdered dextrose for sucrose to the point of saturation in the U. S. P. formula produces a stable product with a low viscosity. Both are increased by the addition of glycerin. It also adds to cost. The U. S. P. product may be stabilized by adding 0.5% of sodium citrate or by substituting 0.07% of citric acid for hypophosphorous acid.—P. L. BURRIN, A. G. WORTON and F. E. BIBBINS. *J. Am. Pharm. Assoc.*, 25 (1936), 1102. (Z. M. C.)

Magnesium Citrate—Solution of, Study of. The study was undertaken to determine whether the reduction of citric acid from 35 to 33 Gm. is a desirable change and assures stability. Sixteen experimental lots were made and tested. The tabulation of these shows MgO content of the carbonate, whether potassium bicarbonate was used, whether sterilized or not and condition at the end of one, two and three weeks. The free acidities of the various lots were determined. Commercial samples of U. S. P. XI solution were also tested for MgO content, free acidity, free citric acid calculated from free acidity titration and total citric acid was determined. Only 3.48% tolerance in citric acid content is allowed by U. S. P. XI. The method prescribed for total citric acid as a rule yields low results due to the slight solubility of calcium citrate precipitated in the process. In view of these facts, the authors believe that the U. S. P. statement should be modified to read "Not less than 25.2 cc. of half-normal hydrochloric acid is consumed." Commercial samples showed perfect clarity, due probably to high free acidities which were impossible if the U. S. P. formula were followed. A series of calculations indicated that potassium bicarbonate may have been omitted. Such omission is not only illegal but detrimental to therapeutic properties. Even the use of carbon dioxide under pressure does not permit omission of bicarbonate. The authors' conclusions are summarized as follows: "Using 33 Gm. of citric acid per bottle a magnesium carbonate containing not more than 39.2% oxide must be used to produce even a fairly stable solution of magnesium citrate. Precipitation may be prevented using any official magnesium carbonate (39.2–41.5% MgO) if the bicarbonate is withheld until the product is dispensed. Sterilization in some manner retards precipitation observed in the product. Many commercial samples give analytical results indicating that all or at least part of the bicarbonate is omitted from the product. It is recommended that the U. S. P. permit a greater tolerance in the requirement for total citric acid."—ARTHUR OSOL and LINWOOD F. TICE. *J. Am. Pharm. Assoc.*, 25 (1936), 1108. (Z. M. C.)

Sodium Sulfide—Solutions of, Decomposition of. Brief reference is made to previous work on the decomposition of sodium sulfide solutions. Organic compounds such as glycerol and diethyl ether of ethylene glycol have been added to depilatory solutions to inhibit decomposition. A study of the effectiveness of these two compounds was undertaken. Several methods of analysis were considered and that proposed by Hall, with slight modifications, was chosen. The rate of decomposition of the sulfide solutions containing inhibitors was compared with the rate of decomposition in aqueous solutions. The following method was used: For each determination a 10-cc. sample was diluted to 100 cc. in a volumetric flask. Twenty-five cubic centimeters of this solution were then added, with constant stirring, to an excess of 0.1*N* iodine solution, diluted to about 400 cc., and acidified with concentrated hydrochloric acid (3 cc.). The excess iodine was then titrated with 0.1*N* sodium thiosulfate solution. The sulfide content was calculated on the basis of the iodine used. Results are tabulated. It was found that both glycerol and carbitol inhibit decomposition to some extent. No kinetics of the decomposition reaction can be calculated. It may be that other factors affect decomposition.—G. BULFER, A. J. BOYLE and L. H. BALDINGER. *J. Am. Pharm. Assoc.*, 25 (1936), 1104. (Z. M. C.)

Spiritus Russicus D. A. B. VI—Examination of. It is indicated that this spirit is easily

adulterated due to the absence of suitable constants in the D. A. B. The following constants are suggested: $d_{20}°$ 0.866, alcohol number not under 9.6, boiling point of distillate not under 75°.—B. SCHWENKE. *Pharm. Zentralh.*, 77 (1936), 593. (E. V. S.)

