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PHARMACEUTICAL ABSTRACTS

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Iodine—Estimation of, in Periodates. A direct method for the estimation of iodine in the periodates which give up the whole of iodine on heating has been described. The results obtained by the new method have been compared with those obtained by Kimmin's method a modified by Partington and Bahl. The procedure is as follows: The weighed salt (0.1 to 0.2 Gm.) was placed in a hard glass test tube, the open end of which was fused with a tube provided with two small bulbs. This in turn was connected to a bubbler containing a concentrated solution of potassium iodide. The test tube was kept cool by covering it with a cotton pad soaked in cold water. The periodate which collected in the end of the test tube was heated strongly in order to ensure complete decomposition. The iodine which condensed in the test tube was washed into a conical flask with a solution of potassium iodide. The dissolved iodine was titrated against a standard solution of sodium thiosulfate.—R. K. BAHL, SURJIT SINGH and NARINDRA K. BALI. *J. Indian Chem. Soc.*, 18 (1941), 587. (F. J. S.)

Iodine in Desiccated Thyroid—Determination of. The following method is proposed for the determination of iodine in desiccated thyroid. Accurately weigh 1 Gm. of powdered thyroid and place in a 100-cc. crucible of nickel or Vycor. Add 5 cc. saturated sodium hydroxide solution and 5 Gm. anhydrous sodium carbonate. Mix thoroughly with a glass stirring rod and leave the rod in the crucible. Add a convenient amount of shredded filter paper to facilitate drying and to prevent creeping. Dry the crucible and contents overnight at 115° C. Place in a muffle furnace and maintain the temperature between 500–525° C. for 20 min. Cool, add distilled water, heat to boiling and decant onto a 18½ cm. filter (Whatman No. 2) into a 500-cc. Erlenmeyer flask. The material remaining in the crucible will dissolve with the next addition of water. Wash the solution together with the char onto the filter, and continue washing with hot water until the filtrate measures approximately 200 cc. Add 5 cc. of saturated bromine water and then slowly add 25 cc. of phosphoric acid (1 + 1). The *p*H at this step is approximately 3.2. Boil until the bromine is removed and until the vapors do not color starch-potassium iodide test paper. (Boiling requires between 5–7 min.) Add a few crystals of salicylic acid, wash down the sides of the flask and cool to room temperature in running water. Add 1 cc. of 85% phosphoric acid, 5 cc. of 10% potassium iodide solution, mix and titrate immediately with 0.005 *N* sodium thiosulfate. The authors indicate that, except for the operation of drying the ignition mixtures overnight, a series of eight determinations can be completed within two hours. Results are more consistent and there are fewer opportunities for serious error than with the present U. S. P. procedure. Using C.P. reagents, the maximum blank which has been obtained is 0.15 cc. of 0.005 *N* thiosulfate.—F. F. JOHNSON and H. A. NELSON. *Proceedings, American Drug Manufacturers Association, Thirtieth Annual Meeting*, May (1941), 186–187. (N. L.)

Iron—Spectrophotometric Determination of. II. Use of 2,2′-Bipyridine. An accurate spectrophotometric method for the determination of iron with 2,2′-bipyridine has been developed experimentally.—RUTH ADELE KOENIG and C. R. JOHNSON. *J. Biol. Chem.*, 143 (1942), 159. (F. J. S.)

Lactic Acid—Determination of the Proportion of *d*- and *l*-Isomers in Samples of. A quantitative procedure for the measurement of the relative amounts of the two stereoisomers in preparations of lactic acid is described. It is applicable, with an error of less than 1.0 in the percentage composition, to samples containing as little as 0.2 Gm. of lactic acid. To meet the requirements of variations in the available sample size and equipment, two scales of operation are given. The procedure depends on the condensation of lactic acid with *o*-phenylenediamine at 135° C. in the presence of phosphoric and hydrochloric acids to form 2-(α-hydroxyethyl)-benzimidazole. The derivative is isolated by quantitative precipitation as the crystalline silver salt. Regeneration of the benzimidazole gives a solution whose specific rotation is used for the calculation of the *d-l* composition of the original lactic acid sample. The use of the benzimidazole derivative of lactic acid offers the following advantages over the zinc salt: a four-fold increase in rotation ($[\alpha]_D = -32.7$), negligible variation of rotation with concentration, and absence of fractionation of isomers during the preparation and isolation of the derivative.—S. MOORE, R. J. DIMLER and K. P. LINK. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 160–163. (E. G. V.)

Liquid-Liquid Extraction—Device for Continuous. In operation a boiling flask for the solvent is attached by the ground joint at the bottom and a good condenser is attached in a similar manner at the top. The solvent vapors distilling from the boiling flask are condensed, passed down the inner funnel and distributed throughout the aqueous solution by means of the sintered glass plate. The solvent returns from the upper layer in the extractor to the boiling flask through the same tube which carries the vapors to the condenser. The device is charged and emptied through the side opening. It has been found particularly useful for the determination of morphine, where it presents a number of advantages over the generally used method of extracting the alkaloid from an ammoniacal solution by a mixture of chloroform and isopropanol.—J. R. MATCHETT and J. LEVINE. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 264–265. (E. G. V.)

Magnesium Peroxide Tablets—Assay of. The tablets lose some of their magnesium peroxide content on standing. It is advisable to determine the magnesium peroxide before their preparation and avoid prolonged standing. Manganometric titration is a simple and rapid method for determination of magnesium peroxide. A crushed tablet is placed in a 100-cc. volumetric flask, covered with dilute (1 : 4) sulfuric acid, dissolved and water added to the mark. After the starch has been filtered off 20 cc. of the filtrate are titrated with decinormal potassium permanganate until there is a stable rose color. Twenty cubic centimeters, containing 0.025 Gm. of magnesium peroxide, should require at least 8.8 cc., of the standard solution, corresponding to 0.1235 Gm. (or 25%) of magnesium peroxide in a 0.5-Gm. tablet.—ANON. *Pharmacia*, 20 (1940), 17–19; through *Chimie & Industrie*, 43 (1940), 925. (A. P.-C.)

Magnesium—Titan Yellow Qualitative Test for. The titan yellow test, although not specific for magnesium is useful and efficient when properly applied. It is suitable for test tube or spot plate but not reaction paper. An improved spot plate procedure is given. A *p*H of about 12.5 is necessary for the production of the red color. Interference may be caused by ions which undergo a similar reaction, by ions which because of their color or that of compounds formed with hydroxide mask the magnesium-titan yellow color, or by ions which keep the *p*H too low. Ions which interfere, however, will be removed in the usual qualitative procedure before testing for magnesium and hence cause no trouble.—E. B. OTTO and C. E. OTTO. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 65-66. (E. G. V.)

Manganese—Determination of, as Pyrophosphate. Add 1 cc. of concentrated sulfuric acid and 15 cc. of saturated aqueous disodium phosphate to 20 cc. of solution, followed by aqueous ammonia to a faint pink color (phenolphthalein). Add 200 cc. of water, heat for 3 hrs. at 100° C., filter off the precipitate of manganese ammonium phosphate, ignite and weigh as manganese pyrophosphate.—B. MORSAN. *Arh. Hemiju*, 13 (1939), 109-124; through *Chimie & Industrie*, 44 (1940), 18. (A. P.-C.)

Menthol—The Assay for. Report is made of a study of the U. S. P. assay method for menthol, undertaken to overcome some of the sources of error and confirming Brignall's findings. Some of the difficulties of the U. S. P. process were complete removal of excess acetic anhydride from acetylized oil. Sodium acetate must be of the best quality and perfectly dry. Time for acetylation and for saponification has been varied and addition of phosphoric acid as a catalyst in acetic anhydride gave good results. Trouble has been found in determining the end-point. Details of experimental work are reported and results tabulated. The suggested method for determination of menthol uses one part acetic anhydride and four parts of anhydrous pyridine as the acetylizing agent, refluxing for 30 min. Excess acetic anhydride is converted to acetic acid by addition of water and titrated with alcoholic potassium hydroxide, using phenolphthalein as indicator. The end-point is sharp. A blank determination is carried out. The acetylizing agent was stable for about a week. Time necessary was about half that of U. S. P. XI. The saponification step is eliminated, also the washing of the acetylized oil with sodium carbonate solution. Some evidence is presented which indicates that the U. S. P. XI method affects other constituents of oil of peppermint besides menthol.—CHARLES O. WILSON. *Jour. A. Ph. A.*, 31 (1942), 85. (Z. M. C.)

Mercury—Volumetric Determination of, in Pharmaceutical Preparations. From a study of both the gravimetric procedure as given in the U. S. P. XI and a volumetric method of assay, it was evident that there is little choice between these two methods so far as accuracy is concerned. However, for the benefit of any laboratory which might be interested in the volumetric determination of mercury in soluble preparations, the following method is suggested: Accurately weigh an amount of material equivalent to about 0.25 Gm. of mercury and transfer to an iodine flask. Dissolve in 50 cc. of water with the aid of hydrochloric acid, if necessary. Add 2 Gm. of potassium iodide and make just alkaline with 10% sodium hydroxide solution, finally adding 15 cc. in excess. Then add 5 cc. of 37% formaldehyde solution and allow to stand for at least one-half hour with frequent shaking. Neutralize the alkali with acetic acid, adding not over 1 cc. in excess, and mix thoroughly. Decant most of the supernatant liquid through a filter, keeping as much as possible of the mercury in the flask. Transfer the filter to the flask with the precipitated mercury, add 30 cc. of $N/10$ iodine and shake the flask until the filter paper has disintegrated and all the mercury is in solution. Titrate the excess iodine with $N/10$ sodium thiosulfate using starch as indicator. One cubic centimeter $N/10$ iodine is equivalent to 0.01003 Gm. mercury.—Report of the Subcommittee on Analytical Assay Methods. *Proceedings, American Drug Manufacturers Association, Thirtieth Annual Meeting*, May (1941), 174-176. (N. L.)

Micromelting Point Apparatus for the Investigation of Solutions and Liquid Substances. Description is given of a microcup to be used on a micromelting point apparatus which enables the heating of volatile and non-volatile liquid substances while under the microscope. By this means melting points and refractive indices of volatile substances and microreaction products can be examined more readily and smaller quantities of material are required.—R. FISCHER. *Mikrochemie*, 28 (1940), 173-182. (R. H. B.)

Nickel and Cobalt—Polarographic Determination of. In supporting electrolytes containing pyridine or thiocyanate the half-wave potential of nickel is 0.3 volt more positive than that of cobalt, and the excellent separation of the two waves permits the simultaneous determination of both metals. The use of a supporting electrolyte containing pyridine is preferable to one containing thiocyanate, because with the latter the diffusion current of cobalt shows peculiar irregularities, especially in acid solutions or in the presence of ammonium salts. A sharp separation of ferric iron from small amounts of nickel, cobalt and copper by precipitation as hydrous ferric oxide is obtained with a supporting electrolyte of *p*H equal to about 5.4 containing equal concentrations of pyridine and a pyridinium salt. Nickel and cobalt are not coprecipitated with the hydrous ferric oxide under these conditions, and the method is well suited to the simultaneous determination of nickel and cobalt in steel. Moderate amounts of chromium in steel are completely coprecipitated with the hydrous ferric oxide, and hence do not interfere with the determination of nickel and cobalt. Manganese and small amounts of copper do not interfere. Copper gives a double wave at 0.05 and −.25 volt *vs.* the saturated calomel electrode in pyridine solutions, and when present in large excess the bulk of it must be removed prior to the nickel-cobalt determination. Small amounts of nickel impurity in cobalt compounds can be rapidly and accurately determined in a supporting electrolyte containing pyridine or thiocyanate.—J. J. LINGANE and H. KERLINGER. *Ind. Eng. Chem.*, 13 (1941), 77-80. (E. G. V.)

Nicotinic Acid—Determination of. Nicotinic acid in natural and concentration source materials is determined colorimetrically using *p*-aminoazophenone as the color reagent.—A. ARNOLD, C. B. SCHREFFLER and S. T. LIPSIUS. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 62-63. (E. G. V.)

Nitrite—Colorimetric Method for Determination of. The solution taken for analysis should be either neutral or acid. Variations in acid concentration between 0.1 and 1 *N* at the time of coupling do not influence the final color. The unknown should contain no more than 0.05 mg. of nitrite and should be limited in volume to no more than 35 cc. To the unknown sample add 1 cc. of 50% hydrochloric acid, 5 cc. of 0.2% sulfanilamide solution, and let stand for 3 min. Add 1 cc. of ammonium sulfamate, 0.5%, solution. After 2 min. add 1 cc. of coupling reagent, *N*-(1-naphthyl)-ethylenediamine dihydrochloride, 0.1% solution in water, and dilute to volume. At the same time prepare a nitrite standard from the sulfanilamide solution. The unknown is read against the standard and the nitrite present in the sample taken is calculated.—M. B. SHINN. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 33-35. (E. G. V.)

Organic Acids in Plant Tissues. Modifications are described of previous methods to determine the total organic acidity, and the malic, citric and oxalic acid content of dried plant tissues. These modifications permit complete analyses to be made on 0.5 Gm. or even on 0.1 Gm. of material, without sacrifice of accuracy and with greater convenience.—G. W. PUCHER, A. J. WAKEMAN and H. B. VICKERY. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 244-246. (E. G. V.)

Organic Microanalysis—Systematic Qualitative. A comparative study of procedures for microextraction, with a description of special apparatus.—W. G. BATT and H. K. ALBER. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 127–132. (E. G. V.)

Organic Nitrites—A Volumetric Method for the Assay of. It is recommended that the U. S. P. XI method of assay for these nitrites read as follows: *Apparatus.*—Fit a 300-cc. Erlenmeyer flask with a 2-hole rubber stopper. Through one hole pass an aeration tube leading to the bottom of the flask and tapered to an internal diameter of about 1 mm. at the lower end. Through the other hole pass a glass tube of 6 mm. internal diameter so that it will extend about 1 cm. above and below the stopper and connect the aeration tube with a cylinder or a generator of carbon dioxide. *Method.*—Place 10 Gm. of potassium iodide in the flask and add 40 cc. of boiling distilled water. Insert the stopper in the flask and allow the solution to cool to room temperature. Pass a stream of carbon dioxide through the flask at a rate of 5 bubbles per second for at least 5 min., add 10 cc. of diluted hydrochloric acid (1 in 2) and continue the stream of carbon dioxide for at least 3 minutes. If any iodine is liberated, as shown by the appearance of a yellow color, cautiously add 0.1 *N* sodium thiosulfate from a burette through the outlet tube until the color is just discharged. Decrease the flow of carbon dioxide to about 2 bubbles per second, and introduce the directed volume of the nitrate solution with a transfer pipette, passing the pipette through the outlet tube until the tip is just above the surface of the potassium iodide solution. Touch the tip of the pipette to the outlet tube to remove adhering sample, then rinse the outlet tube with a fine jet of aldehyde-free alcohol from the wash bottle. At once titrate the liberated iodine with 0.1 *N* sodium thiosulfate, introducing the tip of the burette through the outlet tube. *Sampling of Amyl Nitrite.*—Place about 20 cc. of aldehyde-free alcohol in a 100-cc. glass-stoppered volumetric flask and weigh accurately. From a pipette introduce 3–4 cc. of amyl nitrite, stopper the flask and again weigh accurately. Calculate the weight of sample and add enough aldehyde-free alcohol to make a volume of 100 cc. at 25° C., stopper the flask and mix thoroughly. Proceed as directed above, using 10 cc. of the above alcoholic solution. One cubic centimeter 0.1 *N* $Na_2S_2O_3$ = 0.01171 Gm. amyl nitrite, $C_5H_{11}NO_2$. The alcoholic solution must be used within 30 min. *Ethyl Nitrite.*—Proceed as directed by the method described above using 10 cc. of Spirit of Ethyl Nitrite for each determination. Calculate the weight of the samples from the sp. gr. at 25° C. One cubic centimeter 0.1 *N* $Na_2S_2O_3$ = 0.007505 Gm. $C_2H_5NO_2$. *Spirit of Glyceryl Trinitrate.*—Transfer 25 cc. of the spirit to a previously weighed 50-cc. volumetric flask, stopper the flask and weigh accurately. Add 3 cc. of an aqueous solution of sodium hydroxide (1 in 5), restopper the flask and allow to stand at room temperature for 1 hr. Make up to a volume of 50 cc. with aldehyde-free alcohol and proceed as directed above, using 10 cc. of the above solution for each determination. One cubic centimeter 0.1 *N* $Na_2S_2O_3$ = 0.0113 Gm. of $C_3H_5(NO_3)_3$.—GEORGE D. BEAL and CHESTER R. SZALKOWSKI. *Bull. Natl. Formulary Committee*, 10 (1942), 59–75. (H. M. B.)

Oxalate—Micro- and Drop-Scale Titration of. A comparative study of micro- and drop-scale titrations of oxalate and of calcium determination was made with excess ceric sulfate, ammonium hexanitrato cerate, ammonium hexaperchlorato cerate and potassium permanganate solutions as reagents. The necessary conditions for the titration were defined and the range, accuracy and general utility studied for each titration. The excess ceric sulfate method was found to have the widest range of applicability for both micro- and drop-scale titrations, and to be capable of the greatest accuracy. Both ammonium hexaperchlorato cerate and potassium permanganate could be used for direct microtitrations of oxalate, but only the latter was useful for drop-scale work. Improvement in the use of permanganate was achieved by titrating the cold solution, using an internal indicator and manganous salt as a catalyst.—P. L. KIRK and P. C. TOMPKINS. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 277–280. (E. G. V.)

Oxanilic Acid Thioamide as an Analytical Reagent. Oxanilic acid thioamide has been used as an analytical reagent for the estimation of copper, cobalt and nickel.—ANIL KUMAR MAJUMDAR. *J. Indian Chem. Soc.*, 18 (1941), 415. (F. J. S.)

Palmyra Palm (Borassus Flabellifer L.)—Chemical Analysis of the Fruit and Kernels of. Both the pulp and seeds were examined for the oil and it appears that the palmyra palm is devoid of oil. The pulp contained, besides moisture, the following constituents: (1) oils, fats, resin, etc.; (2) albuminous matter; (3) ash (mineral); (4) invert sugar; (5) cane sugar; (6) dextrin; (7) hemicelluloses (pentosans, etc.); (8) crude fiber (cellulose, lignin, etc.). The seeds contain similar constituents as the pulp but in addition they contain a high percentage of substances easily hydrolyzed when treated alternately with 1.25% sulfuric acid and 1.25% sodium hydroxide solution. The ash from the pulp contained principally sodium, potassium (with traces of iron and manganese), chloride, carbonate and phosphate; while the seed ash contained sodium, potassium, iron, carbonate, phosphate and chloride.—BAWA KARTAR SINGH and ABDUL MAJEED. *Ind. & News Ed., J. Indian Chem. Soc.*, 4 (1942), No. 4, 223. (F. J. S.)

Phenothiazine Pharmaceuticals—Assay Methods for. Phenothiazine has been found to be an efficient anthelmintic in veterinary practice, so an assay seemed important. The two principal types of preparation are an aqueous suspension and a bolus. Details of procedure are given. It is based on extraction with acetone and subsequent weighing of the drug.—LEWIS E. HARRIS and ELOISE B. KERL. *Jour. A. Ph. A.*, 31 (1942), 47. (Z. M. C.)

Phosphate and Arsenate of Silver and Thallium. On adding to an aqueous solution of alkali phosphate first an excess of thallium salt and then silver nitrate, a white precipitate of thallium silver phosphate, $TlAg_2PO_4$, is obtained; the precipitation is quantitative in neutral solution. Under the same conditions alkali arsenate gives a precipitate of thallium silver arsenate, $TlAg_2AsO_4$. These reactions can be used for analytical purposes.—G. SPACU and P. SPACU. *Bull. Sect. Sci. Acad. Roumaine*, 22 (1939), 147–149; through *Chimie & Industrie*, 44 (1940), 19. (A. P.-C.)

Potassium as Periodate—Determination and Separation of. Potassium can be quantitatively precipitated as periodate by adding periodic acid to a solution only a few cubic centimeters in volume and subsequently completing the precipitation by the addition of a much larger volume of a mixture of equal parts of aldehyde-free ethyl alcohol and anhydrous ethyl acetate. The solution must be maintained at 0° C. and stirred for 30 min. The precipitate of potassium periodate may be weighed or it may be dissolved in a boric acid-borax buffer, potassium iodide added and the free iodine titrated with arsenite. In this reaction the periodate is reduced to iodate. Potassium may be separated from calcium, magnesium, zinc, aluminum, sodium, lithium, nickel and cobalt, but not from manganese,

iron, chromium, rubidium, cesium and ammonium. It is possible to separate as little as 0.4 mg. of potassium from seventy times as much sodium. If both calcium and sulfate are present the results are too low, probably because of the formation of a double potassium calcium sulfate. Small amounts of sulfuric, phosphoric, nitric and boric acids may be present, but with large amounts the precipitate becomes gelatinous and difficult to filter. In the presence of sulfate the gravimetric determination is impossible, but the volumetric method gives satisfactory results. Chloride must be absent. The method is rapid and accurate.—H. A. WILLARD and A. J. BOYLE. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 137–139. (E. G. V.)

Quinoline-8-Carboxylic Acid as an Analytical Reagent. I. Quinoline-8-carboxylic acid has been used as an analytical reagent for the estimation of copper. Copper has been found to be completely precipitated in *p*H as low as 2.78. In neutral solution copper gives a distinct precipitate even at a dilution of 1 in 4,000,000 parts.—ANIL KUMAR MAJUMDAR. *J. Indian Chem. Soc.*, 18 (1941), 419. (F. J. S.)

Salicylic Acid Esters—Identification and Bromometric Determination of. Salicylic acid esters are identified by direct bromination in glacial acetic acid, precipitation with water, filtration and recrystallization from 25% alcohol. Bromometric determination of salicylates is carried out by a method identical with that for the determination of esters of *p*-hydroxybenzoic acid.—C. VALENCIEN and J. DESHUSSES. *Mitt. Lebensm. Hyg.*, 30 (1939), 85–86; through *Chimie & Industrie*, 43 (1940), 926. (A. P.-C.)

Salvia Carnosa (Dougl.). I. A Phytochemical Study. Attention was directed to this plant, commonly called Purple Sage, because of its reputed use by the Indians in the treatment of several disorders. The object of the investigation was to make a preliminary study of the whole plant and to isolate the constituent responsible for the bacteriological action of the extracts and the purported medicinal action. Ash, moisture, volatile oil content were determined before a large scale extraction with 50% aqueous ethanol was undertaken. Crystalline material amounting to 0.63% was named "carnosol." There was indication that this compound may be formed at some particular stage of growth. Also it may be localized in stems because leaves were not a good source though they were rich in volatile oil. Amount and type of extractives yielded to various solvents on successive extractions were determined. Qualitative tests indicated carbohydrates, including reducing sugars and tannins but no alkaloids. Examination by the modified Stas-Otto method did not show glycoside but the presence of one is thought possible. Some physical properties of "carnosol" were determined. A wax and a resin were isolated. Physical and chemical constants of the volatile oil were determined. The three lots of drugs examined differed greatly in content of "carnosol" and volatile oil.—ALLEN I. WHITE and GLENN L. JENKINS. *Jour. A. Ph. A.*, 31 (1942), 33. (Z. M. C.)

Selenium—Determination of Traces of. The tentative A. O. A. C. method (*Methods of Analysis, A. O. A. C.*, (1940), 417) was studied with a view to its possible improvement, especially for the determination of extremely small quantities. Certain refinements in apparatus and manipulation are presented (described in detail) because they seem to contribute increased accuracy in estimating quantities of 1 to 10 γ. A rather exhaustive study of sample preparation showed that, by restricting the size of sample even refractory substances rich in selenium are amenable to the usual digestion treatment; a closed digestion system, used in the present investigation, is not required in actual practice; open beakers may be used with impunity provided the sample does not contain more than 1000 γ selenium. Since fats are oxidized with extreme difficulty by nitric acid, and since selenium is contained in the protein and not in the fat fraction, if desired fats may be removed in part by chilling the digest and filtering on a large sintered-glass filter. Instead of using a Gooch crucible for collecting the selenium after distilling as bromide and reducing to elemental selenium with sulfur dioxide, with a small specially designed sintered-glass filtration vessel five 1-cc. portions of water are sufficient to rinse the precipitation flask and filtration pad free of excess acid and reducing substances. By employing a dilute hydrobromic acid-bromine solution, needed for the conversion of selenium to selenous acid, the addition of dilute phenol alone is sufficient to neutralize the excess of bromine, although heating is required subsequently to complete the reaction. The selenous acid is collected directly in the titration tube (specially designed); it is possible to make a quantitative transfer with only 5 to 6 cc. of liquid reagents. The use of small volumes of transfer liquid yields quantitative recoveries even for comparatively large quantities of the element (460.2 γ). Final evaluation of the element is carried out by the Norris-Fay (*Am. Chem. J.*, 18 (1896), 705) sodium thiosulfate-iodine titration, based on the reaction: $H_2SeO_3 + 4Na_2S_2O_3 + 4HBr = Na_2SeS_4O_6 + Na_2S_4O_6 + 4NaBr + 3H_2O$; standard (thousandth normal for the range of 1 to 10 γ) sodium thiosulfate is added in excess and the titration is completed with standard iodine in the presence of starch indicator. A somewhat optimum *p*H must obtain for best results; too high a *p*H causes an incomplete reaction between selenous acid and thiosulfate; too much acid tends to effect a recurrent end-point, due probably to the slow formation of iodine from the potassium iodide present in the standard iodine reagent; acidity contributed by the dilute hydrobromic acid-bromine reagent seems to provide a satisfactory medium. It is shown that stoichiometric relations obtain even for thousandth-normal solutions. Mathews' electrometric titration (*J. Assoc. Official Agr. Chem.*, 20 (1937), 197), using a redesigned cell and electrodes so that the titration could be completed in 5-cc. volumes, gave satisfactory results (average deviation 0.09 γ on 1 to 10 γ) but is somewhat tedious and painstaking; so that for ordinary work, which demands only moderate accuracy, it would seem that the starch iodometric procedure would be preferred. A short study was made of a microvolumetric method determination based on the equation: $H_2SeO_3 + 4HBr + 4KI = Se + 4I + 4KBr + 3H_2O$. Occlusion of iodine by the precipitated selenium, noted with macro quantities, was not noted with micro quantities; but the yellow color contributed by the selenium persistently hindered visual inspection of the blue starch-iodine end-point; subsequent titration with sodium thiosulfate did not change the blue to a colorless end-point, but rather from a cloudy blue to varying shades of yellow, depending on the amount of selenium present. Over the range of 2 to 22.5 γ of selenium, the average deviation was ± 0.3 γ. While the results are not so nearly accurate as with the Norris-Fay titration, they are nevertheless not seriously in error, and since the procedure requires only one standard solution (sodium thiosulfate) some analysts may consider it satisfactory. Various colorimetric procedures were studied. Extraction of selenium with carbon disulfide and colorimetric evaluation of the extract apparently lacks sensitivity for small quantities,

although it is probably satisfactory as a rapid method for the estimation of relatively large quantities. Colorimetric procedure based on extraction of selenium with carbon tetrachloride has probably no merit. A colorimetric procedure based on extraction of iodine with carbon tetrachloride lacks reproducibility and accuracy in the range of selenium studied (2 to 10 γ). From a study of the codeine sulfate method it is concluded that, although progress has been made with the method, which only recently was simply an identity test, it still does not yield the uniformly reliable results obtained by the present tentative A. O. A. C. method.—A. K. KLEIN. *J. Assoc. Official Agr. Chem.*, 24 (1941), 363-380. (A. P.-C.)

Sodium Meta-, Pyro-, and Ortho-Phosphates—Analyses of. Acidimetric titrations, previously used for strong phosphoric acids, are applied to the analysis of sodium phosphates where they provide a useful classification in terms of meta-, pyro- and orthophosphate. Polyphosphates, if present, titrate as mixtures of meta- and pyrophosphate. Sources of discrepancies, when using various methods of phosphate analysis, are enumerated. In those methods where the estimation of phosphate radicals is accomplished by precipitations using metallic ions, consideration cannot be confined, as has been common, to acid radicals of the meta-, pyro- and orthophosphates but must be extended to embrace the phosphate complexes or polyphosphates. In the presence of polyphosphate, analysis by acidimetry and by precipitation introduces a potential source of confusion in terminology. The determination of phosphate radicals, using metal salts as precipitants, may be subject to interference because of the metallic ion binding power of sodium meta- and pyrophosphate melts. Thus the titrimetric or gravimetric estimation of the pyrophosphate radical using zinc ion is exposed to inaccuracy in the presence of polyphosphate. Other causes of substantial discrepancies in phosphate identity or in analytical data are considered.—A. B. GERBER and F. T. MILES. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 406-412. (E. G. V.)

Sodium—Simple Titrimetric and Gravimetric Method for the Determination of, in Biological Material. Measure 0.5 cc. of blood, spinal fluid or urine into a test tube marked at 5 cc., add 1 cc. of water and 3.5 cc. of saturated alcoholic solution of zinc acetate. Shake and place for 15 min. in water at 80° to 90° C. Cool, bring the volume to 5 cc. with alcohol and filter. Measure 2 samples of 1.5 cc. of the protein and phosphorus-free filtrate into centrifuge tubes, add 1.5 cc. of Kolthoff reagent, shake gently and after 15 min. centrifuge off the precipitated sodium zinc uranyl acetate. Wash the precipitate twice with 2 to 3 cc. of acid-alcohol (500 cc. of alcohol + 50 cc. of 10% acetic acid and 0.5 Gm. of sodium zinc uranyl acetate, shake vigorously and filter after 24 hrs.), then twice with neutral alcohol. Dissolve the precipitate in freshly boiled, carbon dioxide-free water, transfer to a 100-cc. flask, add 3 to 4 drops of phenolphthalein and titrate from a microburette with decinormal sodium hydroxide to a definite red color. One cubic centimeter of the alkali corresponds to 0.243 mg. of sodium, or the results may be given in mg. % = cc. decinormal alkali × 162. Special precautions must be observed in urine analyses. For the quantitative precipitation of the sodium it is essential that the solvent (water), alcohol and reagent should be approximately in the ratio of 1 : 2 : 3. For the gravimetric procedure the material to be analyzed should contain about 1 mg. of sodium but not less than 0.5 mg. of sodium. For serum 0.5 cc. is sufficient as 3 cc. of filtrate contains about 1 mg. of sodium. The preliminary precipitation is the same as before. Measure 3 cc. of filtrate into a previously weighed centrifuge tube. Add 3 cc. of reagent, centrifuge off the precipitate and wash just as in the previous procedure. Place the tube for 2 hrs. in an oven at 105° C., cool in a desiccator and weigh again. Multiply the weight of the precipitate by 0.01495 to obtain the amount of sodium in milligram. Solid materials must be dried, powdered and wet-ashed before the determination is carried out. Transfer enough dry powder into a 100- or 200-cc. Kjeldahl flask to furnish 5 to 10 mg. of sodium. Introduce 5 to 10 cc. of fuming nitric acid and heat on a sand bath. Cool, add to the brown solution more nitric acid and a few drops of perhydrol. Finally, add hydrochloric acid in place of nitric acid. Drive off the acid, cool, add a few drops of dilute nitric acid and a little water and boil. Make up the solution to 5 cc. and use 0.5 to 1.5 cc. for the analysis.—M. DREGUSS. *Biochem. Z.*, 303 (1939), 69-80; through *Chimie & Industrie* 43 (1940), 643. (A. P.-C.)

Spectrophotometers—Survey of Abridged. The general character of instruments which employ optical filters and their advantages and limitations, are discussed. Thirteen such commercially available instruments are described.—J. A. VAN DEN AKKER. *Paper Trade J.*, 111 (1940), TAPPI Sect., 142-151; through *J. Soc. Chem. Ind.*, 60 (1941), 47. (E. G. V.)

Sulfur—Labile. Methods for the qualitative and quantitative determination of labile sulfur in biological substances have been devised. The action of lead and thallous ions in alkaline solution on cystine or cysteine is essentially the same, cystine yielding but three-fourths of its sulfur, whereas cysteine yields all of its sulfur in the labile form. The labile sulfur values as determined by the thallous nitrate procedure of casein, egg albumin, fibrin pepsin and trypsin are, respectively, 0.091, 0.609, 0.479, 0.259 and 0.405%.—H. ZAHND, R. ALFIN and M. SCHNEIDER. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 44-45. (E. G. V.)

Thiocyanate—Removal of, in the Detection of the Halides. Dilute the solution to be tested (the silver sulfide has been filtered off and the sulfide and ammonia removed by boiling) to 22 cc. in a 100-cc. beaker and add 3 *M* nitric acid dropwise and with constant stirring until the solution is just acid. Add 1.5 *M* sodium carbonate dropwise and with constant stirring until the solution is distinctly blue to nitrazine paper. Then add 12 cc. of *M* lead nitrate dropwise and with constant stirring. Stir for 2 min., transfer to a large centrifuge tube and centrifuge. (*A*) *Detection of Thiocyanate.*—To one-quarter of the centrifuge add 3 cc. of 3 *M* nitric acid and 5 cc. of 2 *M* ferric nitrate. A blood-red solution shows the presence of thiocyanate. (*B*) *Detection of Iodide.*—Transfer the solution to a 50-cc. glass-stoppered Erlenmeyer flask which contains 2 cc. of carbon tetrachloride. Let it stand for 3 min., shaking at 1-min. intervals. A violet-colored carbon tetrachloride layer shows the presence of iodide. (*C*) *Detection of Bromide.*—(*1*) *Thiocyanate and Iodide Present.* Under a hood transfer the remaining three-quarters of the centrifugate to a beaker. Add 5 cc. of 3 *M* nitric acid and then 1.5 cc. of 6 *M* sodium nitrite dropwise and with constant stirring. Heat to boiling with constant stirring, boil for 2 min., cool and filter off any precipitate. (*2*) *Thiocyanate and Iodide Absent.* Add 5 cc. of 3 *M* nitric acid to the remaining three-quarters of the centrifugate. To two-thirds of the solution resulting from either (1) or (2) add 1 cc. of 15 *M* nitric acid and then 0.002 *M* potassium permanganate in 1-cc. portions until the solution remains pink or until a maximum of 3 cc. of permanganate has been added. Transfer to a 50-cc. glass-stoppered Erlenmeyer flask containing 1 cc.

of carbon tetrachloride and shake. A yellow or brown carbon tetrachloride layer shows the presence of bromide. *(D) Detection of Chloride.—(1) Bromide Present.* Dilute the remaining one-third solution from C to 20 cc. and add with stirring 10 cc. of 15 *M* nitric acid. Heat to boiling with stirring and boil gently for at least 4 min. and until all the bromine has been given off. Filter off any precipitate. *(2) Bromide Absent.* To the remaining one-third solution from C add one-tenth of its volume of 15 *M* nitric acid. To the solution from (1) or (2) add 3 cc. of 0.5 *M* silver nitrate. Let stand for at least 5 min. A white precipitate shows the presence of chloride. Compare with a 1-mg. chloride control which has undergone the same procedure.—D. HART and R. MEYROWITZ. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 237. (E. G. V.)

Toxicarol and Related Compounds—Melting Points of. H. discusses the melting points of toxicarol and related compounds in tubes made from pyrex and also from soft glass. A table is given showing the melting points of 3 isomeric toxicarols, the *l*-α-dihydro-derivative of toxicarol, sumatrol, *l*-malaccol, *dl*-deguelin, 3 isomeric rotenones and two isomeric elliptones in capillary tubes from both types of glass.—STANLEY H. HARPER. *J. Chem. Soc.*, (1941), 878. (W. T. S.)

Tracer Isotopes in Analytical Chemistry. Tracer isotopes can be used to solve many problems with which ordinary methods cannot possibly cope. The analysis can often be performed more rapidly and more conveniently, particularly with radioactive isotopes, than by ordinary qualitative and quantitative analysis. Furthermore, there is no doubt about the identity of the substance being measured—that is, only one species can be radioactive or exhibit the proper half-life period. Finally, the accuracy of a determination can be varied by counting much or little, as desired. One disadvantage inherent in the use of either stable or radioactive isotopes is the lack of general availability of the isotopes themselves and of the necessary instruments for their quantitative determination. These substances are, however, becoming increasingly available and the detection devices are not expensive to build and operate. As compared with the counter the mass spectrometer is somewhat more expensive both in construction and operation. The reproducibility of results is perhaps not so great as with standardized analytical procedures but with exercise of reasonable care satisfactory accuracy can be attained. In making use of tracer analysis, a choice may have to be made between the use of a stable or radioactive isotope, as with carbon, nitrogen or sulfur. Here a number of facts will have to be considered, such as availability of the isotope and the measuring device, the relative costs of the two procedures, the time available for the experiment (the only radionitrogens known are N^{13} and N^{16} with half-lives of 10 min. and 8 sec., respectively), and the extent to which the tracer atom can be diluted and still be determined quantitatively. Like any other method, the isotope method cannot be used indiscriminately in attacking chemical problems. Its success in the hands of any investigator will be determined by the care and thoughtfulness with which it is used.—J. F. FLAGG and E. O. WIIG. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 341–345. (E. G. V.)

Water Remover—Continuous. In reflux operations, where it is advisable to effect a continuous dehydration of the reaction mixture, a simple apparatus can be constructed by attaching a side arm U-tube, made of any size glass tubing, to the bottom of the condenser. One arm of the tube is open to the air to allow water to overflow.—J. H. THELIN. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 405. (E. G. V.)

Yellow Mercuric Oxide Ointment U. S. P. XI—Assay of. Though the U. S. P. XI assay method is satisfactory with freshly prepared ointments, it is not good for old ones presumably because the mercury undergoes some chemical change as it ages. A method is suggested which determines all of the mercury and is superior in speed and simplicity. Essentially it consists in dissolving the sample in a mixture of benzene, glacial acetic acid and alcohol and precipitating it as sulfide and weighing the sulfide after washing and drying.—F. N. VAN DERIPE and R. A. KONNERTH. *Jour. A. Ph. A.* 31 (1942), 56. (Z. M. C.)

Zinc in Plant Materials—Determination of Small Amounts of. A photometric, "mixed-color" dithizone method has been developed for the determination of zinc in plant materials in which sodium diethyldithiocarbamate is used to eliminate the interference of other metals which form colored complexes with dithizone. It was found that "carbamate" causes an appreciable reduction in the color intensity of the dithizone extract, but, by keeping conditions constant in all extractions, a reproducible relationship is obtainable between the color intensity of the dithizone extract as measured with a photometric colorimeter and the amount of zinc present. Tests involving the determination of zinc in the presence of other metals which form dithizone complexes, the recovery of added zinc from various plant materials and the agreement between duplicate determinations proved the method to be accurate and remarkably free of interferences. A one-color method for the determination of zinc was tested and found to be inferior to the mixed-color method. The light transmission curve of zinc dithizonate in carbon tetrachloride was determined with a spectrophotometer. This curve is discussed in relation to filter selection for the photometric determination of zinc with dithizone.—H. COWLING and E. J. MILLER. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 145–149. (E. G. V.)

PHARMACOGNOSY

Cornus Muttallii—A Phytochemical Study of the Root Bark and Fruit of. This tree commonly called Dogwood thrives in the Douglas Fir forests of the Puget Sound area. Experimental work is described. Root bark and fruit were submitted to proximate analysis. Percentages of moisture, ash, sugars, starch, pentosans, crude fiber and protein are reported. About 1% of a glucoside, cornin, was identified by some of its physical properties and the melting point of the acetyl derivative. The root bark also yielded 0.41% of polyhydroxy alcohol scyllitol. No alkaloids were found. A fixed oil was separated from the fruit and some of its constants were determined.—EDWARD KRUPSKI and LOUIS FISCHER. *Jour. A. Ph. A*, 31 (1942), 126. (Z. M. C.)

Drug Plants—Collecting and Growing, in Denmark. In view of the lack of drugs in Denmark under German rule, the author discusses the collection of native drug plants and the growing of such plants in Denmark; also the drying of these drugs. A table cited 33 drugs, their habitats, the proper collection time, and the degree of loss of weight on drying. It was pointed out that teachers and school children could thus serve their nation's health in their spare time.—T. P. ELKJER, *Arch. Pharm. Chemi*, 48 (1941), 281. (C. S. L.)

Drug Plants—Collecting, in Norway. In view of the lack of drugs in Norway under German rule, the author discusses the collection and drying of native drug plants.—E. RAMSTAD. *Norg. Farm. Tidsskr.*,

11 & 12 (1941); through *Arch. Pharm. Chemi*, 48 (1941), 421. (C. S. L.)

Medicinal Plants—Collection of, in Sweden. In view of the isolation of Sweden caused by the war, the author discusses the collection and drying of native drug plants.—W. BONDESON. *Farm. Revy*, 40 (1941), 353. (C. S. L.)

Populus Tacamahacca Miller—History of.—KENNETH REDMAN. *Bull. Natl. Formulary Committee*, 10 (1942), 57–58. (H. M. B.)

Tabasco, a Substitute for Capsicum. Report is made of a study of the pungency of tabasco peppers, whether they might be employed as a substitute for capsicum and whether they contain capsaicine. The tabasco was extracted and a crystalline product obtained. This was identified as capsaicine. The whole tabasco pepper yielded about 0.4% of capsaicine and apparently it is distributed uniformly throughout the fruit. Tabasco tested organoleptically seemed about four times as pungent as U. S. P. Capsicum. It is recommended that domestic tabasco pepper be considered for inclusion in the Pharmocopœia in place of capsicum or that the monograph be revised to include tabasco pepper.—CARMEL H. OLDEN and E. V. LYNN. *Jour. A. Ph. A.*, 31 (1942), 84. (Z. M. C.)

PHARMACY

GALENICAL

Ascorbic Acid—Stabilizing Solutions of. Water-soluble edible colloids such as albumin, blood albumin, acacia, raw milk, gelatin or starch are used as stabilizers of solutions of ascorbic acid for incorporation with foods.—WM. H. ENGELS, JOHN WEIJLARD and REMSEN T. SCHENCK, assignors to MERCK & CO., INC. U. S. pat. 2,232,699, Feb. 25, 1941. (A. P.-C.)

Compound Syrup of Horseradish—Swiss Pharmacopœia V, Remarks on the Antiscorbutic Value of. It has been shown by others that the vitamin C content of syrups depends less on the temperature than on the presence of oxygen and that a rapid, hot extraction in the absence of air is less destructive than a slower cold percolation with free access of air. Other factors such as light, certain microörganisms, and the presence of oxidizing ferments may further destroy the vitamin C in the finished syrup. According to numerous assays, watercress and horseradish root contain about the same amount of ascorbic acid, namely, 80 mg. per 100 Gm. fresh material, from which it may be calculated that the syrup could contain about 300 mg. per Kg. At a minimum dose of 50 mg. per day, about 165 Gm. of syrup would be required. When samples of compound syrup of horseradish were prepared according to Swiss Pharmacopœia V, the syrup contained only 50 mg. per Kg. or only about one-sixth the expected amount on the basis of the fresh material. These results were confirmed in repeated trials. Saturation of the syrup with H_2S to reduce any dehydroascorbic acid gave an increase of only about 5 mg. ascorbic acid per Kg. Therefore, in the preparation of the syrup, a large part of the vitamin C is destroyed in an irreversible manner, and the official syrup contains only small amounts of ascorbic acid. The authors suggest that a critical consideration of the value of compound syrup of horseradish is necessary.—A. MIRIMANOFF and C. IMHOFF. *Pharm. Acta Helv.*, 16 (1941), 37. (M. F. W. D.)

Fatty Ointment Bases—Substitutes for. As a result of restricted importation, Switzerland is experiencing the rationing of fats. This necessitates the use of substitutes for the fats in ointment bases. A review of the literature on new ointment bases is given and the advantages of the various formulas are pointed out. One of the unusual bases is Dermazym, which consists of washed dead beer-yeast cells. It is stable, does not putrefy, is non-irritant, contains about 56% water and 22% protein and mixes well with many of the materials ordinarily dispensed in ointments. Other non-fatty ointment bases described are the ointment of glycerin of the Swiss Pharmacopœia V, bases made with pectin gels, methyl cellulose, mucilage of tylose and mixtures of glycerin and bentonite or alumina gel. Various formulas illustrating the incorporation of substances in these bases are included. Twelve references.—H. MÜHLEMANN. *Schweiz. Apoth.-Ztg.*, 79 (1941), 360. (M. F. W. D.)

Fluidextract of Thyme—The Suitability of Evacolation According to Kessler for the Preparation of. The processes of evacolation according to Kessler, diacolation according to Breddin and percolation according to the Swiss Pharmacopœia are considered. The process of evacolation is simple and conserves menstruum by avoiding the lengthy vacuum concentration of the percolate. The preparation of fluidextract of thyme was chosen for the study. A commercial sample of powdered thyme declared to be sieve IV was shown to be composed very largely of much finer particles. In the preliminary studies, powder conforming to sieves IVa, V, VI were used, the VII powder being too fine for either percolation or evacolation. Four series of extracts were prepared with each size powder: evacolation of dry-packed powder, evacolation of powder moistened according to pharmacopœial directions and percolation of dry powder or of previously moistened powder using the pharmacopœial menstruum. The method of controlling the rate of addition of menstruum and removal of evacolate is described in detail. The quantitative determination of the volatile oil content of the crude drug and the extracts was made and calculated as thymol. After much experimentation a satisfactory colorimetric method was developed which gave reproducible results with a maximum variation of 2 to 3%. The method is based upon the color formed by coupling in alkaline solution with diazotized sulfanilic acid and determining the light absorption of the solution. The absorption of known solutions of thymol determined by the same method was plotted from which the amount of thymol in the unknown may then be easily obtained. In another experiment 1 Kg. of thyme labeled sieve IVa was evacolated as such and the results compared with the preliminary studies. All results are tabulated. It was found that in small tests (200 Gm.) or larger runs (1 Kg.), evacolation proved itself superior to percolation. Further, no after-percolate remains to be concentrated which process in general proved to be worthless for drugs containing volatile oil as the active constituent. Further, one-half to two-thirds of the menstruum required for percolation is saved. The yield of volatile oil in the extract is very much dependent on the optimum particle size which for thyme is sieve IVa. In the studies of procedures it was found that aside from particle size, the yield of volatile oil in the four procedures in the diminished order: evacolation without moistening, percolation without moistening, evacolation with moistening and percolation with moistening. The procedure of the Swiss Pharmacopœia V proved itself to be the poorest of the methods studied. The powdered drugs of commerce are of poor quality with respect to particle size in that too much fine powder is included. If this is removed by sieving, not only is the amount of drug materially reduced but the active constituents are lost. The oil content of thyme powder seemed to be quite variable. A good drug should contain a minimum of 2 to

2.5% volatile oil.—H. MÜHLEMANN. *Pharm. Acta Helv.*, 16 (1941), 121–139. (M. F. W. D.)