Tablets—Enteric Coating of. The following testing methods are recommended: (1) Use tablets containing barium sulfate and observe the movement in the alimentary tract of man by means of X-rays. (2) Use tablets of calcium sulfide and methylene blue. Early disintegration in the stomach causes eructation of hydrogen sulfide. The dye should not appear in the urine before 2 hours, when the tablet has passed into the intestine. (3) Tablets are tested in vitro by treating them first at 37° under constant movement with an artificial gastric juice (p_H 1.5–2.3) followed by an artificial pancreatic juice (pancreatin 28, sodium bicarbonate 15, water 1,000). A varnish or shellac is applied below the coating. The following coatings are described: keratin, formol-gelatin, stearic acid, salol, shellac, tolu balsam, gluten and gluten-casein. Among the mixed formulas, the following is especially recommended: stearic acid 5, shellac and tolu balsam each 10, ether and alcohol each 50.—LUCAS F. DEFELICE. *Rev. farm.* (Buenos Aires), 78 (1936), 453. (A. E. M.)

NON-OFFICIAL FORMULÆ

Insecticide. Selenium is added to calcium polysulfide solution at the rate of 3 oz. per gallon.—CHARLES B. GNADINGER. U. S. pat. 2,068,742, Jan. 26, 1937. (A. P.-C.)

Mandelic Acid. A short review of the entry into therapeutics of mandelic acid preparations as urinary antiseptics. A vehicle formula containing the ammonium salt is cited: Mandelic acid 60 Gm., solutio ammoniaci, *q. s.* 65 Gm., tinctura aurantii dulcis 20 Gm., saccharinum solubile 0.1 Gm., aqua distillata, *q. s.* 300 cc. One tablespoonful represents 3 Gm. mandelic acid and is taken in a glass of water.—S. A. SCHOU. *Arch. Pharm. og Chemi*, 44 (1937), 37. (C. S. L.)

DISPENSING

Ammonium Mandelate—Syrup of. Mandelic acid recently introduced is very expensive and large doses are necessary. The following formula is proposed for a syrup with the hope that pharmacists can supply a satisfactory product at a price far below the cost of proprietary articles: soluble saccharin 1.00 Gm., ammonium chloride 50.00 Gm., ammonium carbonate 80.00 Gm., mandelic acid 200.00 Gm., sucrose 400.00 Gm., benzaldehyde 0.04 cc., oil of fennel 0.10 cc., anethol 1.00 cc., fluidextract of glycyrrhiza 175.00 cc., water, a sufficient quantity, to make 1000.00 cc. The average dose (15 cc.) represents 3 Gm. of mandelic acid and 0.75 Gm. of ammonium chloride. It can be given in tablespoonful doses diluted with water four times daily. The dose should be increased until p_H of urine is sufficiently low. A simple way of determining is by means of methyl red solution: 5 drops added to 2 cc. of urine produces a red color if acidity is satisfactory; if not, the color remains yellow or orange.—B. FANTUS and O. U. SISSON. *J. Am. Pharm. Assoc.*, 25 (1936), 1138. (Z. M. C.)

Cinchona Bark—Researches on the Extraction of, and the Preparation of Fluidextract of Cinchona. The percolation of cinchona bark was carried out in tubular percolators with a diameter of 20 mm. and a height of 300 mm. The same drug in the same size powder was used throughout and contained 7.73% total alkaloids. In order to detect the presence of alkaloids in the percolate, the authors developed a method based on the measurement of the intensity of the fluorescence under standard conditions. The percolation studies were varied by changing both the concentration and kind of acid added to the menstruum while maintaining all other factors uniform. A comparison of the various glycerin-water mixtures used as menstrua to which was added hydrochloric, formic or phosphoric acids, shows that the best mixture both from the standpoint of yield of alkaloids and as to stability of the percolate as evidenced by a considerable reduction of the clouding of the preparation is the phosphoric acid-glycerin-water mixture. The specifications of the various pharmacopœias requiring the addition of hydrochloric acid to the menstruum should be changed to use phosphoric acid.—H. KRÖGER and A. MAYRHOFER. *Scientia Pharm.*, 7 (1936), 141. (M. F. W. D.)

Cod Liver Oil—Phosphated Emulsions of, Process for the Preparation of. Alkali metaphosphates, either alone or in conjunction with alkali pyrophosphates, *e. g.*, alkali polyphosphates, are used as emulsifying agents.—CHEMISCHE FABRIK JOH. A. RENCKISER G.M.B.H. Belg. pat. 416,413, Aug. 31, 1936. (A. P.-C.)