Liquor Alumini Acetatis—A New Method of Preparing. Objectionable features of the present N. F. procedure of preparation are: (1) excess lead in the filtrate, (2) a variation of *p*H from 3.70–3.45, (3) variations in aluminum acetate content from 4.5–5.9%, (4) lack of stability resulting in the precipitation of basic acetate associated with a decrease in acidity of the solution and in aluminum acetate content and (5) frequent irritation of the skin. A new formula is proposed in which boric acid (0.56 Gm. per 100 cc.) is suggested as a stabilizer, yielding a product which contains no free lead and is a superior buffer solution.—F. C. COMBES. *Bull. Natl. Formulary Committee*, 10 (1942), 37–42. (H. M. B.)

Medicinal Plants—Process for Producing Concentrated Infusions from. In order to obtain concentrated infusions of medicinal plant parts containing substantial amounts of the bitter tannin principle, a first portion of the plant part is mixed with a fixed oil, such as corn, olive, linseed or cottonseed oil and water, in substantially the proportions of 1 lb. of the plant part, 1 pint of the fixed oil and 2 to 3 gals. of water. The mixture is placed in a still at a temperature not above about 100° F. and the temperature is increased to not over 240° F. in about 1 hr.; the treatment in the still and the condensation of the distillate is continued until the condensate amounts to substantially 1 gal. per lb. of plant part taken. A second portion of the plant part is mixed with the condensate in substantially the proportion of 1 lb. of plant part to 1 gal. of condensate at a temperature not exceeding 60° F. and the mixture is heated in a closed vessel to not over 105° F. in from 2 to 3 hrs. The contents of the vessel are strained; the strained liquid is returned to the vessel; the vessel is closed; the liquid is cooled to from 34° to 40° F. and held at that temperature for 10 to 15 hrs., and the final liquid is filtered to remove the precipitate that has formed. —JOHN B. ROLLE. U. S. pat. 2,234,063, March 4, 1941. (A. P.-C.)

Suppository Bases—The Substitute Problem of. The ever greater scarcity of fatty bases for suppositories such as cacao butter, oleum arachidis hydrogenatum and others makes the problem of replacing these bases important. The subject is considered from the following viewpoints: (1) the partial replacement of cacao fat by other fatty bases forming mixed bases, (2) the complete replacement of cacao fat by other fatty bases leading either to single or mixed bases and (3) the complete replacement of cacao or arachis fat by fat-free bases. The substitute bases suggested in the pharmaceutical literature are considered under the above headings and critically discussed. The questions considered are the suitability for preparation and the properties of the suppositories (technique of preparation, solidification, melting point, absorption of water and the resorption characteristics). Four formulas for the partial replacement of cacao butter, more more than ten for the complete replacement of cacao butter by other fats and several patented fat-free bases are considered. The authors indicate that several suitable bases for the replacement of cacao butter are available but the apothecaries should not use them generally until authorized by the pharmacopœial committee. Twenty-four references.—J. BÜCHI and P. OESCH. *Schweiz. Apoth.-Ztg.*, 79 (1941), 385. (M. F. W. D.)

PHARMACOPŒIAS AND FORMULARIES

Italian Pharmacopœia VI. Brief comments on the 6th edition of the Italian Pharmacopœia.—ANON. *Schweiz. Apoth.-Ztg.*, 79 (1941), 245. (M. F. W. D.)

Pills in Antiquity. The article presents information obtained from a 16th century Codex of a historical nature concerning pills.—ANON. *Schweiz. Apoth.-Ztg.*,79 (1941), 339. (M. F. W. D.)

Solutions of the B. P. The official solutions have been classified into the following groups: Simple solutions of chemicals; solution containing preservatives or stabilizers; compound solutions; solutions involving a chemical reaction; solutions obtained by special methods.—C. GUNN. *Retail Chemist*, 12 (1941), No. 3, 23. (A. C. DeD.)

Tannin—Ovules of, The Question of. The formula adopted by the Codex for this preparation is the one developed by the pharmacist Orinon. Several difficulties are encountered such as the facts that gelatin and tannin, two components, are incompatible; that the temperature must not rise above 60° and that the mass is an excellent culture medium for bacteria, particularly if the temperature has not been raised as high as 50°. The authors have made a systematic study of the formula and of varying the components to obtain a satisfactory preparation. The procedure recommended is one suggested by Goris, in which 0.6 Gm. of borax is added per ovule of 15 Gm. The tannin is dissolved in one part of water and the borax dissolved in the remainder of the water is then added. This mixture is allowed to stand 1/4 hr. with the gelatin. The mixture is then warmed to 60° and the glycerin, pre-warmed to the same temperature, is added with stirring when a homogeneous mixture is obtained. It is allowed to cool in a mold greased with liquid petrolatum. Transparent ovules are obtained which are entirely soluble in water at 37°. The preparation, since it is slightly acid, resists bacteria infection better than the older formulas.—A. MIRIMANOFF and M. MORI. *Schweiz. Apoth.-Ztg.*, 79 (1941), 453. (M. F. W. D.)

The Fourth Addendum. A list of the new monographs to be included in the Fourth Addendum of the British Pharmacopœia, 1932, is given.—*Retail Chemist*, 12 (1941), No. 9, 21. (A. C. DeD.)

DISPENSING

Ampuls—Preparation of, in the Prescription Laboratory. Because physicians are writing for ampuls with increasing frequency, a knowledge of the proper preparation of this form of medicament is essential. Since the private pharmacy scarcely ever enjoys the ideal equipment of a hospital pharmacy, some suggestions as to practical methods for preparing ampuls is of interest. Simple and rapid methods for preparing ampuls in the drug store are described. In addition, diagrams of apparatus for washing and drying ampuls and for filling ampuls with limpid liquids and with oils are given. Plates of other apparatus such as a device for cutting all ampuls to the same neck size and apparatus to wash a hundred ampuls at a time are shown. The proper sealing of ampuls and testing for leakage is also described.—KESSLER. *Schweiz. Apoth.-Ztg.*, 79 (1941), 352. (M. F. W. D.)

Anesthetic Ether—Technique for Preparing Bulk. The construction of a special laboratory for this work and the procedures for preparing the same by the hospital pharmacist with the necessary precautions are discussed in detail.—DONALD A. CLARKE. *Am. Professional Pharmacist*, 8 (1942), 97–108, 128. (H. M. B.)

Antiseptics in Various Ointment Bases. Many studies of the bactericidal effects of ointments have been reported. Reference is made to some of these. The present investigation was made for the purpose of studying the antiseptic action of commonly known chemicals in bases of various types: fatty, non-fatty, water-absorption and gels. *Staphylococcus aureus* was the test organism. The U. S. Department

of Agriculture Agar-Plate and Agar-Cup-Plate methods were used. Wool fat-petrolatum-wax mixtures in varying proportions were tried with 2% phenol and with 10% ammoniated mercury. A table shows the results. The phenol ointments were consistently not bacteriostatic. Another series of 18 formulas was tried. Several new type bases are given. Boric acid was negatively bacteriostatic in fat-like bases but positive in hydrophilic compounds. Ammoniated mercury was consistently active in all bases but most active in vanishing cream. Yellow oxide gave positive reactions in all bases with largest zones of inhibition in vanishing cream, sodium alginate and methyl cellulose but increased zones over the controls was not significant. In general, calomel was more active in hydrophilic bases. Phenol was inactive in the usual bases, showing most activity in the Seltzer Base 4, and with vanishing cream sodium alginate and methyl cellulose but results were not significant. Iodine was the most active of all the chemicals, behaving well in all fat-like bases but being incompatible with vehicles containing large amounts of water. Whitfield's Ointment was more active in water-holding bases but developed incompatibilities in highly aqueous ones. Ichthammol acted similarly. Zinc oxide was inactive, calamine erratic. Careful examination of results indicated that ammoniated mercury, calomel, iodine, benzoic and salicylic acids, ichthammol and prepared calamine were bacteriostatic in the official ointments and antiseptic action was not much greater when incorporated in water-holding bases. Apparently the nature of the chemical has as much or more to do with bacteriostatic action than does the composition of the vehicle. Some few perhaps deserve further study.—EILEEN FOLEY and C. O. LEE. *Jour. A. Ph. A.*, 41 (1942), 105. (Z. M. C.)

Tinctures—Preparation of. I. The maceration procedure is used for the preparation of many tinctures but there is no uniformity among pharmacopœias as to the time of maceration nor is any statement made as to the manner of shaking. The authors undertook a study of the preparation of tincture of cinchona by variations of the maceration method using different menstrua. Cinchona bark assaying 7.4% alkaloids was used as a coarse powder. A tincture prepared by 10-day maceration with dilute alcohol assayed 1.25% alkaloids. Tinctures were also prepared by maceration with continuous agitation for varying periods of time. In all cases, tinctures prepared by continuous shaking for 15 min. met the requirements of the Swiss Pharmacopœia V, the German Pharmacopœia VI and the Turkish Pharmacopœia II. The addition of hydrochloric acid to the alcoholic menstrua resulted in better yields of alkaloids. Formic and phosphoric acids when added to the alcohol showed no advantages over hydrochloric acid. The addition of citric acid to the alcoholic menstrua yielded tinctures with an alkaloidal content only slightly lower than those made using hydrochloric acid. Maceration with shaking for $^1/_2$ hr. using 70% alcohol produced a tincture equal in potency to that prepared by 10-day maceration. It is shown therefore that tincture of cinchona can be satisfactorily prepared on a small scale in such short periods as $^1/_4$ to $^1/_2$ hr. Whether this procedure of "shaking maceration" can be extended to the preparation of other tinctures will be the subject of future papers.—L. ROSENTHALER and O. N. JALCINDAG. *Pharm. Acta Helv.*, 16 (1941), 149. (M. F. W. D.)

Topical Medication—Alkaline. A common formula for topical medication is that of sodium borate with glycerin, which in reality is slightly acid when an alkaline medium is desired. Even if honey is used along with, or in place of glycerin, the compound is still acid. A justification for this as a vehicle for alkaloids is to prevent the precipitation which occurs in an alkaline medium. Its virtues are the mild antiseptic value of the borate with the bacteriostatic and antipholgistic action of the glycerin. A satisfactory formula in cases where alkalinity is essential is sodium borate 20 Gm. and simple syrup 80 Gm., which has a *p*H 8.2, is antiphlogistic (by endosmosis) and antiseptic due to the borate.—CARLOS M. GESIMO and RAFAEL QUESADA. *Rev. Col. Farm. Nac.*, 8 (1941), 29. (G. S. G.)

PHARMACEUTICAL HISTORY

Apothecary Shop at Mariager, Denmark—Old. The first apothecary in the town of Mariager, Denmark, was Christian Frederick Baadsgaard and the building which housed the apothecary shop from its start in 1829 until 1871 still stands. In 1871 the shop was moved next door, and continues to serve the town to-day. Illustrations depict the two shops and the interior of the present shop.—ANON. *Arch. Pharm. Chemi*, 48 (1941), 490. (C. S. L.)

Apothecary—Some Expressions Which Refer to the, or Are Derived from Him. A short article calling attention to some phrases from common language which refer to the apothecary.—H. LEHMANN. *Schweiz. Apoth.-Ztg.*, 79 (1941), 369. (M. F. W. D.)

Biological Science—Contribution to the History of. The author presents an extensive review of a rather rare and curious book entitled "Elements of Natural History and Chemistry" by Fourcroy (1791), volume four. In this work is presented a review of the state of biological science at the close of the 18th century.—A. VERDA. *Pharm. Acta Helv.*, 16 (1941), 44–47, 109–119. (M. F. W. D.)

Charles Béguin A biographical sketch of Charles Béguin (1874–1941) with a photograph.—PIERRE DE CHASTONAY. *Schweiz. Apoth.-Ztg.*, 79 (1941), 357. (M. F. W. D.)

Elements—History and Etymology of. The article contains brief statements on the discovery of the elements and the origin of some of the names.—M. CRABBÉ. *Schweiz. Apoth.-Ztg.*, 79 (1941), 16, 59 and 81. (M. F. W. D.)

Pharmacy—The Patron Saints of. This paper directs attention to the fact that from earliest times man has invoked the supernatural. The reputation of a healer often survived his time. Stories of simple cures grew into miraculous feats. The paper recalls some of the incidents in the lives of the saints who have been adopted as the patrons of pharmacy. The most widely recognized are two brothers, Cosmos and Damian. Born in the 3rd century A.D., Christendom early recognized their reputation in medicine, pharmacy and surgery. The paper contains numerous incidents in their lives and is well illustrated. Other saints about which some information is given are James, Nicholas, Roche and Emilien.—LESLIE G. MATTHEWS. *Jour. A. Ph. A.*, 31 (1942), 89. (Z. M. C.)

Vitamin K—Discovery of. A brief review of the discovery of vitamin K, taken from the new book "Vitamin K and Its Clinical Use" by Fritz Koller and published by Georg Thieme, Leipzig, 1941, is given.—ANON. *Schweiz. Apoth.-Ztg.*, 79 (1941), 507. (M. F. W. D.)

PHARMACEUTICAL LEGISLATION

Drug Trade and the Bill. A review of the new Pharmacy and Medicines Bill as it is likely to affect the manufacturer, the wholesaler and the retailer in the Drug Trade.—*Retail Chemist*, 12 (1941). No. 8, 10. (A. C. DeD.)

Drugs—Adulteration of. The Triennial Report of the Biochemical Standardization Laboratory reveals the staggering extent of adulteration in drugs and proprietary medicines and of the circulation of drugs of below standard in the mark t. Survey of 3 yrs.' work reveals that of 1329 samples of various drugs tested, 50% were found not to conform to the existing standards of specification; of 1044 samples of pharmacopœial preparations, 46% were sub-standard. The survey shows the seriousness of the situation regarding drug adulteration existing in the country and it is hoped that the Drugs Act of 1940 will prove effective in controlling these conditions.—ANON. *Ind. & News Ed. J. Indian Chem. Soc.*, 4, No. 3, (1941), 208. (F. J. S.)

Explaining the Bill—Labeling. One of the most important sections of the new Pharmacy and Medicines Bill is that covering the labeling requirements. That particular section is analyzed in this article.—*Retail Chemist*, 12 (1941), No. 10, 14. (A. C. DeD.)

Export Control. Under a Board of Trade Order coming into force on November 6, licenses will be required to export spices to all destinations. The Order (S. R. & O., 1941, No. 1615) also prohibits the export except under license of neoprene and manufactures thereof and extends the existing prohibitions relation to borax and boric acid.—*Chemist and Druggist*, 136 (1941), 127. (A. C. DeD.)

Mosquito Nuisances—Control of. Measures for the control of nuisances caused by mosquitoes in Great Britain are described in a memorandum issued by the Ministry of Health.—ANON. *Chemist and Druggist*, 134 (1941), 352. (A. C. DeD.)

Naphtha and Xylol Controlled. The Board of Trade has made the Coal Tar Naphtha and Xylol Order, 1942 (S. R. & O., 1942, No. 218), which subjects to licensing control the acquisition and disposal of these materials. The Order came into force on March 1st.—*Chemist and Druggist*, 137 (1942), 219. (A. C. DeD.)

Pharmacy and Law Enforcement. The relationship of pharmacy and kindred subjects to the law enforcement activity of the Federal Bureau of Investigation is discussed.—HARRY W. CHADDUCK. *Am. Professional Pharmacist*, 8 (1942), 87–92. (H. M. B.)

Pharmacy in Great Britain in 1942. The changes in the legal standing of pharmacy in Great Britain and the problems of practice are discussed.—H. PRICE. *Am. Professional Pharmacist*, 8 (1942), 26–29. (H. M. B.)

Sera and Vaccines—Government Control in Switzerland. The article includes a historical review of the introduction of sera and vaccines, the development of the government inspection of the preparation and sale of sera, the control of sera and vaccines according to the proposals of the federal council as of Dec. 17, 1931, the standards which must be met, the standardization of sera, the labeling of packages and other subjects.—B. FUST. *Schweiz. Apoth.-Ztg.*, 79 (1941), 224, 233, 249, 261, 275, 287. (M. F. W. D.)

The Bill—Clause by Clause. The author gives his views on the new Pharmacy and Medicines Bill, —H. M. HIRST. *Retail Chemist*, 12 (1941), No. 8. 13. (A. C. DeD.)

United States Drug Administration Lists Prescription-Only Drugs. According to a recent issue of *Drug Topics*, the United States Food and Drug Administration has officially indicated a list of drug products which it deemed to be dangerous if consumed other than upon the basis of expert advice and under constant supervision. A list of ingredients which should not be distributed over the country for indiscriminate lay use is given.—ANON. *Australasian J. Pharm.*, 22 (1941), 271. (A. C. DeD.)

PHARMACEUTICAL ECONOMICS

Drugs—Further Economies in. The Medical Research Council have compiled a supplement to their War Memorandum No. 3, "Economy in the Use of Drugs in War-Time," published earlier this year. The classification followed is the same as that adopted in the Memorandum, *i. e.*, (A) drugs which are at present either (1) regarded as essential or (2) readily available; (B) drugs which are essential for certain purposes but not for others, and with these strict economy should be observed; (C) drugs which are not essential and do not justify importation or manufacture for home use in wartime.—*Chemist and Druggist*, 136 (1941), 216. (A. C. DeD.)

Prescription Specialty Products—Marketing of. Prescription specialty items are considered as representing products which are for the most part used by the public on the order or precription of the physician. After demand on the part of the physician has been created, it is then important that the prescription specialty products demanded be easily available for immediate purchase. The various channels of distribution for these prescription specialty products are: (1) direct to the physician; (2) direct to hospitals and clinics; (3) direct selling to physician supply houses; (4) direct to pharmacists; (5) direct to wholesaler and retailer; and (6) through combined channels of distribution. The author gives the various advantages and disadvantages of each method of distribution.—E. L. NEWCOMB. *Proceedings, American Pharmaceutical Manufacturers' Association, Annual Meeting*, June (1941), 138–150. (N. L.)

Mexican Drug Prices Increased. Prices of medicinal and pharmaceutical products in Mexico have been increased by 50% as from January 1st, making a total increase of over 200% since 1939.—*Chemist and Druggist*, 137 (1942), 451. (A. C. DeD.)

Wartime Drug Supplies. Extracts from an address given by Mr. Arthur Mortimer, secretary of the Wholesale Drug Trade Association and Chairman of the Pharmaceutical Export Group, to members of the Pharmaceutical Society at a meeting held on January 16th.—*Retail Chemist*, 12 (1941), No. 2, 14. (A. C. DeD.)

MISCELLANEOUS

Acriflavine—*Components of.* While mixtures containing about 30% of 2:8-diaminoacridine exhibit a slightly greater solubility than those of each component or other mixtures of each, the enhancement of solubility is not great. Data obtained afford little evidence of the formation of any definite eutectic or compound. No mixture of the two components possesses greater bacteriostatic power than either component. The bacteriostatic values obtained for the two components and their mixtures are of the same order as those recorded for acriflavine. These facts point to the presence in acriflavine of one or more unknown constituents which, while not affecting the bacteriostatic value, do appreciably enhance the solubility. Results taken in conjunction with the evidence of the greater toxicity of acriflavine, suggest that there is no logical basis for the continued use of acriflavine in preference to proflavine, the bacterostatic value of which is of the same order as acriflavine. The best derivative of 2:8-diaminoacridine to use would be the neutral and even though its solubility is small (about 1 in 300) it is sufficient to permit the preparation of solutions more concentrated than

those used in practice. It is therefore suggested that proflavine or the neutral hydrochloride of 2:8-diaminoacridine should replace acriflavine for surgical use.—H. BERRY. *Chemist and Druggist*, 134 (1941), 267. (A. C. DeD.)

Cosmetic Raw Materials. A brief guide is published of the present-day uses of many of the raw materials found in cosmetics to-day, together with a list of their supplies.—H. S. REDGROVE. *Retail Chemist*, 12 (1941), No. 2, 12, 16. (A. C. DeD.)

Cotton—Substitute for. The production of various kinds of cellulose thread is briefly reviewed. The viscose threads when dried and cut to definite length are known as "Zellwolle" or "Stapelfaser." Its preparation, properties and uses are described. It was tested for adaptability to medical use according to the tests prescribed by the Swiss Pharmacopœia V for purified cotton, for its adsorptive power for water and its behavior upon sterilization. Under the microscope it exhibits a characteristic appearance and it may be detected in purified cotton. "Zellwolle" may be used with purified cotton in the manufacture of padding and gauze for bandage. The products meet the requirements of the Pharmacopœia and of the clinic. Methods are given for the detection of "Zellwolle" in padding and gauze. Cellulose wadding, made of specially purified cellulose obtained from poplar and beechwood, was also investigated. It appears on the market as a fleece composed of 12 or more thin sheets. It was investigated in much the same manner as "Zellwolle." The author found that the bleached cellulose wadding made in Switzerland is of good quality and meets the various tests applied.—J. THOMANN. *Pharm. Acta Helv.*, 16 (1941), 49. (M. F. W. D.)

Emulsified Perfumes and Toilet Waters. Suggestions for substitutes for alcohol used in these preparations are offered.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 50 (1942), 388–389. (H. M. B.)

Ether Explosions—Warning about. A general warning to avoid the use of peroxide-containing ether in laboratory extractions is given. To be safe, one should test the ether for peroxides frequently. Two tests for peroxide and the Tandberg method of purifying ether are given.—ANON. *Schweiz. Apoth.-Ztg.*, 79 (1941), 294. (M. F. W. D.)

Indole. Indole, C_8H_7N, was first obtained by Baeyer and Knop in 1866 during the course of a study of the structure of indigo. Later, Baeyer and Emmerling proposed the accepted formula. The system of nomenclature used currently is to designate the nitrogen as 1, and with clockwise assignment of number to the carbon atoms; the 2- and 3-positions are occasionally referred to as the α- and β-positions, respectively. Indole derivatives occur widespread in many natural products. It is also found after putrefactive processes have taken place. Indole and several homologous derivatives have been obtained from coal tar. The various syntheses of indole and its general chemical properties are reviewed. Indole is readily converted to 2,3-dihydroindole by electrolytic reduction or by catalytic hydrogenation. Catalytic hydrogenation under reduced pressure produces first the dihydroindole, but absorption of hydrogen may continue, to form either octahydroindole or an aniline derivative if the pyrrole ring is fractured. The simple nitro derivatives of indole are not obtained through direct nitration but are prepared by indirect methods such as those of Fischer. Direct chlorination and bromination to yield indoles substituted in the benzene nucleus are not feasible. Under the heading, "Simple Derivatives of Indole," there is given a general description of the various simpler indole derivatives; the effect of substituents in the pyrrole ring on the molecule is discussed. An extensive account of the Fischer synthesis of indole derivatives is reviewed. The indole nucleus is found to be present in a varied group of products occurring naturally. Most of these show marked physiological activity and some are extremely complex in structure; a tabulation of the various complex natural products containing the indole or dihydroindole grouping is given. Chemical properties, aiding in the detection and identification of indole, and the various alkyl- and aryl-substituted indoles are also tabulated. The review is accompanied by an extensive bibliography of 419 references.—R. B. VAN ORDER and H. G LINDWALL. *Chem. Rev.*, 30 (1942), 69–96. (N. L.)

Insecticide. Use is made of compositions such as solutions or emulsions containing as a toxic ingredient a β-(2-cyclohexylphenoxyl)ethyl vinyl ether or other unsaturated ether compound of the general formula $RO(C_nH_{2n}O)_mC_nH_{2n-2}X$ (in which R represents an aromatic radical, X represents chlorine, bromine or hydrogen, m is an integer not greater than 4 and n is an integer not greater than 6).—CLARENCE L. MOYLE and GERALD H. COLEMAN, assignors to THE DOW CHEMICAL CO. U. S. pat. 2,234,381, March 11, 1941. (A. P.-C.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY

Adrenaline—Protein Catabolism and Protein Sparing under. Adrenaline has been shown to increase the catabolism of protein, but protein can still be spared by giving carbohydrate, even when the metabolic rate has been raised by adrenaline. The protein-sparing action of carbohydrate appears to be linked with the physiological role of insulin, since it is not shown under ordinary conditions by the depancreatized animal without insulin. Since the protein-sparing action of carbohydrate still functions when adrenaline is given, adrenaline and insulin do not have strictly antagonistic physiological roles despite their opposing actions on the blood sugar.—CHARLES REID. *Biochem. J.*, 35 (1941), 534. (F. J. S.)

1-Alkyl-2-Dialkylaminoalkyl-3-Aminophthalates as Local Anesthetics. A number of 1-alkyl-2-dialkylaminoalkyl-3-aminophthalates have been described. Many of these products proved to be strong local anesthetics when tested on the rabbit cornea.—F. F. BLICKE and C. OTSUKI. *J. Am. Chem. Soc.*, 63 (1941), 1945. (E. B. S.)

Anesthesia—Intravenous, in Obstetrics. The advantages of intravenous anesthesia in the easier obstetric operations are discussed. In over fifty cases in which evipan sodium in 1-Gm. doses has been used it has given entire satisfaction, and there have been no complications in the progress of mother or child. A brief account of the technique is given.—K. M. ROBERTSON. *Brit. Med. J.*, 4195 (1941), 815. (W. H. H.)

Antihemorrhagic Activity—Further Compounds Having. The method developed for the synthesis of vitamin K_1 has been found capable of wider application and further preparation of antihemorrhagic compounds by this method is described.—L. F. FIESER, M. TISHLER and W. L. SAMPSON. *J. Am. Chem. Soc.*, 62 (1940), 996. (E. B. S.)

Antihemorrhagic Compounds—Antioxidant Properties of. It is definitely established that there is no correlation between antihemorrhagic activity and antioxidant properties α-Naphtho- is less active than the β-naphthoquinones, though the latter are not so active as the benzoquinones.—C. GOLUMBIC. *J. Am. Chem. Soc.*, 63 (1941), 1163. (E. B. S.)

Calcium—Regulation of Gastric Acidity by, in Mucus. The theory that mucus is an important factor for the reduction of gastric acidity is supported by the present experiments on animals. Previously it was found that calcium concentration of gastric secretions varied inversely with the acidity of the secretions. The present investigator found that mucus from surface epithelial cells and from the cells producing it in the vagas-provoked type of secretion is an immediate source of calcium in gastric secretions. Actively functioning peptic or parietal cells do not appear to be necessary for production of the mucus, and the migration of H ions out of the stomach is not an essential factor for the reduction of acidity. An important factor responsible for calcium and acidity variations in gastric secretions is the presence of varying amounts of mucus in secretions of different types. Calcium is liberated from the mucus in a reaction which is associated with reduction of acidity, and is an index of this reaction. —R. GRANT. *Am. J. Physiol.*, 135 (1942), 496; through *Abbott Abstract Service*, (1942), No. 1087. (F. J. S.)

Cancer-Producing Compounds—Correlations among. Structural relationships, physical characteristics, chemical behavior and biological studies are described.—J. W. COOK. *Chemistry and Industry*, 60 (1941), 242–243. (E. G. V.)

Cannabidiol—Structure of. VI. Isomerization of Cannabidiol to Tetrahydrocannabinol, a Physiologically Active Product. Conversion of Cannabidiol to Cannabinol. By a variety of reagents cannabidiol loses one hydroxyl and a double bond and is isomerized to tetrahydrocannabinol. The structure of the latter product was determined by dehydrogenation to cannabinol. The tetrahydrocannabinol varies in rotation upon the mode of formation, probably because of the difference in the position of the double bond in the tetrahydrocannabinol. The tetrahydrocannabinol preparations showed marihuana activity many times that of the purified red oil used for isolation of cannabidiol. The hexahydrocannabinol is also active. The inactivity of cannabidiol by tests on crystalline material has been confirmed.—ROGER ADAMS, D. C. PEASE, C. K. CAIN and J. H. CLARK. *J. Am. Chem. Soc.*, 62 (1940), 2402. (E. B. S.)

Corpora Lutea—Evolution of. Sex hormones have an intragonadal point of attack and are decisive for certain phases of gonad evolutions; 100 to 500 μg. daily doses of certain estrogens, given more than 10 days, produce pregnancy corpora lutea in adult rats, or in rats having common corpora lutea as a result of pretreatment with gonadotrophins. The effect is parallel with the dose but independent of the estrogenic potency in the vagina. Progesterone, male, adrenal cortical hormones, ergosterol and vitamin D are either inert or have inhibitory effect upon trophic evolutions in the ovary. Estrogens, while stimulating trophic evolution from the level of common luteocyte onward, inhibit the trophic progress of ovarian cells from the lowest levels of their evolution. The pituitary type of luteinizing gonadotrophin is produced more abundantly under the stimulus of estrogens, which in the ovary cooperate with it to produce pregnancy luteocytes. Evidence is produced to prove this conception of the endocrine mechanism of the evolution of corpora lutea of pregnancy. Every evolutionary phase ends in acquired relative refractoriness of ovarian cells, thus preparing old structures for regression and after reaching their time limit removing the "competition" by which they temporarily restrain new phases of evolution in other ovarian compartments. The normal time of persistence under these conditions is 10 days for common luteocytes and an additional 10 days for pregnancy luteocytes in rats. These time limits are only slightly changed by intensive treatment.—K. G. DAVID, J. FREUD and I. E. UYLDERT. *Arch. intern. pharmacodynamie*, 65 (1941), 312. (W. H. H.)

Dioxydiethylstilbene—Investigations with. Dioxydiethylstilbene is compared with estrone and estradiol for its effect on estrus in female rats. A dose of 0.1 cc. of an oil solution of each of the three substances and the criterion of activity conformed to the International Standard. Immature and castrate rats were used. Pathological studies were also made of the effect on the endometrium, on the anterior hypophysis, on ovaries and mammary glands. There was prompt elimination in the urine. Toxicity studies were made on rabbits, cats and guinea pigs, which succumbed only after massive doses; while no chronic toxicity was noted in rats treated daily. It is concluded that the preparations of dioxydiethylstilbene (Cyren) have similar action to folliculin, and may be considered superior to estrin. —W. GRAB. *Anales farm. bioquim.*, 11 (1940), 119. (G. S. G.)

Drug Prophylaxis against Lethal Effects of Severe Anoxia. II. Alcohol, Amytal and Pentobarbital. Full narcotic doses of ethyl alcohol significantly reduced the lethal effect of severe acute anoxia in mice if administered 1 hr. prior to exposure to reduced oxygen pressure but not if administered 14 hrs. before exposure. Amytal and pentobarbital do not produce comparable prophylactic effects.—G. A. EMERSON, E. J. VAN LIERE and JAMES L. MORRISON. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 376. (A. E. M.)

Enteric-Coated Pills—Absorption of. Radioactive methods were adopted by the authors to test the efficacy of enteric-coated pills to resist destruction of the gastric juices yet permit absorption of the medicament in the small intestines. With radioactive materials as fillings, any crack in the coating is detected at once by the appearance of radioactive material in the blood stream (measured by the activity in the hand), and the capsule can be followed on its way through the digestive tract until it is dissolved. The authors used ordinary gelatin capsules filled with about 0.3 Gm. of radioactive sodium chloride. The initial activity of the sample was of the order 500–700° C. The capsule was coated with a mixture of shellac, castor oil and alcohol, administered orally. It was followed through the digestive tract by the aid of a movable bell-type counter. Simultaneously, the activity of one hand of the patient was measured to determine the movement when the active material had reached the blood stream. The first sign of activity in the hand was detected a few minutes after intake; it then increased steadily to reach a constant value in about 3 hrs. The pill was located for about 1 hr. in one position in the stomach; it then moved toward the pylorus and was located again in the small intestines. After $2^1/_2$ hrs. the movable counter indicated that the pill had dissolved and the activity was spread over a large area. The activity now appeared in the hand, which was, up to this time, entirely inactive. Activity reached a maximum after about 8 hrs., and then decreased to equilibrium value. Earlier indications of activity occurred with a pill which apparently was leaking, for activity in the hand could be detected half an hour after intake. The pill itself could be followed for about 8 hrs., when it finally dissolved in the intestines. At this time this activity in the hand raised, reached a maximum in about 1 hr. and fell again to a level higher than the first one, since now the total activity was distributed throughout the body. Results indicated that the majority of the hand-made pills tested dissolved in the small intestines. The authors direct attention to the fact that the curve for the

time-rate of absorption from the stomach is entirely different from the absorption-curve from the small intestines. In the first the absorption reaches a level that remains constant for hours, and decreases only after a large amount of the salt has been excreted.—LARK-HOROVITZ and LENG. *Nature*, May 10, p. 580; through *Chemist and Druggist*, 135 (1941), 84. (A. C. DeD.)

Enteric Coatings. A New Method of Testing. To test enteric coatings *in vivo*, it is necessary to make the preparations opaque or to make them self-radiating. The latter method is well suited since sodium chloride can be used. Used in the form of crystals it is activated by the impact of heavy hydrogen nuclei, deuterons, accelerated to several million volts by a cyclotron or high-tension machine available in nuclear physics laboratories. Both the sodium and the chlorine become radioactive. Sodium emits fast electrons and gamma rays and is detected by the latter, a Geiger-Müller counter being used. Details of the experimental work are reported and results discussed. It is shown that the method is effective. The advantage over the X-ray method is that equipment is inexpensive and simple, also leaks or breaks in capsules can be detected. Comparison of these tests substantiate the findings of Goorley and Lee who used the X-ray. Measurements of the activity of the hand as compared with similar measurements after feeding the salt in solution show a maximum in the absorption curve which is characteristic for the uptake of activated sodium from the small intestine. The method may be applied to solution of problems of metabolism in the intestinal tract.—K. LARK-HOROVITZ and HERTA R. LANG. *Jour. A. Ph. A.*, 31 (1942), 99. (Z. M. C.)

Ergotamine—Mydriatic Effects of. Ergotamine tartrate when dropped into the conjunctival sac or injected into the anterior chamber of the rabbit's eye causes mydriasis. The sympathectomized rabbit's iris appears to be more sensitive to ergotamine tartrate than is the normal iris. However, adrenalectomy abolishes this apparent observed sensitization.—M. E. DRAKE and C. H. THIENES. *Arch. intern. pharmacodynamie*, 65 (1941), 390. (W. H. H.)

Ergotoxine, Ergotamine and Ergonovine—the Elimination of. The general impression about the "fate and excretion" of ergot alkaloids is that little is known. It is difficult to follow the rate of elimination by chemical methods because the original dose is so small. Pharmacological procedure is likely to be unreliable because of wide variation in reactions of animals to a given dose and because of the appearance of delayed gangrene. Chemical methods have been reëxamined and by adopting special procedures and using guinea pigs with a high fatal dose it was possible to secure data on the rate of disappearance. Procedures for blood and other tissues are given, specificity, sensitivity, accuracy and the role of the liver and kidneys in the elimination are discussed. The principle of the method is colorimetric, based on the production of a blue color with *p*-dimethylamino-benzaldehyde as described by Van Urk, which became official in the 1934 British Pharmacopœia. The three pharmacologically active ergot alkaloids, ergotoxine, ergotamine and ergonovine, disappear quite rapidly from blood and muscle of guinea pigs after administration. The late appearance of gangrene cannot be explained by long-continued presence of these drugs in the body. The alkaloids appear to be detoxicated rather than excreted and the liver seems to have a part in the process.—JEROME C. KOPET and JAMES M. DILLE. *Jour. A. Ph. A.*, 31 (1942), 109. (Z. M. C.)

Eserine and Prostigmine—Action of, on Epileptic Cerebral Discharges. In six out of seven experiments carried out on epileptic patients eserine in doses not large enough to cause symptoms reduced the petit-mal activity seen in the E. E. G. With large doses the epileptic activity was increased. Prostigmine invariably caused an increase in the petit-mal activity in ten experiments. The effect of eserine was reversed by prostigmine and the effect of prost gmine and of large doses of eserine was abolished by atropine. Other factors known to precipitate petit-mal epilepsy were controlled and the results suggested that the effect may be a central one, but futher work is being undertaken to attempt to establish the mode of action. A study of the effects of other autonomic drugs on the electrical activity of the cerebral cortex offers a new approach to the investigation of the etiology of epilepsy.—D. WILLIAMS and W. R. RUSSELL. *Lancet*, 240 (1941), 476. (W. H. H.)

Estrogenic Substances—Synthetic. II. Hexestrol and Some of Its Esters. Satisfactory procedures have been described for the preparation of hexestrol and its esters. Pharmacologic results indicate that the esters are less potent estrogens than hexestrol, but that the estrogenic action is more prolonged.—E. L. FOREMAN and C. O. MILLER. *J. Am. Chem. Soc.*, 63 (1941), 2240. (E. B. S.)

Evipan and Numal. The tolerance of the dog to Evipan and Numal is an undisputable fact. When an animal does not show a greater anesthetic effect from a given dose of barbiturate augmentation of the dose produces a sleep of transitory nature. Certain individuals acquire tolerance very rapidly, others less so. To obtain a rapid tolerance it is necessary to carefully choose the anesthetic doses. When the action of two anesthetics is considered, the tolerance is specific. The administration of Evipan to a dog accustomed to Numal causes sleep and lowered tolerance. The fall in blood pressure disappears as the animal becomes tolerant to the anesthetic. A close correlation exists between the anesthetic effect of barbiturates and their influence upon circulation.—M. J. DALLEMAGNE. *Arch. intern. pharmacodynamie*, 65 (1941), 52. (W. H. H.)

Horse Serum, Horse Serum Albumin and Horse Serum Globulin—Comparative Effects of, in Experimental Shock. Horse serum albumin solution is effective in raising and maintaining the blood pressures of dogs subjected to severe hemorrhage. Equally effective is whole serum of the horse. However, horse serum globulin solution is far less effective in this respect and appears to be more toxic.—HARRY A. DAVIS and A. G. EATON. *Proc. Soc. Expil. Biol. Med.*, 49 (1942), 359. (A. E. M.)

Iodinated Casein—Effect of Progressive Iodination on the Thyroidal Activity of. The following summary is given: (1) Casein and total skim milk proteins, buffered with sodium bicarbonate, were combined with progressively increasing amounts of iodine and the iodine content and the thyroidal activity of the resulting iodoproteins were tested. (2) It was found that under these conditions of iodination thyroidal activity reaches a maximum when sufficient iodine has been combined to substitute two atoms of iodine on the tyrosine ring. Further iodination results in a significant decrease in thyroidal activity. (3) From a consideration of the iodine contents of the dialyzed iodoproteins in relation to their original tyrosine content, it appears that the method of iodination used favors a substitution on the tyrosine ring, with little or no substitution in other parts of the protein molecule.—E. P. REINEKE, M. B. WILLIAMSON and C. W. TURNER. *J. Biol. Chem.*, 143 (1942), 285. (F. J. S.)

Ketones of the Stilbestrol Group. In view of the estrogenic potency of stilbestrol, several related ketones have been prepared and studied for pro-

gestational activity. By treating 4-cyano-4′-methoxy-α-ethyldeoxy-benzoin with MeMgBr and hydrolyzing the product 4-methoxy-4-acetyl-α-methyl-β-ethylstilbene was obtained which on demethylation gave 4-hydroxy-4′-acetyl-α-methyl-β-ethylstilbene (I). The estrogenic properties of I and related compounds are of an order to inhibit the exhibition of progestational activity.—R. JAEGER and ROBERT ROBINSON. *J. Chem. Soc.*, (1941), 744–747. (W. T. S.)

Local Anesthetics—Synthesis of Certain, of the Biphenyl Series. The synthesis of the following compounds has been described: di-(β-diethylaminoethyl)-5,5′-diaminodiphenate, β-diethylaminoethyl 4-amino-4′-biphenylcarboxylate, di-(β-diethylaminoethyl) - 2,2′ - diamino - 5,5′ - biphenyldicarboxylate. Pharmacological tests have shown them to be powerful anesthetics.—F. H. CASE and E. KOFT, JR. *J. Am. Chem. Soc.*, 63 (1941), 508. (E. B. S.)

2-Methylnaphthalene—Antihemorrhagic Activity of Sulfonated Derivatives of. Compounds formed by the interaction of 2-methyl-1,4-naphthoquinone with various metallic or amine bisulfites have been found to be highly water-soluble and to possess a degree of vitamin K activity equivalent to that of the 2-methyl-1,4-naphthoquinone contained therein. Other sulfonated 2-methylnaphthalenes were prepared and tested for antihemorrhagic activity. The sulfonic acid group was found to be relatively inert from the antihemorrhagic viewpoint. Only in the 1- and 4-positions was slight activity conferred. —M. B. MOORE. *J. Am. Chem. Soc.*, 63 (1941), 2049. (E. B. S.)

***Alpha-* and *Beta*-Nicotine.** The intravenous injection of *alpha*-nicotine (1.3 mg. per Kg.) produced a hyperpnea followed by a depression of the respiratory center. The intravenous injection of *beta*-nicotine (0.07 to 0.3 mg. per Kg.) equally gives a respiratory stimulation followed by depression of the respiratory center. The injection in the normally innervated common carotid, *alpha*-nicotine (0.3 mg.), likewise *beta*-nicotine (0.1–0.3 mg.), produced an immediate stimulation, intense and transient, of respiration, the *beta*-nicotine action was sometimes more marked than that of *alpha*-nicotine. The same doses of *alpha*- and *beta*-nicotine injected directly toward the centers did not influence respiration. The intravenous injection of *alpha*- and *beta*-n cotine did not affect the respiration of the dog deprived of its chemo-receptors of its sinocarotid and cardio-aortic glomus. One may conclude that *alpha*- and *beta*-nicotine, in influencing the chemoreceptors of carotid and cardio-aortic glomus, stimulates, by reflex route, respiration. The intravenous injection of *beta*-nicotine (0.3–0.4 mg. per Kg.) produced a strong bradycardia. On the contrary, the intravenous injection of *alpha*-nicotine in doses as great as 2 mg. per Kg. did not produce cardiac slowing. The injection of *beta*-nicotine (0.1 to 0.3 mg.) or *alpha*-nicotine (1 mg.) in a normally innervated common carotid produced a clear and immediate bradycardia. The injection of the same doses of the same substances toward the centers did not modify the cardiac frequency. These substances put in contact with the chemo-receptors of the carotid glomus, excited by consequence and by reflex route the cardio-inhibitor center. In the bivagotamized dog, *beta*-nicotine (0.3–0.6 mg. per Kg.) by intravenous injection produced a clear bradycardia. On the contrary, the intravenous injection of *alpha*-nicotine in a dose as great as 4 mg. per Kg. did not slow the heart of these animals and it did not produce vagal synaptic stimulation. The intravenous injection of *alpha*-nicotine (1.2–4 mg. per Kg.) produced arterial hypertension which was not preceded by hypotension. The intravenous injection of *beta*-nicotine (0.2–0.4 mg. per Kg.) produced a hypertension sometimes very pronounced and preceded by a hypotension which is not due to concomitated bradycardia. It was shown that atropinization would almost completely exclude the cardiac slowing which was habitually produced in these conditions; this hypotension and bradycardia were often equally observed without being accompanied with hyperpnea.—C. HEYMANS and J. J. BOUCKAERT. *Arch. intern. pharmacodynamie*, 65 (1941), 196. (W. H. H.)

Opium as a Preanesthetic Sedative in Children. Opium derivatives are well tolerated by children. Dosage depends upon the basal metabolic rate which increases to a maximum at the age of six, declines up to twelve, rises again during puberty and then declines throughout life. The appropriate dosage of morphine, omnopon and hyoscine were calculated for children of all ages under sixteen. Morphine and hyoscine or omnopon and hyoscine administered in the calculated doses were satisfactory as preanesthetic sedatives in 600 children between the ages of 1 month and 16 years.—A. H. L. BAKER and E. M. CHIVERS. *Lancet*, 240 (1941), 171. (W. H. H.)

Peritoneal Irritation and Intestinal Activity. Extraperitoneal loops of bowel were prepared, in continuity, in the rabbit and dog. A loop of the caecum was chosen in the former and of the small bowel in the latter animal. Peritoneal irritation produced by intraperitoneal injection of a standard irritant solution was constantly associated with a prolonged arrest of movements in the extraperitoneal loop in the trained animal. The arrest of the intestinal movements occurred after degenerative section of both vagus nerves, of one splanchnic nerve and after bilateral adrenalectomy. After degenerative section of both splanchnic nerves the arrest did not occur, or was only temporary. The arrest is in the nature of reflex inhibition, because by reason of the extraperitoneal situation of the loop of bowel the stimulus is delivered to afferents other than those in the loop. The anatomical pathway of the reflex is not fully determined. The receptor endings are in the peritoneal cavity, but whether in parietal or visceral peritoneum or both is unknown. Cannon and Alvarez have each found evidence for visceral receptors; Hotz and King have found evidence for parietal receptors. The afferent limb of the arc is similarly unknown. Cerebrospinal afferents from the parietal peritoneum are almost certainly involved. The connector element is made up of the preganglionic neurones of the thoracic outflow which constitute the splanchnic nerves. The efferent limb of the arc is made up of the postganglionic sympathetic neurones issuing from the coeliac plexus. The effector endings are in the extraperitoneal loop of the bowel. In the normal animal it is possible that part of the duration of the inhibition may be mediated by adrenaline and that in the animal with bilateral degenerative section of the major splanchnic nerves the transitory inhibition noted was similarly mediated. The findings are taken to indicate that prolonged intestinal inhibition may result reflexly from irritation of the peritoneum, that the inhibition is mediated by the splanchnic nerves and that there is a sound physiological basis for the neurogenic concept of paralytic ileus.—D. M. DOUGLAS and F. C. MANN. *Brit. Med. J.*, 4180 (1941), 227. (W. H. H.)

Phenylthiocarbamide—Graying of Hair Produced by Ingestion of. Black and black-hooded rats receiving as unique source of fluid a solution of phenylthiocarbamide showed graying of the hair after 58 days. Discontinuation of the treatment caused reappearance of the color. It is concluded that gray hair may be caused by a positive factor in the diet as well as by a deficiency.—C. P. RICHTER and K. H.

CLISBY. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 684. (A. E. M.)

Phytolacca Americana Linné—A Phytochemical and Pharmacological Study of the Berries of. Though the berries of *Phytolacca americana* (*decandra*) have been used in medicine for many years reports have been incomplete. The phytochemical investigation was thorough and a detailed report is given. Constituents isolated were the following: glycerol as the glyceryl ester of naturally occurring fatty acids, saturated fatty acids, oleic acid, a sterol, a compound resembling a sterol, hentriacontane. The chief object of the pharmacological investigation was to study the toxicity of the berries. Two fluidextracts of different alcoholic strength were prepared, also an infusion and a colloidal solution. Frogs, rats, rabbits and cats were used as test animals. The fluidextract produced mild depression. The toxicity of the berries was not so great as that of the root and it can be concluded that phytolacca berries have no advantage over phytolacca root.—LAURINE D. JACK and CHARLES H. ROGERS. *Jour. A. Ph. A.*, 31 (1942), 81. (Z. M. C.)

Potentialization Phenomena—The Mechanism of. The three associations—alcohol-chloral, alcohol-butylethylmalonylurea, chloral-butylethylmalonylurea produce a potentialization of hypnotic action.—L. OLSZYKA. *Arch. intern. pharmacodynamie*, 65 (1941), 467. (W. H. H.)

Propazone—Effect of, on Respiration of Rat Tissue in Vitro. Propazone sodium (5,5-di-*n*-propyl-2,4-oxazolidinedione) inhibits the oxygen consumption of rat kidney cortex, liver and cerebral cortex slices *in vitro*. For a given concentration of propazone, this inhibition is much more marked in media containing glucose than in those containing succinate or *p*-phenylenediamine. In kidney cortex the inhibition is about 70% reversible.—FREDERICK A. FUHRMAN and JOHN FIELD, 2ND. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 374. (A. E. M.)

Pyridine Nucleotides—Inactivation of, by Animal Tissues in Vitro. The rate, inhibition and end products of the inactivation of pyridine nucleotides by washed, broken cell preparations of the brain, liver, kidney and muscle of rabbits, rats and dogs have been studied. The initial step in the inactivation of pyridine nucleotides by each of these tissues is the cleavage of nicotinamide from the remainder of the nucleotide molecule. The inhibition of this inactivation by nicotinamide has been found to be quite specific and to be probably of the competitive type.—PHILIP HANDLER and J. RAYMOND KLEIN. *J. Biol. Chem.*, 143 (1942), 49. (F. J. S.)

Quinoline Compounds as Sources of Medicinal Preparations. VIII. Anesthetic Compounds of Amides of Cinchoninic Acid. A report on the synthesis and study of 11 diethylaminoalkylamides of α-alkoxychinchonicic acids. All these compounds possess a marked anesthetic activity, which increases with the length of alkyl chain substituted in the α-position; the toxicity also increases, but not to the same extent as the anesthetic activity. As a result, in the case of δ-diethylamino-α-methylbutylamide, the optimum therapeutic index corresponds to the propyl homolog, while in the case of diethylamino-β-hydroxybutylamide, it corresponds to the methyl homolog. Introduction of a hydroxyl group in the chain of the amide exerts a favorable influence by lowering the toxicity of the product.—O. IOU MAGHIDSOHN, N. V. FEDOTOVA and V. V. ZVEREV. *J. Obchtch. Khim.*, 9 (1939), 2097-2103; through *Chimie & Industrie*, 44 (1940), 52. (A. P.-C.)

Renin Activator—Formation of Angiotonin-Like Pressor Substance from Action of Crystalline Pepsin on. Commercial pepsin at a *p*H 2.0 reacts with renin activator forming a substance similar to and probably identical with angiotonin. Crystalline pepsin is active also. The reaction is halted at a *p*H 6.5 in contrast to that between renin and renin activator. At *p*H 6.5 to 7.0 the latter reaction yields angiotonin abundantly but none is formed at *p*H 2 to 4.—O. M. HELMER and IRVINE H. PAGE. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 389. (A. E. M.)

Sodium Nitrite—Effect of, on Emptying Time of Normal Human Stomach. A standard test meal consisting of chiefly 15 Gm. of Quaker Farina and 50 Gm. of barium sulfate was fed to seven healthy young adults and an average gastric emptying time was established for each individual. Administration of a therapeutic dose of sodium nitrite, 1 grain, produced an average delay in gastric emptying time of 23.6%. The results as shown by statistical analysis were significant; the probability of chance occurrence was less than 1 in 100. There were rather marked individual variations; one of the subjects was virtually unaffected by the administration of sodium nitrite, whereas a delay in gastric emptying time of 65% was caused in another of the subjects. In this individual the possibility of an added central depressant action cannot be ruled out. The direct depressant effect of nitrites upon the smooth muscle of the stomach, however, is doubtlessly the chief cause of the delayed gastric emptying time.—C. K. SLEETH and E. J. VAN LIERE. *Arch. intern. pharmacodynamie*, 65 (1941), 5. (W. H. H.)

Splenic Extracts and the Blood Platelets. A series of extracts from normal spleens and from three cases of thrombopenic purpura have been prepared, and were injected into rats and rabbits. No evidence of the existence of a specific thrombopenic factor was found, and it is suggested that the positive results of a few other workers may have been due to non-specific reactions to intravenous injections.—G. M. WATSON. *Brit. Med. J.*, 4192 (1941), 704. (W. H. H.)

Steroid Hormones—Metabolism of the. II. The Conversion of α-Estradiol to Estrone and β-Estradiol by the Ovariectomized-Hysterectomized Rabbit. In the rabbit, as in the guinea pig and man, estrone is a urinary metabolite of α-estradiol. β-Estradiol also arises from α-estradiol when the latter compound is administered to the rabbit, estrone presumably being an intermediate. These conversions occur in the absence of both the ovaries and uterus, but the possibility that these organs participate in the transformations in the normal animal is not excluded.—WILLIAM R. FISH and RALPH I. DORFMAN.—*J. Biol. Chem.*, 143 (1942), 15. (F. J. S.)

Steroid Hormones—The Pubertal Increase in Response of Accessory Sex Organs to. In prepubertal castrate rats ethinyl testosterone stimulates the seminal vesicles, prostates and coagulating glands more markedly than an equivalent dose of Δ^5-androstenediol, while the reverse is true in postpubertal castrates. It appears that in puberty the sensitivity of the accessory sex organs increases only with regards to steroid compounds of a certain chemical structure. This fact must be kept in mind when the hormonal potency of various testoid substances is to be compared.—HANS SELYE and S. ALBERT. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 361. (A. E. M.)

K-Strophanthin-β, K-Strophantoside, Periplocymarin and Periplocin. *K*-Strophanthin-β is more potent than *K*-strophanthoside in frogs and cats, while periplocymarin is less potent than periplocin. The decrease in the number of sugar molecules of a cardiac glucoside, therefore, may or may not be accompanied by an increase in activity.—K. K. CHEN, ROBERT C. ANDERSON and E. BROWN ROBBINS. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 676. (A. E. M.)

Strychnine. X. Comparative Accuracies of Stomach Tube and Intraperitoneal Injection Methods of Bioassay. It seemed desirable to compare the system using stomach tube bioassay with intraperitoneal injection method. When strychnine is given as an economic poison it has to be mixed with baits to be taken by mouth by predatory animals and rodents and for that reason it appeared that the stomach tube bioassay procedure would approximate the conditions under which poison acts under field conditions. The strychnine was tested as alkaloid and as sulfate. Details of procedure are given and results are tabulated and discussed. Conclusions reached were the following: (1) Strychnine given by stomach tube is uniformly less toxic than it is when given by intraperitoneal injection. (2) Strychnine as the alkaloid and as the sulfate is equally toxic when given by stomach tube to male rats, and it varies only slightly when tested on female animals. (3) Female rats are more than twice as susceptible to strychnine at the $L.D._{50}$ per cent dose by stomach tube than are male rats of the same strain. (4) Female rats are slightly less than twice as susceptible as are males to strychnine by intraperitoneal injection. (5) Bioassay of strychnine alkaloid held in suspension by means of 0.2 % gum acacia and administered to standardized male rats by stomach tube gives the most accurate indication of the field efficiency to be expected of the sample tested.—JUSTUS C. WARD and D. GLEN CRABTREE. *Jour. A. Ph. A.*, 31 (1942), 113. (Z. M. C.)

Sulfanilamide—Influence of Fasting on Retention and Conjugation of, in Rabbits. Prolonged fasting in the rabbit favors the absorption and retention of sulfanilamide, producing higher blood levels of the drug and lasting over a longer period of time as compared to normally fed animals. This also favors reduction of acetylation of the drug. An acid producing diet or the administration of drugs favoring a state of acidosis appears to have an effect on the fate of sulfanilamide similar to that of fasting.—E. F. STOHLMAN and M. I. SMITH. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 432. (A. E. M.)

Sympathomimetic Amines and Hemostasis. With the indicated exceptions, the sympathomimetic amines exert in appropriate doses a favorable action upon spontaneous hemostasis. This action appears precociously. It does not seem maximal immediately after injection. The shortening of the consecutive bleeding time after intravenous injection of the sympathomimetic amines is a durable phenomenon. The active doses are generally very weak. They often are clearly inferior to the doses necessary to produce the sympathomimetic reactions. The scale of the efficacious doses is nevertheless very large. For adrenaline and ephedrine it is diluted by a thousand. Comparison of the influence exerted by these various amines upon the functions of innervated organs by the sympathetics and upon spontaneous hemastasis the author has shown that between these two groups of actions, there does not exist, except with certain catechol derivatives, an impressive parallelism.—G. DEROUAUX. *Arch. intern. pharmacodynamie*, 65 (1941), 125. (W. H. H.)

Taste and Smell. The subject is approached from the aesthetic side.—R. M. LOTT. *Chemistry and Industry*, 60 (1941), 246–248. (E. G. V.)

Testosterone Acetate and Proprionate and of Estradiol Dipropionate upon the Resistance of the Rat to Evipal Sodium, Nostal, Romoston and Pentobarbital Sodium—Effects of. Several investigators have shown previously that administration of some hormones raises the resistance to some barbiturates of certain test animals. Reference is made to some of the literature along this line. Present studies of the authors were intended to establish necessary doses and durations of administration of synthetic sex hormones and the limitations of their action depending on the barbiturate and species of animal. The report is in four parts: influence of varying doses and durations of administration of testosterone acetate upon the responses of albino rats to single doses of sodium 2-butylbromallyl barbiturate and to sodium methyl-cyclohexenyl-*N*-methyl barbiturate and upon the response of albino mice to the latter; influence of varying doses and durations of administration of testosterone propionate upon the response of hybrid rats to single doses of sodium evipal and of isopropyl-bromallyl barbiturate; effects of castrating and varying doses and durations of administration of testosterone proprionate upon the ability of the albino rat to build up tolerance to and to detoxify sodium pentobarbital; effects of age, of castration and of varying doses and durations of time of administration of estradiol diproprionate and testosterone proprionate upon the ability of the albino rat to detoxify evipal and to build up tolerance to and to detoxify pentobarbital. Details of experiments are given and results are carefully tabulated and discussed. The experiments established that testosterone acetate or proprionate, given daily in suitable doses, shortens the depression time in normal female rats and in castrated rats of either sex to pernoston, and evipal; only proprionate shortened hypnosis by evipal in the normal male. Prolonged hormone administration increases percentage of normal female and castrated male or female rats which develop tolerance when pentobarbital is administered in increasing doses and in spayed females the capacity to detoxify pentobarbital after tolerance is established. Mechanism of the changes is not understood. Investigation along several lines is suggested. Doses and time of treatment are carefully summarized.—HAROLD G. O. HOLCK, DONALD R. MATHIESON, EDWIN L. SMITH and LEWIS D. FINK. *Jour. A. Ph. A.*, 31 (1942), 116. (Z. M. C.)

Testosterone Propionate—Effects of, in Spayed Female Rats. In sexually intact female rats genital tissues react differently to testosterone propionate depending on the time of first injection in relation to estrus and diestrus. In castrates no such difference is apparent. Here the reaction of genital tissues is the same as those observed when testosterone is first administered at late diestrus to non-castrates.—G. L. LAQUEUR. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 425. (A. E. M.)

Tetrahydrocannabinol Homologs and Analogs with Marihuana Activity. X. Analogs of tetrahydrocannabinol have been synthesized by the general procedure of condensing ethyl cyclohexanone-2-carboxylate or its derivatives with olivetol to form the pyrones from which the pyrans were formed by means of excess Grignard reagent. All showed marihuana activity much less than that of the tetrahydrocannabinol used as a standard.—ROGER ADAMS, C. M. SMITH and S. LOEWE. *J. Am. Chem. Soc.*, 63 (1941), 1976. (E. B. S.)

Tetrahydrocannabinol Homologs with Marihuana Activity. IX. Synthesis of a series of homologs of a tetrahydrocannabinol with the double bond conjugated to the benzene ring has been completed. These are 1-hydroxy-3-*n*-alkyl-6,6,9-trimethyl-7,8,-9,10-tetrahydro-6-dibenzopyrans. The methyl, ethyl, *n*-propyl, *n*-butyl, *n*-hexyl, *n*-heptyl and *n*-octyl were prepared and compared with the *n*-amyl for marihuana potency. The effectiveness of the methyl was low; it increased to a maximum with the *n*-hexyl and again fell off in the higher homologs.—ROGER ADAMS, S. LOEWE, C. JELINEK and HANS WOLFF. *J. Am. Chem. Soc.*, 63 (1941), 1961. (E. B. S.)

Thiamine—Analogs of, and Their Physiological Activity. Change of functionally important groups in the thiamine molecule results in complete inactivity, as shown by physiological tests of the three isomers, 6-methyl-5-thiazolium isomer (Makino vitamin), 5-methyl-6-thiazolium isomer (reversed Makino) and the 2-methyl-6-thiazolium isomer. The 2-ethyl-5-thiazolium homolog was found to be as active as thiamine itself.—G. A. STEIN, W. L. SAMPSON, J. K. CLINE and J. R. STEVENS. *J. Am. Chem. Soc.*, 63 (1941), 2059. (E. B. S.)

Thyroxin—Synthesis of *d,l*-3,5-Diiodo-4-(2′,4′-diiodo-3′-hydroxyphenoxy)-phenylalanine, a Physiologically Inactive Isomer of. The synthesis of *d,l*-3,5 - diiodo - 4 - (2′,4′ - diiodo - 3′ - hydroxyphenoxy)-phenylalanine, an isomer of thyroxin, is described. This compound was found to be inactive when tested on rats at levels up to 500 mg./Kg. of body weight. This agrees with the theory that thyroxine-like activity is dependent upon the establishment of a phenol-quinoid equilibrium, which is only possible with the phenolic hydroxy in the 4-position.—C. NIEMANN and C. E. REDEMANN. *J. Am. Chem. Soc.*, 63 (1941), 1549. (E. B. S.)

Vitamin A—Effect of, on the Secretion of Gastric Juice in Deficient Hydrochloric Acid Production. Moderation or total alleviation of the symptoms of achlorhydria or hypochlorhydria may be obtained by the administration of vitamin A. For private practice this may be conveniently given as four tablets (16,000 I. U.) three times a day for two weeks then two tablets (8000 I. U.) thrice a day for a further two weeks, repeating the course after an interval of four weeks. Test meals show a considerable increase of free acid and total acidity after such treatment and there is also increase of weight. Cases of gastric cancer, pernicious anemia or dysfunction of bile secretion do not respond. One resistant case of biliary dysfunction responded when vitamin A was combined with bile salts.—F. FÖLDES and G. VAJDA. *Brit. Med. J.*, 4182 (1941), 317. (W. H. H.)

Vitamin E—Effect of Oral and Parenteral Administration of, on Creatinuria and Symptoms of Dystrophic Rabbits. The oral administration of 20 mg. of *alpha*-tocopherol to dystrophic rabbits produces a rapid fall in urinary creatine. Following parenteral administration of the same dose, the creatine remains at a high level and the creatinine decreases. The injection of massive doses of tocopherol cures dystrophy in some cases while in others it extends life and promotes growth for several months without curing the symptoms of the disease. —C. G. MACKENZIE and E. V. MCCOLLUM. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 642. (A. E. M.)

TOXICOLOGY

Antimony—Toxicity of. Animal Studies. Antimony as an industrial poison has not received the study that it deserves and this paper is a welcome addition to the knowledge of the subject. After a review of the literature, the authors report on their own experiments in which antimony was administered orally and intraperitoneally to animals, causing a toxic response which varied with chemical form as indicated by minimum lethal dose values. The most striking result was the high order of toxicity of the metal as compared with sulfides and of sulfides as compared with oxides. The most important pathological effect was the consistent and invariable injury to the heart muscle, regardless of compound or dose in the concentration ranges studied. This injury was noted even at concentrations too low to produce diminution in the rate of animal growth. The amount of antimony found in the various tissues of exposed animals although always higher than the controls, was never large, and was apparently independent of dose or duration of exposure, indicating that it is not stored to any extent in the organism. Hematological findings were somewhat obscure and inconclusive. A slight eosinophilia was noted and no alteration of the basophilic aggregation cell count was produced. There is no similarity in the action of corresponding lead and antimony compounds. In general, antimony compounds are more toxic than those of lead, but antimony contrary to lead, appears to be rapidly eliminated from the body without producing serious blood changes or undergoing much storage. The antimony compounds used in the experiments were all of a high degree of purity, and the possibility that the action might be due to lead, arsenic or other impurities has been eliminated. In review of the definite toxic properties of antimony as shown by the authors' and other work, its potential ability to produce occupational poisoning among exposed workers must not be disregarded. Signs of antimony intoxication should be observable even when associated with lead absorption. Electrocardiographic heart studies upon antimony workers are definitely indicated. A bibliography is included.—WM. R. BRADLEY and WM. G. FREDERICK. *Ind. Med., Ind. Hyg. Sect.*, 2 (1941), 15–22. (F. S. M.)

Antisyphilitic Therapy—Toxic Manifestations of. Spontaneous petechial hemorrhages are often associated with intolerance to antisyphilitic therapy. Toxic manifestations of antisyphilitic therapy are associated with a low or decreased capillary resistance. The lowering of the capillary resistance may precede the appearance of clinical signs and symptoms. These results suggest that the determination of capillary resistance might help to prevent the occurrence of intolerance during antisyphilitic and other forms of therapy with heavy metals.—G. HORNE and H. SCARBOROUGH. *Lancet*, 240 (1941), 412. (W. H. H.)

Arsenic in Burnt Human Bones—Detection of. In India where cremation of bodies is common, magistrates often ask whether it is possible to detect the volatile poison arsenic in burned bones. From the reports of the chemical examiners of certain Indian Provinces it was concluded that this is possible due to the conversion of the arsenic to non-volatile arsenates in the burning. In fact, an analysis of the cremated bodies of numerous persons killed in accidents showed strong positive tests for arsenic, and hence the mere finding of arsenic shouldn't initiate criminal proceedings. Arsenic is not a normal constituent of the body, but is found in small amounts in the soil of India. Four tables giving the arsenic content of samples of soil, burned bones and viscera are presented.—S. N. CHAKRAVARTI, M. Z. FARUQI and K. R. GANGULY. *Indian Med. Gaz.*, 76 (1941), 722–724. (W. T. S.)

Chemotherapeuticals—Synthesis of Lipophilic. III. Remarks on the Properties of Halogen-acylureas, Amides and Related Compounds. Introduction of chlorine into the acyl radical of acetylurea increases its toxicity, the dichloroacetyl compound being less toxic than the mono- and trichloro-compounds. In the parallel series of acylanilides and O-acylsalicylic acids, however, the dichloro-compound does not show this peculiar behavior.—F. BERGMANN and L. HASKELBERG. *J. Am. Chem. Soc.*, 63 (1941), 1437. (E. B. S.)

Cosmetics—Melanosis Provoked by. Certain face powders are colored by a mixture of ochre (ferric oxide hydrate) and colored lacs usually derived from coal tar and insoluble in water. The sulfonic character of these dyes reacts with the skin pigments and frequently produces melanotic spots on the face. These pigmented spots are similar to those appearing in vitamin C deficiencies with ex-

posure to sunlight. Tests *in vitro* demonstrated the decolorizing action of solutions of vitamin C on equal solutions of these dyes in sunlight. But strong concentrations of the dye destroyed vitamin C. Researches have connected the precipitation of melanin in the skin with destruction of vitamin C; and the conclusion is drawn that whatever chemical or physical cause destroys vitamin C is melanogenic.—CARLOS BORDELOIS. *Ref. Col. Farm. Nac.*, 8 (1941), 32. (G. S. G.)

Derris and Other Rotenone-Bearing Plants—Constituents of. The roots of Derris, Lonchocarpus Tephrosia, Mundulea and other rotenone-bearing plants all closely related botanically and belonging to the family *Fabaceæ*, are used in large quantities for the preparation of dusts and sprays for combating many injurious insects. More than six and a half million pounds of Derris and Lonchocarpus (commonly called cube, timbo, etc.), the most important genera commercially, were imported into the United States in 1940. The former is obtained from British Malaya and the Dutch East Indies and the latter from South America. The rotenone-bearing plants have been shown to be toxic to many widely different species of insects. Derris and allied materials in large doses exercise some toxic action upon man and higher animals, but they are far less toxic than the arsenicals which are used for insecticidal purposes. The insecticidal action of the roots was attributed at first to a single constituent, rotenone. This compound separates in optically active, crystalline form when extracts of the roots, treated with suitable organic solvents, are concentrated. The extracts contain a number of related compounds other than rotenone, which are obtained as an uncrystallizable residue after complete evaporation of the solvent. The percentage of total extractives, as well as the proportion of rotenone to total extractives, varies widely and depends upon several factors, such as the species, the method of cultivation, and the solvent used in the extraction. In the case of derris, which has been most extensively studied, the residue, when freed from rotenone as completely as possible, is known as derris resin. The resins, like rotenone, are usually optically active and most of them are levorotatory. Treatment of derris resin yields several crystalline optically inactive substances—deguelin, $C_{23}H_{22}O_6$; tephrosin, $C_{23}H_{22}O_7$; and toxicarol, $C_{23}H_{22}O_7$. Sumatrol, $C_{23}H_{22}O_7$, has been isolated from a Sumatra-type derris resin; it is isomeric with tephrosin and toxicarol, but is not regarded as an important contribution to the insecticidal effect of the resin. Malacol, $C_{20}H_{16}O_7$, is a greenish yellow needle-like crystalline material which has been obtained in minute quantities from a sample of Sumatra-type derris containing no rotenone. Elliptone, $C_{20}H_{16}O_6$, is obtained by treating an ethereal solution of the resin of *Derris elliptica* with dilute aqueous potassium hydroxide. Several other minor constituents have been isolated from these plants. The chemical structure of these constituents is characterized by the presence of a chromane-chromanone ring system; degradation reactions and proof of the structure of the various compounds are also presented. A brief summation, in table form, for the approximate relative toxicities of some derivatives of derris and cube, and their various derivatives, is given using rotenone as the standard. No direct comparison of these compounds with each other has ever been made; all were tested in the same manner or against the same insect and the use of different criteria for toxicity has further complicated the studies. The review is accompanied by a bibliography of 77 references.—H. L. HALLER, L. D. GOODHUE and HOWARD A. JONES *Chem. Rev.*, 30 (1942), 33–48. (N. L.)

Desoxycorticosterone. Desoxycorticosterone acetate (D. O. C. A.) given in daily 100-gamma doses dissolved in 0.05 cc. of arachis oil, to rats of 165 Gm. body weight, reduces the hypertrophy of the suprarenal cortex caused by exercise to one-third. D. O. C. A. also reduces the hypertrophy of the medulla but it does so to a much smaller degree. The mortality caused by running of rats is abolished by D. O. C. A. injections. Arachis oil given to 165-Gm. rats daily in doses of 0.05 cc. i. p. causes a 20% medullary hypertrophy in resting animals. Desoxycorticosterone acetate is incapable of inhibiting the medullary hypertrophy caused by the arachis oil. Arachis oil (0.05 cc. daily) increases the mortality of the working rat population. Desoxycorticosterone acetate is capable of suspending the mortality of rat population carrying out exercise and receiving arachis oil. The results are discussed in connection with the physiological mechanism of the suprarenal hypertrophy caused by exercise. It is argued that arachis oil owes its toxicity to its higher fatty acid content.—M. BEZNAK and Z. KORENYI. *Arch. intern. pharmacodynamie*, 65 (1941), 321. (W. H. H.)

Digitalis-Rauwolfia Poisoning. Rauwolfia is an Indian drug used to lower blood pressure. It causes head throbbing and an uncomfortable feeling in susceptible individuals. The authors give a detailed case report of poisoning in a forty-eight-year-old man who swallowed a mixture of 1.5 fl. oz. of digitoris and 3 fl. oz. of rauwolfia extract in an attempt at suicide. The case was featured by the rapidity of absorption of the two drugs. Digitalis poisoning was evidenced within 6 hrs., the symptoms being vomiting, bradycardia and scanty urine. These disappeared with atropine and abated entirely after six days. Rauwolfia poisoning was evidenced within 36 hrs. and was marked by low blood pressure.—M. N. DE and TARAPADO CHATTERJEE. *Indian Med. Gaz.*, 76 (1941), 724–726. (W. T. S.)

Fungicides—An Analysis of Factors Causing Variation in Spore Germination Test of. III. Slope of Toxicity Curves, Replicate Tests and Fungi. In a further analysis of the factors causing variation in spore germination tests of fungicides a study was made on 718 individual toxicity curves. The fungi employed were *Sclerotinia fructicola, Glomerella cingulata, Alternaria solani, Macrosporium sarcinaeforme, Botrytis* sp. (*cinerea* type) and *Rhizopus nigricans*. Twenty compounds were tested representing the heavy metals, commercial "insoluble" copper fungicides and synthetic organic compounds. All tests were replicated from four to six different times. Four different types of slopes were observed on logarithmic probability paper: (*a*) Simple straight line, (*b*) double slope with left-hand "break" in lower values giving a curve concave upward, (*c*) double slope with right-hand "break" in upper values, or curve convex upward and (*d*) triple slope or sigmoid curve. Seventeen per cent of the curves were of the two latter types. The type and steepness of slope of the toxicity curve are determined more by the compound than the fungus. The slope of a given toxicity curve is reasonably consistent in replicate tests. Heterogeneous compounds differing widely in slope as well as compounds of convex and sigmoid type curves should be evaluated at high LD levels such as LD_{95}. Highly significant correlations were obtained between steepness of slope and toxicity at the LD_{50} point for straight and concave type compounds of the heavy metal and copper series. There was no correlation among the organic compounds. A comparison of a rapid graphic method with the detailed calculated method of obtaining LD_{50} values shows that the results do not differ significantly. Accordingly the use of the former is advised for general comparisons. Tests replicated on the same day using the same lot of spores, in general do not vary more than is to be expected from their internal error, whereas tests rep-

licated different times with different lots of spores vary considerably more than is to be expected. This indicates that the replicate test variation in the main is due to the use of different lots of spores, rather than to errors of technique in applying the fungicidal dose. There is a linear relation between the logarithms of LD_{50} and of the number of spores exposed to the fungicide. Errors in adjusting the concentration of a spore suspension for a given test will account for only a small portion of the variance of replicated tests. Different fungicides may be rated approximately in terms of a standard. However, the most effective use of a standard to adjust day-to-day variations is limited to compounds of essentially similar slope and composition. A single standard cannot be used for the precise comparison of heterogeneous compounds differing widely in slope and composition. In their average sensitivity to a number of compounds, five of the fungi were essentially alike; only *Rhizopus nigricans* was significantly more sensitive. Nor was the sensitivity inversely proportional to spore volume. In many cases, however, the fungi were unlike in the sensitivity to specific compounds and would thus rate them differently. Fungi tending to rate compounds differently, such as *Alternaria solani* and *Sclerotinia fructicola*, can be used most efficiently in laboratory testing. The selection of different fungi as laboratory test organisms should be based on three main criteria: reproducibility of results, ease of counting and ready production of spores in quantity. The six fungi studied are compared as to these and various subcriteria. Experimental designs to give the maximum in efficiency of testing and evaluating results are outlined. In general the following are advised: 5 doses; dose ratios of 2.000 or 1.414; 100 spores per count per dose; no replicate counts; graphic methods of determining LD values; evaluation at LD_{50} for straight line or concave type compounds having similar slopes, at LD_{95} for dissimilar slopes and curves of convex or sigmoid type; several different fungi tested twice, rather than one fungus tested a number of times; and for error term.—S. E. A. MCCALLAN, R. H. WELLMAN and FRANK WILCOXON. *Contrib. Boyce Thompson Inst.*, 12 (1941), 49–77. (B. M. B.)

Mustard Gas—Effect of, on the Eye. The effect of mustard gas on the eye can be severe and may require three or four months for cure. However, about 75% of the cases in the last war were mild and were completely relieved within two or three weeks. Seven cases of blindness have been reported. The gas produces a redness and swelling of the eyelids which is often accompanied by the formation of bullae. The action involves chiefly that part of the eye encompassed in the palpebral fissure. There is a varying degree of conjunctival chemosis and also corneal lesions of varying severity, from slight roughening of the corneal epithelium to ulceration. There is marked photophobia, accompanied by lacrimation and blepharospasm. In the treatment, it is suggested that the eyes should never be bandaged, that the conjunctival sac be washed with 1% sodium biecarbonate solution every 2 or 3 hrs., and that to prevent both infection and gluing of the lids, Dichloramine-T, 0.5%, be instilled.—C. A. SWANSON. *Med. Clinics N. America*, 25 (1941), 1637; through *Abbott Abstract Service*, (1942), No. 1079. (F. J. S.)

Ouabain, Cymarin and Coumingine Hydrochloride—Relative Susceptibility of Warm Blooded Animals to. The acute toxicity has been compared by subcutaneous injection in cats, rabbits, guinea pigs rats and mice. Mice and rats are much more tolerant to ouabain and cymarin than cats in the ratios of 62 : 1 to 671 : 1. Concerning the alkaloid coumingine HCl, which also has a digitalis-like action, their resistance is not so marked, being in the ratios of 13 : 1 to 29 : 1. Guinea pigs and rabbits, like cats, are highly susceptible to all three substances.—K. K. CHEN and CHARLES L. ROSE. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 351. (A. E. M.)

Paraldehyde—Toxicity of Intravenous. The intravenous administration of paraldehyde, as recommended for clinical anesthesia, is not without danger. In experimental animals there is a narrow margin of safety. Massive diffuse pulmonary hemorrhages and dilatation of the right heart occur when animals are killed with minimum lethal doses. Pulmonary hemorrhages are present in animals having recovered from anesthetic doses.—C. L. BURSTEIN and E. A. ROVENSTINE. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 669. (A. E. M.)

Phthalic Acid and Certain Derivatives—Acute Toxicity for Mice of. The LD_{50} doses for mice are as follows: Phthalic acid 0.011 Gm.; sodium phthalate 0.042 Gm.; dimethylphthalate 0.05 cc.; dibutylphthalate 0.11 cc.; dioctanol phthalate 0.92 cc.—HAROLD C. HODGE, MAX R. GOLDSTEIN and MARGARET WRIGHTINGTON. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 471. (A. E. M.)

Plant Products—A Survey of, for Insecticidal Properties. Products of 150 species and varieties of plants were tested as possible insecticides. Of this number water and acetone extracts of 36 species gave kills of 50% to 100% to mosquito larvae (*Culex quinquefasciatus*). Products of the following 18 botanical drugs gave kills of 90% to 100%: balm of Gilead buds, caraway seed, echinacea root, elecampane root, hydrangea root, male fern rhizome, black mustard seed, pepo (pumpkin seed), sage root, oil of bay leaves, oil of cubebs, oil of cypress, oil of patchouli, oil of rosemary, oil of santal, oil of sweet basil, oil of sweet marjoram and oil of wormseed or chenopodium. A steam distillate of elecampane gave an average kill of 89% to *Aphis rumicis*. Of the 18 plant products giving the highest kill to mosquito larvae all are botanical drugs, although many species not listed as drug plants were tested. Among the drug plants giving high kills to mosquito larvae are several well-known anthelmintics. No correlation was found to exist between insect resistance to plants and toxicity of leaf extracts to mosquito larvae. Of 11 varieties of castor bean tested on grasshopper (*Melanoplus differentialis*), the foliage of none was found to be sufficiently toxic to be satisfactory as a practical insecticide. Preparations of ricin, ricinin and crushed castor bean seeds, each incorporated in bran mash baits and fed to grasshoppers, also showed no toxicity. Extracts that will kill tropical fish will not necessarily cause an appreciable kill in mosquito larvae.—ALBERT HARTZELL and FREDERICKA WILCOXON. *Contrib. Boyce Thompson Inst.*, 12 (1941), 127–141. (B. M. B.)

Propylene Glycol, Ethylene Glycol, Diethylene Glycol, Ethylene Glycol Mono-Ethyl-Ether and Diethylene Glycol Mono-Ethyl-Ether—Observations on the Chronic Toxicities of. Chronic toxicity studies were done on albino rats for a period of two years. The glycols were incorporated in a basic diet in the following concentrations: ethylene glycol 1% and 2%, diethylene glycol 1.71% and 3.42%, propylene glycol 2.45% and 4.9%, ethylene glycol mono-ethyl-ether and diethylene glycol mono-ethyl-ether 1.45% and 2.16%, respectively. The accompanying table gives some of the results noted. —HERMAN J. MORRIS, ARTHUR A. NELSON and HERBERT O. CALVERY. *J. Pharmacol.*, 74 (1942), 266–273. (H. B. H.)

Propylene Glycol Vapor—Influenza Virus Killed in Air by. It has been found that the vapors of certain glycols exert a rapid and highly bactericidal effect on air-suspended bacteria. Propylene glycol seems to be the agent of choice for this method of

Substance	Bladder Stones	Oxalate Concretions in Kidneys	Enlarged Edematous Testes*	Chronic Kidney Damage*	Chronic Liver Damage*
Ethylene glycol	6†	6	None	Marked	Slight
Diethylene glycol	3	..	None	Slight	Slight
Propylene glycol	..	..	None	None	Slight
Ethylene glycol mono-ethyl-ether	..	..	Two-thirds of animals	Slight	None
Diethylene glycol mono-ethyl-ether	..	1	Few	None	Slight

* Beyond the number or degree in control animals.
† One of these was a 5-mm. ureteral stone, in an animal receiving 2% ethylene glycol in the diet. The bladder stones consisted primarily of calcium oxalate.

killing air-borne bacteria because of its high bactericidal activity and low toxicity for the body as compared with other glycols. Mice were exposed to virus mists for periods ranging from 5 min. to 1 hr. When propylene glycol vapor was introduced into the chamber before the virus mist was introduced, all the animals remained well, whereas control mice exposed to influenza virus alone died within four to ten days. When mice in the propylene glycol atmosphere were exposed directly to an influenza spray, they did not contract infection, suggesting that the interaction between vapor and virus droplets is very rapid and may approach the rate at which glycol vapor kills bacteria suspended in air.—O. H. ROBERTSON, C. G. LOOSLI, T. T. PUCK, E. BIGG and B. F. MILLER. *Science*, 94 (1941), 612; through *Abbott Abstract Service*, (1942), No. 1099.
(F. J. S.)

Pyrethrum—Action of, on Mosquito Larvae. Pyrethrum in the powdered form acts as an efficient mosquito larvicide in the laboratory, though satisfactory results cannot be obtained in the field. An aqueous extract prepared by boiling the powder in water is also capable of destroying mosquito larvae and pupae. An infusion of the powder prepared in kerosene oil contains active principles which are capable of destroying insects such as mosquitoes and flies. The action of kerosene on mosquito larvae is greatly enhanced by allowing the dry powder to soak in the mineral oil for some time. The spreading power of the oil is also greatly increased. Homemade kerosene extract proved an efficient larvicide when tested on larvae of *Culex fatigans* in the field. The solid residue left after the removal of pyrethrin *I* and *II* from the powder, still contains properties which can efficiently act on insects and mosquito larvae. The correlation of the pyrethrin content in a sample of pyrethrum and the percentage kill of insects, such as mosquitoes and flies, is not always constant.—R. N. CHOPRA, D. N. ROY and S. M. GHOSH. *J. Malaria Inst. India*, 3 (1940), 457.
(A. C. DeD.)

Quinine—Harmful Effect of, on Fetal Ear During Pregnancy. Because of the wide use of quinine in the treatment of diseases concurrent with pregnancy and the induction of labor, an investigation of its presence in the circulating cerebrospinal fluid was undertaken by the authors. It was detected in the cerebrospinal fluid and in the urine of seven infants delivered of mothers receiving oxytocic doses of quinine bisulfate. It has been established that quinine is a protoplasmic poison, and when the hair cells of the organ of Corti are bathed in endolymph containing quinine the drug exerts its influence directly upon these delicate cells. From their findings in the cases studied, the authors believe that evidence has been discovered that quinine should be used cautiously in diseases concurrent with pregnancy, and that its indiscriminate use as an oxytocic drug may have malignant influences upon the fetal ear, resulting in irreparable deafness in newborn infants.—H. M. TAYLOR, L. Y. DYRENFORTH and C. B. POLLARD. *Ann. Otol., Rhin. and Laryng.*, 50 (1941), 1030; through *Abbott Abstract Service*, (1942), No. 1090.
(F. J. S.)

Quinoline Homologs and Derivatives—Fungicidal Potency of. The fungicidal potencies of isoquinoline, thirteen quinoline homologs, 2- and 8-hydroxyquinoline, a nitrogen base $C_{16}H_{25}N$, and five fractions of bases were determined against *P. omnivorum*. The most toxic compounds permitted slight growth at 60 p. p. m.; the most toxic fraction prevented growth at 40 p. p. m. The four aromatic fractions were more inhibitory than the non-aromatic one. Among both the compounds and the fractions, the potency tended to increase with increase in molecular weight. 8-Hydroxyquinoline is more than six hundred times as potent as the 2-isomer and apparently is the most toxic compound tested against this organism.—N. E. RIGLER and G. A. GREATHOUSE. *Ind. Eng. Chem.*, 33 (1941), 693–694.
(E. G. V.)

Selenium Compounds—Chemistry and Toxicity of, with Special Reference to the Selenium Problem. The discovery of the presence of selenium in various samples of grains together with experimental evidence obtained in the laboratory, indicated that selenium was the causative agent of those symptoms of metallic poisoning observed in farm animals in the Middle West. The symptoms of chronic selenium poisoning in farm animals, commonly referred to as "alkali disease" are chiefly loss of weight and emaciation; in severe cases, there is discontinuity in the growth of the hoof. There is also a loss of hair from the mane and tail of horses, from the switch of cattle and from the body of swine. Postmortem examinations have revealed severe lesions at the joints. Acute selenium poisoning in animals, referred to as "blind staggers," is characterized by loss of control of the voluntary muscles. Animals vary in their resistance to selenium. Shortly after injections of lethal doses of selenium, animals exhale an odoriferous (garlic-like) compound; respiration becomes increasingly difficult and the animals die gasping for breath. In some cases, there is complete anesthesia just before death, but in other cases, there is a convulsive struggle. Some experimental data are available as to the toxicity of selenium in man. The discovery of the presence of traces of selenium (1 : 1,000,000) in the urine of the majority of people living in highly seleniferous areas, at first appeared alarming; however, evidence as to selenium being the cause of various gastric and intestinal dysfunctions in man, in these areas, is inconclusive. The symptoms observed by the author, after a single inhalation of hydrogen selenide (H_2Se) in high concentrations, which passed about 4 in. along the nasal passage, were a nasal sensation, somewhat like that produced by a silver nitrate spray, and a brief sensation of intoxication. No ill effects were felt for about 4 hrs.; after this, a copious discharge of mucus from the nasal passages began. This persisted, together with violent sneezing for three or four days. No ill effects were noted later and the author did not have "selenium breath" which is rumored to result from working with sel-

enium compounds. Little is known of the mechanism of selenium poisoning. It inhibits carbon dioxide production during yeast fermentation as well as the oxygen uptake of yeast cells. Selenite, SeO_2, readily oxidizes sulfhydryl compounds, forming disulfide and an unstable RS-Se-HR compound. The author has shown that selenite reacts with cysteine to form a compound considered to be $COOH \cdot CH(NH_2) \cdot CH_2 \cdot S \cdot Se \cdot S \cdot CH_2 \cdot CH(NH_2) \cdot COOH$. The ability of some proteins, when fed at high levels, to counteract the chronic symptoms of selenium poisoning in rats has also been observed. Because of the similar chemical properties of selenium and sulfur, considerable attention has been given to the relationship between these in plants. Several investigators indicate that sulfate and elemental sulfur diminish selenium injury to plants and reduce the quantity of selenium absorbed. Various organic compounds of selenium, selenides, selenols and diselenides, organic selenium acids, selenonium compounds, polycyclic compounds in which selenium is a member of the ring system and other selenium compounds are discussed. The review is accompanied by four tables and a bibliography of 186 references.—EDGAR PAGE TAINTER. *Chem. Rev.*, 28 (1941), 179–213. (N. L.)

Skin Irritants. The author classifies the various chemicals used in warfare as tear gases, nose and throat irritants, lung poisons and skin irritants. Some compounds of the latter class are mentioned; chloroformoxime, dichloroformoxime, chlorocyanoformoxime, dibromoformoxime, dichloroacetone, ω-trichloroacetophenone and ω-3-4-trichloroacetophenone.—H. MOHLER. *Schweiz. Apoth.-Ztg.*, 79 (1941), 13. (M. F. W. D.)

Sulfapyridine—Cerebral Symptoms Due to. The number of cases treated at this hospital during the past fifteen months is too small to allow us to draw any definite conclusions as to the incidence of cerebral symptoms attributable to sulfapyridine treatment. It seems, however, that they are not at all uncommon. It is safe to say that the incidence of this type of toxic reaction is greater among children than among adults, and those receiving the drug by the parenteral route are more liable to it than are those taking it by mouth. Five cases of meningococcal meningitis showing persistent cerebral symptoms are reported. It is suggested that these symptoms were due to the toxic effect of sulfapyridine.—D. F. JOHNSTONE and P. FORGACS. *Brit. Med. J.*, 4194 (1941), 772. (W. H. H.)

Sulfapyridine—Fatal Anuria following, in Pneumonia. In view of the failure of the pyelostomy to promote reëstablishment of urinary secretion it is probable that the anuria was due to blockage of the renal tubules themselves and that the procedure of ureteral lavage, successfully carried out by Carroll, *et al.*, in a case of theirs, would have been useless at the stage at which operation was done. The total amount of sulfapyridine given was small, and the initial dose was no larger than in a number of other cases of pneumonia in which no urinary complications supervened. It is not clear what was the initial factor which induced the copious crystallization of the sulfapyridine in this case, but the unfortunate termination emphasizes the paramount importance of adequate fluid intake during the administration of sulfapyridine in all cases, especially when any suspicion of renal insufficiency exists. It is regrettable that a urine examination was not made on admission here.—F. R. FLETCHER. *Brit. Med. J.*, 4180 (1941), 242. (W. H. H.)

Testosterones. Testosterone propionate, injected subcutaneously into pregnant rats, results in a high percentage of fetal deaths. Sexual differentiation of females, on the twentieth day postcoitum, is modified by retention of Wolffian ducts, partial or complete; a slightly modified urogenital sinus; and stimulated female prostate glands. In males, effects noted were limited to some degree of prostate stimulation. A usual postnatal defect in females born to treated mothers is absence of distal vagina and vaginal orifice representing suppression of development in the urogenital sinus. Consideration suggests some difficulty in regarding such female responses as evidence of antagonistic effects of male hormone or specific hormone responses. It is also questioned whether hormones such as we now apply play any role as sex-differentiators in embryonic development.—C. R. MOORE. *Arch. intern. pharmacodynamie*, 65 (1941), 365. (W. H. H.)

Trichiniasis—An Outbreak of. An epidemic of trichiniasis has appeared in Woverhampton and district during the last five weeks, which appears to have affected at least 500 people. It is still active. There have been no deaths. There have been almost no preliminary gastro-intestinal symptoms. In addition to muscular pain, stiffness and weakness, a fairly large proportion of cases have had focal signs of central nervous trouble as well as temporary mental changes. All the cases have had swelling of the eyelids, which is a single symptom common to all, and if other outbreaks are similar, doctors should pay great attention to this feature. An additional sign which when present has been of diagnositic value is a line of hemorrhage along the distal margin of the nail bed of the fingers. Epidemiologically, the disease has been confined to the industrial working class with a heavy incidence in the female and both of these features appear to be due to the habit of eating uncooked pork sausage.—J. H. SHELDON. *Lancet*, 240 (1941), 203. (W. H. H.)

THERAPEUTICS

Abrasions, Cuts and Open Sores—Coating for. A product normally semifluid until exposed to the air and which then surface-hardens to a "scab-like" consistency in about an hour is formed of lead oxide, zinc oxide and zinc resinate and a drying oil such as linseed oil which has been subjected to such heating as to render it surface-hardening on cooling, a solvent such as turpentine and a topical medicinal substance such as gum camphor.—VERL D. VANGUNTEN. U. S. pat. 2,254,636, Sept. 2, 1941. (A. P.-C.)

Albucid—Treatment of Gonorrhea with. Albucid is the trade name for the chemical compound *p*-aminobenzenesulfonacetamide. The use of albucid in gonorrhea was investigated in 100 male patients. Special attention was given to the disappearance of gonococci in the urethral smears and clearing of the urine. A cure of 91% was achieved. Albucid is better tolerated than other sulfonamides, and nausea and vomiting were completely absent. A parallel series of 100 cases were treated with sulfapyridine and the results with albucid were found to be slightly better. Although albucid has not secured a place among the various sulfoamide preparations in the treatment of gonorrhea, this investigation indicates that it deserves further clinical trial.—R. MARINKOVITCH. *Lancet*, 240 (1941), 144. (W. H. H.)

Aluminum Hydroxide Antacid. A review.—ANON. *Drug and Cosmetic Ind.*, 50 (1942), 156–157. (H. M. B.)

Ammonium Chloride and Ammonium Carbonate in Chronic Bronchitis. Doses of ammonium carbonate six times greater than the maximal official dose rarely cause nausea. There is no evidence that either ammonium carbonate or ammonium chloride has any effect on expectoration in bronchitis. In chronic bronchitis and bronchiectasis with profuse secretion of sputum, ammonium carbonate and ammonium chloride are not contraindicated as is

usually supposed; but, on the other hand, the results of this investigation do not justify the view that they are of any value in these diseases.—S. ALSTEAD. *Lancet*, 240 (1941), 308. (W. H. H.)

Amnioplastin in Peripheral Nerve Injuries. Amnioplastin appears to be a valuable material for the isolation of nervous elements. Its use so far in the surgery of peripheral nerves has been encouraging, relief of pain and restoration of early function being noted in cases in which it has been used after freeing nerves strangled in scar tissue. Experience in the use of aminoplastin has been obtained in eight intracranial cases, twelve peripheral nerve cases and in one or two additional instances, such as a scar in the popliteal space. The type of peripheral nerve case in which the nerve membrane has been used, the method of its employment and the results so far obtained are here reported. These results are so encouraging as to suggest its continued and further use.—L. ROGERS. *Brit. Med. J.*, 4189 (1941), 587. (W. H. H.)

Ascorbic Acid—Treatment of Gingivitis with. Fourteen cases of gingivitis have been treated with massive doses of ascorbic acid without any other dental treatment such as scaling or mouthwashes. Ascorbic acid (300 mg.) was given daily until a urine test showed that the patient was saturated with the vitamin. On an average, a total of 2000 mg. was needed. The previously sore and inflamed gums became normal after approximately four days treatment. The treatment should be followed by a maintenance dose.—H. G. CAMPBELL and R. P. COOK. *Brit. Med. J.*, 4183 (1941), 360. (W. H. H.)

Artichokes. The chemical composition of the plant includes iron salts, calcium, magnesia, silica, nitrates and vitamin substances. As a food it has tonic, stimulant and diuretic properties. There is no modern pharmaceutical preparation, but it has several traditional medicinal uses. Among these are: infusions of young leaves to combat malaria and reduce fever: vinegar added to this infusion produces an enema, while salt and brandy fortify it as a malaria preventive. The infusion plus cane syrup or with brewer's yeast acts as a blood purifier. With rhubarb and carrot juice it eliminates excess bile. The leaves steeped in brandy are used as poultices for dropsical legs. Added to beef broth it relieves anemia. Above all it is an appetizing addition to the diet.—JUAN M. CUADROS. *Rev. farm. Peruana*, 9 (1941), 24. (G. S. G.)

Avitaminosis B—Allied Diseases Due to. Pellagra, pernicious anemia and sprue appear to be allied nutritional diseases. Liver insufficiency appears to be a factor in the genesis of all three. The mouth and gastrointestinal symptoms in pellagra without skin lesions, pernicious anemia and sprue may be indistinguishable one from the other in cases in which there is macrocytic anemia. A patient was observed who was known to have had achlorhydria when he had typical pellagra. On discontinuing the dilute hydrochloric acid several years after the dermititis had cleared up, this patient developed stomatitis and diarrhea, with several large mushy stools a day; several years later he had severe macrocytic anemia. It is stated by the authors that most effective treatment in these conditions is liver or liver extracts, of which nicotinic acid is an ingredient. The authors also point out that there is little difference between vitamins and hormones except that hormones are formed in the body while vitamins are derived from the outside.—S. HARRIS and S. HARRIS, JR. *Am. J. Digestive Diseases Nutrition*, 9 (1942), 29; through *Abbott Abstract Service*, (1942), No. 1095. (F. J. S.)

Benzedrine for Oculogyric Crises. Benzedrine even in small doses, may be expected to give relief to about 50% of patients with oculogyric crises if administered with drugs of the belladonna group. Larger doses are worthy of trial if a careful watch is kept on patients with cardiac disease or hypertension.—H. L. HOFFMAN. *Brit. Med. J.*, 4195 (1941), 816. (W. H. H.)

Biotin—Experimental Deficiency in Man. Avidin, found in uncooked egg white, is recognized as a substance which makes biotin, a component of the vitamin B complex, unavailable for the organism. A small group of volunteers ate a diet planned to contain a minimal amount of biotin and a high content of desiccated egg white. The first symptom noted was a fine, scaly desquamation during the third and fourth weeks in some of the subjects. A few weeks later one developed maculosquamous dermatitis, and in the seventh and eight weeks all subjects showed grayish pallor of the skin and mucous membranes, some with atrophy of the tongue papillas. Mild depression progressed to extreme lassitude, somnolence and, in two instances, a mild panic state. Muscular pains, hyperesthesia and localized paresthesias were complained of by all. Two of the subjects in the group which was studied had precordial distress and showed definite electrocardiographic changes. Treatment with an injectable biotin concentrate in doses of 75 to 300 micrograms daily abolished the symptoms in from 3 to 5 days.—V. P. SYDENSTRICKER, S. A. SINGAL, A. P. BRIGGS, N. M. DEVAUGHN and H. ISBELL. *Science* 95 (1942), 176; through *Abbott Abstract Service*, (1942), No. 1091. (F. J. S.)

Burow's Solution—Role of, in Dermatology. A historical account is offered. Therapeutic effects including buffer action, astringent and antiphlogistic effects, antiseptic action and methods of application are reviewed. Ten references.—FRANK C. COMBES. *Bull Natl. Formulary Committee*, 10 (1942), 29–37. (H. M. B.)

Caffeine—Use of, as an Adjunct to Pentobarbital in Obstetrical Analgesia. The authors believe that the delirium sometimes encountered when pentobarbital sodium is given may be due to cerebral depression caused by the drug. Accordingly, they administered caffeine citrate in doses of five grains orally, repeated every hour or two according to the excitability of the patient, to counteract the depression. Three hundred and thirty-two patients were observed, and of these 116 received both pentobarbital sodium and caffeine. The addition of caffein had no noticeable effect upon blood pressure, pulse, temperature or respiration. The coöperation of the patient receiving caffeine was slightly better than that of the patient not receiving it. The babies were less narcotized in those cases receiving caffeine and there was only a slight decrease in the amount of amnesia in the caffeine series. The authors of this report feel that the addition of caffeine constitutes a step in the right direction toward better obstetric analgesia.—A. G. DARO and P. J. STEING. *Am. J. Obstet. Gynecol.*, 43 (1942), 94; through *Abbott Abstract Service*, (1942), No. 1096. (F. J. S.)

Cancerogenic Agents. In the high plane of Bogota there can be observed frequently a cancer of the eye of cattle, which is due to the strong ultraviolet irradiation. This cancer is more frequently seen in the female than in the male animals and more frequent among the less pigmented races of northern Europe, than in the pigmented local races. Experiments were made in order to show a cancerogenic substance in cancer tissues. In one case a mouse treated with an alcohol-ether-acetone-benzyl extract of a rectum carcinoma of a donkey developed a cancer of the seminal vesicle. Two groups of mice, one irradiated by ultraviolet rays, the other not irradiated were treated by three intraperitoneal injections of benzopyrene. Four of six irradiated ani-

mals developed cancer after three months while the other group even after five months did not show any malignant neoplasma.—P. ENGEL. *Arch. intern. pharmacodynamie*, 65 (1941), 101. (W. H. H.)

Chagas' Disease in Venezuela. Investigations include examination of people living in houses infested with triatomidos, which appear to be the vectors from several domesticated and wild animals to man. Symptoms in man are primarily myocarditis, splenomegaly and a lymphozytosis in the anemic blood picture. The organism *Schizotrypanosome cruzi* is usually found in the peripheral blood.—FELIX PIFANO. *Bol. Ofic. Sanit. Panamericana*, 19 (1940), 984. (G. S. G.)

Chemotherapeuticals—Synthesis of Lipophilic VI. Lipophilic Substitutions in Azo-Dyes. Fifteen acyl derivatives of 4-(benzene-azo)-naphthylamine-1 have been described. As the N-trichloroacetyl derivative showed a slight curative effect on tuberculosis and leprosy, its molecular structure has been systematically varied and the activity of the new products tested. Twenty-four new acyl derivatives of twelve azo-dyes have been prepared for this purpose.—E. BERGMANN, L. HASKELBERG and F. BERGMANN. *J. Amer. Chem. Soc.*, 63 (1941), 2245. (E. B. S.)

Cinchona Alkaloids in Pneumonia. IX. Quaternary Salts. Quaternary salts of hydroxyethylapocupreine have been prepared and tested for biological action in comparison with dihydroquinine-*p*-chloroacetylaminophenol hydrochloride. The antipneumococcic action of dihydroquinine was enhanced but that hydroxyethylapocupreine was greatly decreased in the quaternary derivatives tested.—M. A. CLAPP, A. G. RENFREW and L. H. CRETCHER. *J. Am. Chem. Soc.*, 63 (1941), 2169. (E. B. S.)

4 : 4′-Diamidino Diphenoxy Propane in Canine Babesiasis. After discussing the objections to trypan blue and acaprin (N,N′-bismethylquinolyl methyl sulfate-6-urea) in the treatment of canine tick fever, the authors record the successful results obtained in 116 cases of this infection with intramuscular injections in 4 : 4′-diamidino diphenoxy propane. Relapses were few and the drug may be used for a second course of treatment.—J. CARMICHAEL and R. N. T. W. FIEWNES. *Ann. Trop. Med. Paras.*, 35 (1941), 191–193. (W. T. S.)

Diet—Effect of, on Course of Experimental Malaria in Monkeys. The course and severity of primary attacks of malaria in monkeys infected with *Plasmodium cynomolgi* or *Plasmodium knowlesi* were unaffected by the difference in the state of nutrition of the monkeys previous to infection.—R. PASSMORE and T. SOMMERVILLE. *J. Malaria Inst. India*, 3 (1940), 447. (A. C. DeD.)

Diphtheria—The Problem of, in Guayaquil. Diphtheria was first recorded in Peru by Dr. Francisco Figuero, physician to the Viceroy in 1616. Modern record of treatment begins about 1890 when an outbreak called White Membranous Angina was considered a local throat infection, and was treated by inhalation of tar. Mortality rates in Guayaquil have been about 10%; much less than some other parts of the continent. The mode of treatment is a socio-economic problem because of the high cost of antidiphtheretic serum, and cases of croup seldom respond without tracheotomy in addition to serum. Preventive vaccination is attempted, using two doses instead of the three or the one massive dose frequently prescribed. In over 200 cases recently immunized, no serious anaphylactic reactions have occurred in children, but some few with adults. Infants usually maintain immunity the first 6 months, after that a Schick test is obligatory.—J. A. FALCONI VILLAGOMEZ. *Reforma Medica*, 26 (1941), 238. (G. S. G.)

Epanutin and Electric Convulsion Therapy. Epanutin in various doses has been administered to ten mental patients undergoing electrical convulsion therapy. In all patients the electrical convulsion threshold was significantly raised. In the smaller patients the rise was so great that it became impossible to induce a convulsion at all. The margin between maximum therapeutic and minimum toxic dose is small. Six capsules a day had little more effect on the convulsion threshold than three a day, but toxic signs were more prominent. The full effect of the drug may not appear for up to 6 days after the first dose. After withdrawal the effect may persist for up to 14 days depending on the frequency of induced convulsions. Even when the convulsions were not entirely inhibited by the drug they were made more variable and ragged, less typically epileptic. Partial seizures of the Jacksonian type were more common.—R. E. HEMPHILL and W. G. WALTER. *Lancet*, 240 (1941), 446. (W. H. H.)

Estrogen—Mode of Action of, in Amenorrhea. In the present state of knowledge of the ovarian hormones, amenorrhea is considered by the author to be due in most instances to failure of ovulation, and in many cases there is little evidence of estrogen deficiency, the vaginal wall being thick and the uterus of normal size. When large doses of estrogen are given in these cases for two or three weeks, vaginal bleeding may occur, but spontaneous menses practically never result from such treatment. Estrogen may further depress the pituitary and hence place the ovary on a still lower functional level. The use of estrogens rarely if ever does more than produce growth of the uterus, vagina and breasts; the ovaries are not stimulated and therefore no real improvement is obtained. The author believes it is much better to treat amenorrhea by measures designed to improve the general health, and thinks that more cases of amenorrhea and infrequent menses have been improved by the use of thyroid extract than by any other endocrine preparation in common use.—W. M. ALLEN. *J. Missouri Med. Assoc.*, 39 (1942), 1; through *Abbott Abstract Service*, (1942), No. 1098. (F. J. S.)

Eumydrin in the Treatment of Congenital Pyloric Stenosis. A series of forty cases of congenital hypertrophic pyloric stenosis were treated with eumydrin; if response was unsatisfactory within 10 days there were operated on. The cases fall into four groups: Group A (13 cases) were discharged within 10 days; the patients were all 4 weeks old or more before vomiting started, and all but one had gained over their birth weight on admission. Group B (10 cases) showed some response within 10 days and were discharged within 3 weeks of admission. Group C (4 cases) were discharged after 30 days; in three of these cases the prolonged stay in hospital was due to causes other than persistence of vomiting. Group D (12 cases) had not responded within ten days and were operated on. No etiological factors or physical signs distinguished groups B and D from each other, but together they contrasted with the rapidly responding group A; the average ages in the groups B and D, when vomiting started, were 2.75 and 2.66 weeks, and no child operated on was over 4 weeks old, there was no loss over the birth weight in most of the cases. The findings suggest that those cases of pyloric stenosis who have not vomited until after the fourth week can be safely treated as outpatients and a rapid response may then be expected.—R. H. DOBBS. *Lancet*, 240 (1941), 661. (W. H. H.)

Fluorine in the Etiology of Endemic Goitre. The distribution of endemic goitre in the Punjab and in England is related to the geological distribution of fluorine and to the distribution of human dental fluorosis (mottled enamel). Inquiry showed the

presence of dental fluorosis among school children in two areas of Somerset where two previous observers had recorded a high incidence of goitre, and the absence of dental fluorosis in an adjoining area selected as control where endemic goitre was absent. —D. C. WILSON. *Lancet*, 240 (1941), 211. (W. H. H.)

Gas Gangrene—Chemotherapy of. A study has been made in mice of the prophylactic value of sulfanilamide, sulfapyridine and sulfathiazole against *Cl. welchii*, *Cl. septique* and *Cl. œdematiens*. The results show that these drugs are of considerable value in preventing the development of gas gangrene provided that they are administered locally, in large quantities and soon after the infection. The authors recommended sulfanilamide as the most suitable prophylactic against anerobic infections of wounds. All three drugs were found to have much the same value against *B. welchii* infections, with sulfapyridine slightly more effective. Against *Cl. septique* and *Cl. œdematiens*, however, sulfathiazole is of significantly greater value than the other two.—J. MCINTOSH and F. R. SELBIE. *Lancet*, 240 (1941), 240. (W. H. H.)

Gas Gangrene—Relative Value of Sulfonamides and Antisera in Experimental. From the results of experiments in mice and guinea pigs, together with the other work already published, it seems likely that the sulfanilamide drugs will have only a limited value in the prophylaxis of gas gangrene, and that local administration will be more useful than oral. These drugs are not likely to be useful in treatment except in cases where there is a mixed infection with an aerobe susceptible to them. In experimental work they are inferior to antisera in the prophylaxis of gas gangrene. Antisera are more effective in prophylaxis than in treatment; and while the former use is justified it is doubtful whether the latter is. It would therefore be well if the official recommendation to use antisera only for the treatment and not for prophylaxis were reversed, provided waste by use of unsuitable cases was avoided. There is no justification for withholding these valuable prophylactic agents from any person who is considered to be threatened with gas gangrene. It is recommended that administration should take the form of multiple injections of serum into the muscles in the vicinity of the wound.—J. GORDON and J. W. MCLEOD. *Lancet*, 240 (1941), 407. (W. H. H.)

Glycerin-Sulfonamide Paste for Burns. Euglamide paste has proved very useful in the treatment of burns in certain areas—*e. g.*, hands, face, scalp feet, abdomen, buttocks, scrotum and penis. In small second-degree burns the paste caused slight pain on application in a few cases; later on it is soothing, non-irritant and healing. Preliminary cleansing can often be carried out without anesthesia. The paste is simple to apply, and the patient has more freedom of movement than when a coagulating agent is used. Infected burns have also responded in a very satisfactory manner to treatment with the paste. In one purely third degree burn treated with euglamide a clean surface suitable for grafting was rapidly obtained. Only a limited number of cases have so far been investigated; but in our opinion the results have been promising enough to justify further work.—J. M. ROBSON and A. B. WALLACE. *Brit. Med. J.*, 4186 (1941), 469. (W. H. H.)

Heparin and Sulfapyridine—Treatment of Bacterial Endocarditis with. The outstanding features of these two cases are the deaths of both patients from embolism, in one pulmonary and the other cerebral; the rapid improvement in case 2 during both courses of treatment before the embolism; and the appearance of the valvular vegetations, which were much smaller than is usual and contained less fibrin. In case 1 no organisms were seen microscopically on the vegetations. Neither case underwent a full 10–14-day course of treatment; had this been possible the results might have been different. The treatment is undoubtedly highly dangerous; Kelson and White and Witts and Fletcher have reported cerebral accidents similar to those in the two cases reported here. The treatment nevertheless seems justifiable for what is invariably a fatal disease.—S. SEVITT. *Lancet*, 240 (1941), 443. (W. H. H.)

Heparin—Failure of, in Subacute Bacterial Endocarditis. Heparin treatment of subacute infective endocarditis carries with it a risk of cerebral and other vascular accidents. A case is reported in which heparinization was adequately maintained for 14 days, the patient then dying of cerebral hemorrhage. At autopsy the vegetations in the heart were in no way different from those seen in untreated cases. There were recent depositions of fibrin and no signs of healing. It may be concluded that the heparin treatment of subacute bacterial endocarditis is both dangerous and ineffective.—C. M. FLETCHER. *Lancet*, 240 (1941), 444. (W. H. H.)

Hydatidosis—Biologic Therapy of. Hydatid cysts caused by echinococci produce cellulo-humoral modifications resembling allergy and immunity. Vaccination was employed using antigens from sheep, cattle and swine cysts of similar origin. Prompt improvement was noted in all patients so treated, with improved general health and collapse of cysts. A few such cysts punctured after vacunotherapy produced only dead larvae of the parasite. Vaccination is recommended for all cases of cyst of this type; and prophylactic immunization of both people and live stock would be of inestimable economic value.—BARTOLOME N. CALCAGNO. *Rev. Med. Cienc. Afin.*, 2 (1940), 675. (G. S. G.)

Hypothyroidism—Types of Mild Cases of. The author stresses the prevalence of thyroid deficiencies both mild and severe, at all ages, and in both sexes. He believes that the child with deficient thyroid function does not always look like a cretin; that he may be nervous rather than sluggish and thin rather than fat; that the clue may be some speech defect; a slight deafness or some abnormality of behavior. He suspects thyroid deficiency in people who are always tired, in allergic persons and in subjects with premature graying of hair, increased sugar tolerance, spastic constipation and flatulence, gastrointestinal upsets and poor appetites. He has found that most elderly individuals who are worn out and mentally confused have hypothyroidism and respond very well to treatment with thyroid. The author of this article believes that desiccated thyroid should be considered in the treatment of all patients whose basal metabolic rate falls below plus twenty during pregnancy, and that in debilitating illnesses there is often a marked degree of hypothyroidism.—E. JONES. *New Orleans Med. & Surg. J.*, 94 (1942), 384; through *Abbott Abstract Service*, (1942), No. 1094. (F. J. S.)

Intravenous Therapy—Prevention of Pyrexial Reactions in. Pyrexial reactions complicating intravenous therapy may be due to the presence of dead bacteria or traces of other foreign proteins or non-protein particulate matter in the solutions used. Foreign protein is the commonest cause. Dead bacteria or their protein derivatives may be present as a result of faulty technique in distillation of water or sterilization of apparatus, or defects in outworn apparatus. Solutions free from dead bacteria but containing traces of protein capable of causing pyrexia have been found to have an albuminoid-ammonia content ranging from 0.005 to 0.025 part per 100,000. This estimation is therefore useful in

the detection and elimination of such contaminants. —F. A. KNOTT and B. LEIBEL. *Lancet*, 240 (1941), 409. (W. H. H.)

Local Sulfonamides—Blood Concentration after. Patients with wounds, suppurating sinuses and varicose ulcers were treated by the local insertion of sulfanilamide or sulfathiazole (up to 5 Gm.). The concentration of sulfonamide compound in the blood after 24 hours was rarely above 1.5 mg. per 100 cc., and usually it was less than 0.5 mg. per 100 cc. Consequently it seems that this local treatment can safely be reinforced by oral administration of the compound, and that in many cases such reinforcement would be desirable.—F. HAWKING and J. E. PIERCY. *Brit. Med. J.*, 4187 (1941), 511. (W. H. H.)

Malaria and Rice Fields in Peru. Rice fields provide conditions for propagating mosquito larva, especially the *Anopheles pseudopunctipennis*, the vector of malaria; and malaria is endemic in the valleys of Santa, Zana and others. Shallow tranquil water, warmed by the sun is ideal for the evolution of egg–larva–nymph–adult mosquito. Most of the inhabitants who are field laborers in the rice fields from childhood, are cases of chronic malaria.—ENRIQUE VILLALOBOS and ALBERTO VALDERRAMA. *Reforma Medica*, 26 (1940), 789. (G. S. G.)

Malaria—Unification of Terminology Relating to. Since malaria is endemic in many parts of the world the Division of Hygiene of the League of Nations should establish a common uniform terminology with reference to it. In particular this is desirable in referring to the epidemiology of malaria, and to the question of species, sub-species, varieties and races of the anopholes mosquito. The records of various "indices" should be clarified, and definition made of how an "index" is computed. In fact a glossary, arranged alphabetically, giving a brief definition of all terms employed would be extremely useful.—ANON. *Reforma Medica*, 26 (1941), 194. (G. S. G.)

Measles—Ultraviolet Irradiation of Air as a Measure of Control of. Since measles is certain to visit some of the newly inducted recruits, it is suggested that attention be paid to the immunity composition of the various mobilized groups so that a rational employment of segregation can be made to lessen the seriousness of epidemics. The high infectiousness of measles by way of the air has caused increased attention to be given to the environmental control of the spread of the disease. It has been shown that the proper amount of ultraviolet irradiation will kill organisms causing scarlet fever, tuberculosis, chicken pox and influenza that are found floating on droplet nuclei. Accordingly, experiments with ultraviolet radiation in classrooms during an outbreak of measles were carried out and the results showed fewer cases among children in the irradiated rooms as compared with control groups. The investigators were able to reduce the incidence of hospital ward infections from 12.5% to 2.7% by the use of ultraviolet lights around cubicles.—A. P. HITCHENS. *Med. Clinics N. America*, 25 (1941), 1589; through *Abbott Abstract Service*, (1942), No. 1078. (F. J. S.)

Nausea of Pregnancy. Nausea of pregnancy may be due to allergic sensitivity of the patient to the secretion of her own corpus luteum. Desensitization may be accomplished by injection of graduated doses of progestin. Intradermal tests can determine before pregnancy whether or not the patient is sensitive to progestin.—E. B. *Reforma Medica*, 26 (1940), 648. (G. S. G.)

Pneumonic Plague in Ecuador. The incidence of pneumonic plague in Ecuador has been recorded since 1908, the number of cases varying from one to the peak reached in 1936 which was 83. The bacillus of plague present in the pharyngeal cavity of healthy persons might account for sporadic outbreaks. In the two provinces chiefly affected, Loja and Chimborazo, mucus from the pharynxes of healthy as well as those in contact with plague were studied and found negative. Animals, particularly rabbits, squirrels and guinea pigs are assumed to be the carriers.—CORNELIA SAENZ VERA. *Bol. Ofic. Sanit. Panamericana*, 20 (1941), 11. (G. S. G.)

Pneumococcal Septicemia with Recovery. The interesting features of this case appear to be: (1) The isolation of pneumococci from a leg wound, the throat and the blood stream, and the long latent period of six months from the original wound to the onset of septicemia. (2) The transient nature of inflammatory swellings in the arm and neck which subsided without surgical intervention. (3) The relatively large amount of sulfapyridine (44.5 Gm.) necessary to maintain a normal temperature, and the absence of any ill effects. (4) The long delay of four days before starting chemotherapy and the rapid and complete recovery of the patient.—J. E. MURRAY and S. ORAM. *Brit. Med. J.*, 4187 (1941), 513. (W. H. H.)

Poison Ivy. Treatment and the therapeutic agents used are discussed. Five formulas and forty-one references.—M. A. LESSER. *Drug and Cosmetic Ind.*, 50 (1942), 385–387. (H. M. B.)

Potassium Chloride Therapy and Serum Potassium in Infantile Eczema. Potassium therapy is not indicated in infantile eczema.—A. V. STOESSER. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 332. (A. E. M.)

Promin in Treatment of Experimental Tuberculosis. Promin is the sodium salt of *p,p'*-diaminodiphenylsulfone-N,N'-(dextrose sulfonate). It exerts a bacteriostatic effect on tubercle bacilli *in vitro*. It also exerts a retarding effect on guinea pig tuberculosis, although it does not cure the disease.—M. MAXIM STEINBACH and CHARLES J. DUCA. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 460. (A. E. M.)

Proseptasine—An Antiseptic Snuff. On finding that proseptasine powder kept his own nostrils clean and clear during an attack of tinnitus, C. suggests that antiseptic snuffs in general be investigated for possible use in catarrhal conditions.—F. GORDON CAWSTON. *J. Trop. Med. Hyg.*, 45 (1942), 5. (W. T. S.)

Public Health Reports in Rangoon, Bengal and India for 1940. A classified report of the Public Health Administration of Rangoon, Bengal and the Public Health Commissioner with the Government of India for the year 1940.—*Indian Med. Gaz.*, 76 (1941), 754–758. (W. T. S.)

Pyridoxine—Report of Ten Cases of Parkinson's Syndrome Treated with. From the author's experiences in treating Parkinsonism, he believes that vitamin B_6 decreases the pain and rigidity of the disease and increases the general well-being of the patient. Ten patients with the syndrome were given 10 gr. of brewer's yeast and one cod liver oil tablet three times a day with no apparent effect on the disease. This medication was supplemented by 50 mg. of pyridoxine subcutaneously or intravenously for 10 days, then by 100 mg. for 3 or 4 days. It was found that patients responded promptly to pyridoxine and quickly reached a degree of improvement which was not further improved by larger doses. When this degree of improvement had been attained the patient was maintained on 50 mg. subcutaneously every other day. Sufficient improvement was obtained in these patients to warrant the use of pyridoxine in Parkinsonism. The author believes that, inasmuch as response to the drug is very rapid, a short therapeutic trial of vitamin B_6 is

justified in cases of idiopathic paralysis agitans.—C. L. MELLER. *Minnesota Medicine*, 25 (1942), 22; through *Abbott Abstract Service*, (1942), No. 1088. (F. J. S.)

Schistosomiasis—Experimental. White rats were infected with the cercaria of *Schistosoma mansoni*, some being kept on normal diet, others on diet minus vitamin A, supplemented in some cases with one drop of cod liver oil. The rats on normal diet destroyed a large part of the parasites in the liver between the fifth and seventh week, so that very few were found viable in liver or lungs at the end of the experimental period. Rats on the diet minus vitamin A destroyed almost no parasites, though after cod liver oil was added a few dead worms were found. Lack of vitamin A in the diet retards regeneration of injured cells and proliferation of parenchymatous liver cells, as shown by the microscopic studies of this experiment.—C. KRAKOWER, *et al. Puerto Rico J. Pub. Health and Trop. Med.*, 16 (1940), 346. (G. S. G.)

Sterols—Therapeutic Saturated Degradation Products of. In the production of therapeutic products exhibiting the effects of male hormones or which are convertible into such products, a process is employed which involves oxidizing sterols containing no double bond in their polyhydrocyclopentanophenanthrene nucleus with agents capable of splitting off the aliphatic side chain, separating the neutral portions of the resultant oxidation products, isolating from the latter the saturated polycyclic ketones formed by oxidation and subjecting the saturated ketones to the action of hydrogenating agents. Various examples with details of procedure are given.—WALTER SCHOELLER, ARTHUR SERINI and MAX GEHRKE, assignors to SCHERING CORP. U. S. pat. 2,232,735, Feb. 25, 1941. (A. P.-C.)

Sulfaguanidine in Cholera. In a series of 218 cholera cases, sulfaguanidine in an initial dose of 1 Gm. followed by 0.5 Gm. every 6 hrs. for 72 hrs., reduced the mortality rate from 6.38% in controls to 3.21%. These doses of the drug showed no toxic effects. Sulfaguanidine-treated cases passed fewer stools and required less saline. The percentage of deaths among the culturally positive cases receiving large doses of sulfaguanidine was 3.84% compared to 8.97% in the culturally positive cases receiving only saline. One table.—A. J. H. DE MONTE, S. K. GUPTA and B. C. CHATTERJI. *Indian Med. Gaz.*, 76 (1941), 712–714. (W. T. S.)

Sulfanilamide Pack for Open Wounds. A number of wounded patients have been treated by packing the wounds with sulfanilamide powder. The technique of this method is described. A number of cases are recorded, with the early results of the treatment, and the mode of action is discussed. It is claimed that this treatment will at least save labor and time in casualty clearing stations by controlling infection until the patient arrives at a base hospital.—A. C. KING. *Brit. Med. J.*, 4180 (1941), 231. (W. H. H.)

Sulfanilamide—Prophylactic Introduction of, to Prevent Peritonitis. The authors performed a number of experiments on animals in which mixed cultures of pathogenic organisms were injected into abdominal wounds. Sulfanilamide powder was introduced into the wounds at different stages in the development of the infection. The wounds healed with the best results when the sulfanilamide powder was introduced four hours before the culture mixture. The poorest results were obtained when the drug was administered after peritonitis had become established. The drug appeared to be comparatively non-irritating to the peritoneal surface in the animals observed. Because of the results obtained in these experiments, the authors offer the suggestion that in those operative cases in which there is any question of peritoneal contamination occurring during the operative procedure, it would be wise to introduce a prophylactic dose of sulfanilamide powder into the peritoneal cavity at the time of the operation.—H. LAUFMAN and C. E. WILSON. *Arch. Surg.*, 44 (1942), 55; through *Abbott Abstract Service*, (1942), No. 1083. (F. J. S.)

Sulfanilamide Successfully Administered to an Infant. A 20-day-old female child, healthy at birth, was successfully given half a tablet of prontosil rubrum (Bayer) divided into four parts with doses spaced at 2-hr. intervals. The child was being treated for inflammation of the vulva.—BRIJ LAL BATRA. *Indian Med. Gaz.*, 76 (1941), 671. (W. T. S.)

Sulfapyridine—Anuria Following. S. reviews the literature on the incidence of hematuria and anuria following sulfapyridine therapy. A case of anuria is described which responded to alkalies and forced liquids. Curative and prophylactic therapy is discussed. Ureteral lavage is recommended in resistant cases.—S. K. SUNDARAM. *Indian Med. Gaz.*, 76 (1941, 726–728. (W. T. S.)

Sulfapyridine—Renal Complications of. As a rule the symptoms of hematuria and renal colic disappear within twenty-four hours when sulfapyridine is withheld and fluids are forced. In the event of nitrogen retentions 5% glucose or 4.28% sodium sulfate solution should be administered by the intravenous "drip" method. If anuria develops and persists in spite of these measures, cystoscopy and ureteric catheterization or, if need be, renal pyelotomy, as suggested by Tsao, deserve consideration owing to the tendency for plugs of concretion to block the orifices of the bladder. This was not carried out in the case the author has described, as it was not until the patient had recovered that the author had the opportunity of perusing the relevant literature and of learning something of the nature of the condition.—J. C. LEEDHAM-GREEN. *Brit. Med. J.*, 4189 (1941), 586. (W. H. H.)

Sulfathiazole in Treatment of Staphylococcal Infections. A series of 50 cases of staphylococcal infection, mostly of severe type, have been treated with sulfathiazole. In staphylococcal septicemia the drug was of value when given early and in adequate dosage, and rapid improvement which could be attributed to the drug occurred in five out of thirteen cases. In acute osteomyelitis it did not lessen the need for surgical drainage or check the progress of suppuration, but it helped to reduce toxemia. Many of the carbuncles ceased to extend when the drug was begun and the pyrexial period appeared to be shortened, but there were two deaths out of five cases of carbuncle on the upper lip or nose, both in patients with cavernous-sinus thrombosis present before treatment was begun. The drug was also found of value after surgical drainage had been instituted, in clearing up the toxemia and accelerating the subsidence of the local lesion. It was found difficult to maintain and adequate concentration of sulfathiazole in the blood except in elderly patients because of rapid excretion, and in septicemic cases the drug is best given as the sodium salt in isotonic solution by intravenous drip. A concentration of 15 mg. per 100 cc. in the blood should be attained. Vomiting is less common than with sulfapyridine, and the only other toxic effects seen were skin eruptions, conjunctival congestion and moderate leucopenia.—G. MELTON. *Lancet*, 240 (1941), 274. (W. H. H.)

Sulfathiazole—Staphylococcal Septicemia Treated with. Sulfathiazole appears to be the most efficient of the drugs of the sulfanilamide group against the staphylococcus; but in view of the relatively few reported recoveries from staphylococcal septicemia treated with these drugs the author thought it worth while to report a successful case. A complete case

history is given along with the dosage employed.—HESELSON. *Lancet*, 240 (1941), 311. (W. H. H.)

Sulfonamide Base—Effect of Urea in, on Healing of Clean Skin Wounds in Rabbits. Urea retards the rate of epithelization of open skin wound of rabbits, but stimulates the rate and extent of formation of granulation tissue; 40, 10 and 2% levels of urea in a glyceride jelly base containing sulfanilamide or sulfathiazole retard the average rate of epithelization 108, 16 and 20%, respectively; 40% and 10% levels of urea promote the rate and extent of granulation 36% and 19%, respectively; 2% urea has little or no effect.—MAGNUS OLSON, ETHEL SLIDER, WILLIAM G. CLARK and ROGER MACDONALD. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 396. (A. E. M.)

Therapeutic Substances. Chemistry of. XII. Antipyretics and Analgesics. A review.—*Chemist and Druggist*, 137 (1942), 261. (A. C. DeD.)

Therapeutic Substances—Chemistry of. XI. Antiseptics. A review.—F. PRESCOTT. *Chemist and Druggist*, 136 (1941), 278. (A. C. DeD.)

Venom in Threatened Miscarriage. Injections of 0.5 to 1 cc. of a 1–3000 solution of Russell's viper venom allowed for a full term pregnancy (the 8th) in threatened abortion evidenced by bleeding. Bleeding was checked in 3 hrs. with no pain or sign of general reaction.—K. N. PRADHAN. *Indian Med. Gaz.*, 76 (1941), 740. (W. T. S.)

Venom of the Black Widow Spider and Its Treatment. A review.—JOHN A. TERRELL, JR., and HENRY M. BURLAGE. *Am. Professional Pharmacist*, 8 (1942), 155–158. (H. M. B.)

Vitamin B_1 in Diphtheria. Most of the published cases of diphtheria in which vitamin B_1 has been used are given in tabular form. The action of vitamin B_1 was investigated in twenty diphtheritic cases of our own and the results checked with twenty control cases. The results are presented in tabular form.—G. E. DONOVAN and M. BANNISTER. *Brit. Med. J.*, 4183 (1941), 359. (W. H. H.)

Vitamin K in Hepatic and Biliary Diseases. The importance of vitamin K in the prevention and treatment of hemorrhage in hepatic and biliary diseases associated with jaundice has now been fully recognized. The present investigations support the previous work indicating that defective absorption of vitamin K due to the absence of bile salts in the intestine is chiefly responsible for prothrombin deficiency in obstructive jaundice and biliary fistula prior to operation. It is suggested that prothrombin deficiency after operation in these conditions—a deficiency which is often pronounced—may be due to a deficient intake of vitamin K in the restricted postoperative diet. Routine preoperative administration of vitamin K is recommended. The prothrombin deficiency in cirrhosis of the liver is considered to result from imperfect utilization of vitamin K by the liver. Prothrombin deficiency is not, even when severe, always associated with hemorrhage. It is considered to be responsible only for the prolongation of hemorrhage after it has been caused by other factors, especially injury. A new water-soluble preparation (2-methyl-1:4-naphthohydroquinone disuccinate), injected intravenously, has been found to be as efficient as 2-methyl-1:4-naphthoquinone in increasing the amount of prothrombin in the blood when there is a deficiency. Moreover, the action of this preparation appears to be more rapid though less sustained than the latter. It has one minor disadvantage in that it is not stable very long in aqueous solution, and so has to be dissolved in water immediately before use. A close analogy between hemorrhage in jaundice and hemophilia has been made. In both an upset in the coagulation mechanism exists, which is due in the one to prothrombin deficiency and in the other to an unknown congenital defect. The failure of the patients with the cirrhosis of the liver to respond to naphthoquinone preparations suggests that prothrombin estimations may form the basis of an additional test of hepatic insufficiency. This possibility is being explored. A simple apparatus for determining the coagulation time and prothrombin time has been illustrated and a method of preserving lung extract, used as a source of thrombokinase, has been described.—J. REID. *Brit. Med. J.*, 4189 (1941), 579. (W. H. H.)

MODERN REMEDIES

Actron Cachets contain, in each, quinine 0.096 Gm., caffeine 0.054 Gm., phenazone 0.15 Gm., phenacetin 0.25 Gm., magnesium oxide 0.1 Gm. They are recommended as a rapid acting analgesic in headache, neuralgia, rheumatism and similar conditions. The dose is one cachet. In dysmenorrhea and after teeth extraction, 1 to 3 cachets daily for three to four days is suggested. In influenza and feverish colds, 1 cachet should be taken at night and the treatment repeated for two or three nights. Actron Cachets are issued in boxes containing 4 and 12.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 95. (S. W. G.)

Anethaine (Glaxo Laboratories Ltd.) is a brand of butethanol—the hydrochloride of *para*-butylaminobenzoyldimethylaminoethanol. An extremely powerful local anesthetic chemically allied to procaine and identical with a widely used substance hitherto only produced abroad. Anethaine is ten times more powerful than cocaine—a 1% solution gives approximately the same effect as that of a 10% solution of cocaine. In the dilution used, anethaine has a toxicity much lower than that of cocaine. Anethaine is intended primarily as a surface anesthetic for operative procedures on the eye, nose and throat, and for relief of painful conditions in accessible parts of the body covered with mucous membrane. Supplies are available in the form of a 2% solution (colored blue) in 25-cc. bottles, and as a powder in 1- and 5-Gm. bottles.—*Retail Chemist*, 12, No. 5 (1941), 20. (A. C. DeD.)

Aquasept Mouthwash ("Efeka" Friedrich & Kaufmann, Hannover) is a solution containing salol and various volatile oils in alcohol (60%). It is recommended in the care of the mouth and teeth.—*Pharm. Zentralhalle*, 81 (1940), 280. (N. L.)

Arthrisan Tablets (Dr. H. Grothe, chem.-pharmaz. Präparate, Berlin) contain as the chief ingredient, cinchophen. It is recommended in the treatment of rheumatic conditions.—*Pharm. Zentralhalle*, 81 (1940), 280. (N. L.)

Celunox (Celunox, Ltd.) is the name of rheumatism tablets made from celery.—*Chemist and Druggist*, 137 (1942), 109. (A. C. DeD.)

Chologen Tablets No. I contain, in each, podophyllotoxin mercurous chloride 0.001 Gm., podophyllin 0.003 Gm., calomel 0.003 Gm., extract of hyoscyamus 0.0075 Gm., made up to 0.1 Gm. with liquorice root; the No. II tablets contain, in each, podophyllotoxin mercurous chloride 0.001 Gm., calomel 0.004 Gm., extract of hyoscyamus 0.01 Gm., made up to 0.1 Gm. with liquorice root. They are stated to possess choleretic, antiseptic, spasmolytic and laxative properties, and are indicated in all affections of the bile ducts and in secretory disturbances. The suggested treatments are 1 to 2 No. I tablets in the morning and at mid-day for ten days, or 1 to 2 No. I tablets in the morning and at mid-day together with 2 No. II tablets at night for forty days. When an attack threatens, 3 No. II tablets should be taken. Chologen is sup-

plied in packets containing 100 tablets.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 95. (S. W. G.)

Coeffectol is described as a chlorinated carvacrol, free from unpleasant, heavy odor. It is stated to have been tested satisfactorily against *Bacillus typhosus, Hemophilus influenza* (corria) and *Bacillus subtilis*, and has a R. W. coefficient of 144. A 5% solution of coeffectol in industrial methylated spirit is recommended for use as an antiseptic. In mouth washes, toothpastes, shampoos and sprays 1% or 2% of this solution is suggested.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 311. (S. W. G.)

Cogene Tablets contain, in each, aspirin 2.5 grains, phenacetin 1.7 grains caffeine 0.6 grain, codeine 0.075 grain. They have analgesic, sedative and antipyretic properties and are stated to have a rapid and prolonged action without producing undesired side-effects. Cogene is available in tubes of 10 and 20 tablets and in bulk quantities of 500 and 1000 tablets.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 95. (S. W. G.)

Collosol Mercury Sulfide (The Crookes Laboratories) is a mercury compound which has attracted much attention and promises to reestablish mercury in a position of clearly defined usefulness in syphilogy. The disadvantages of the older mercurials have been removed, since the association of mercury with sulfur assists both the absorption and elimination of the toxic metal. No local reaction has ever been reported, and the material is easily injected, no sedimentation or blocking of the needle can take place from the true colloidal suspension. Collosol mercury sulfide being in colloidal form, is very rapidly and completely absorbed, and as it is stabilized with a carbohydrate protective colloid there is no risk of protein shock in its use. It is isotonic and may be given either intramuscularly or intravenously without pain being caused. In fact the lack of toxicity is so marked that doses of 5 cc. (25 mg.) are regularly given in the treatment of acute syphilis. The toxicity of colloidal mercury sulfide is less than that of any other mercury preparation considered from the basis of mercury content. The mercury content of mercury sulfide is 85.8%.—*Retail Chemist*, 12, No. 3 (1941), 20. (A. C. DeD.)

Dezima (Gesellschaft fur Chemie K.-G., Berlin) is calcium acetylsalycilic acid and is indicated in the treatment of grippe, fever, rheumatism, gout and headaches.—*Pharm. Zentralhalle*, 81 (1940), 280. (N. L.)

Diphenan B.D.H. (The British Drug Houses Ltd.) is a nontoxic anthelmintic indicated particularly in thread worm infestation (oxyuriasis) and of value also in trichinosis, the disease following the ingestion of raw or underdone pork containing *Trichina spiralis*. It has been shown that diphenan exerts its parasiticidal action by producing an extreme state of contraction of the worm, and its death usually occurs within 4–5 min. It can be administered to children and infants as well as adults, in smaller doses.—*Retail Chemist*, 12, No. 3 (1941), 20. (A. C. DeD.)

Ferronovin (Chemische Fabrik Promonta G. m. b. H., Hamburg) is a concentrated liver extract containing 0.4% iron in a biologically active form.—*Pharm. Zentralhalle*, 81 (1940), 281. (N. L.)

Fontisal No. 5 (Pharmazeutische Präparate W. Liese, Leipzig) contains lithium chloride, potassium chloride, sodium bromide, sodium chloride, sodium bicarbonate and tartaric acid.—*Pharm. Zentralhalle*, 81 (1940), 281. (N. L.)

Gentian Violet Jelly B.D.H. (The British Drug Houses Ltd.) is a preparation containing 2% gentian violet and 0.02% sodium ethyl mercurithiosalicylate, and is recommended for the treatment of second degree and third degree burns, particularly of the hands, face and feet. Supplies are tube of 1½ oz. and 4 oz.—*Retail Chemist*, 12, No. 3 (1941), 20. (A. C. DeD.)

Geviflex is a jelly containing gentian violet 2%, and phenylmercuric nitrate 0.3%. It is recommended as an alternative to tannic acid for the treatment of burns. It is supplied in tubes containing 1¼ oz. and 5 oz.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 311. (S. W. G.)

Heparin (Evans Sons Lescher & Webb Ltd.) is a nontoxic commercially pure heparin prepared from liver by a modification of Charles and Scott's method, issued in sterile solution, and recommended as a anticoagulant in thrombosis and allied conditions and in blood transfusions. Issues are in 5-cc. rubber-capped bottles (5000 Toronto units), and 10-cc. rubber-capped bottles (10,000 Toronto units). There are also available 10-cc. metal screw-capped heparinized collecting tubes, containing 100 units in the form of a dry film for the collection of blood samples, and these are issued in boxes containing 1 tube and 3 tubes.—*Retail Chemist*, 12, No. 3 (1941), 20. (A. C. DeD.)

Hepolon is a clinically tested extract, containing all the known hematopoietic principles in whole liver, for the treatment of pernicious anemia. The dose, by intramuscular injection, is 2 cc. daily until a reticulocytic crisis is obtained, followed by 2 cc. every second or third day until the blood picture remains normal for two weeks or more. The maintenance dose, controlled by blood examination, is usually 4 cc. every two or four weeks. Hepolon is supplied in 2-cc. ampuls in boxes of 6, 12 and 24, and in 10-cc. and 30-cc. rubber-capped vials.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 311. (S. W. G.)

Indina 777 (H. Kohler, pharmaz. Präparate, Berlin) is marketed in the form of tablets, and consists of hemoglobin, lecithin, ferric lactate, disodium orthophosphate, calcium phosphate, sodium nitrate, potassium sulfate and extract of fig. It is recommended as a blood tonic.—*Pharm. Zentralhalle*, 81 (1940), 281. (N. L.)

Infant Celin Tablets (Glaxo Laboratories Ltd.) is a new preparation of vitamin C specially intended for supplementary use in the feeding of infants whenever the supply of fresh fruit juice is uncertain or reduced. Each tablet contains 5 mg. ascorbic acid (vitamin C), the antiscorbutic content of approximately two teaspoonfuls of orange juice or four of tomato juice. One to 2 tablets provide the established vitamin C need of the infant, according to age. The makers also point out that these tablets can be given in warm milk without their antiscorbutic properties being affected, they dissolve readily in milk and they cause no digestive disturbances and have no laxative or constipating effect. Also available in 1-cc. ampuls each containing 100 mg. ascorbic acid.—*Retail Chemist*, 12, No. 3 (1941), 20. (A. C. DeD.)

Kapseals Combex with Vitamin C (Parke, Davis & Co., Detroit, Mich.) contain in each Kapseal 1.5 mg. (500 International units) of vitamin B_1 (thiamine hydrochloride) 0.5 mg. (200 Sherman units) of vitamin B_2 (riboflavin), 0.25 mg. of vitamin B_6 (pyridoxine hydrochloride), 5 mg. of nicotinic acid (P-P factor), 0.3 mg. of pantothenic acid, with other components of the vitamin B complex derived from liver, and 25 mg. (500 International units) of ascorbic acid. It is intended for the prevention and treatment of deficiencies of important components of the vitamin B complex and of vitamin C. The Kapseals are supplied in bottles 100, 500 and 1000.—*Modern Pharmacy*, 26 (June, 1942), 13. (F. J. S.)

Kapseals Dilantin Sodium (Parke, Davis & Co., Detroit, Mich.) is the sodium salt of 5,5-diphenyl hydantoin and is an odorless, white or cream-colored powder with a bitter taste. It is used as an anticonvulsant with relatively little hypnotic effect and it is intended for the treatment of epilepsy including both grand mal and petite mal types of seizures, particularly in patients not responsive to other medication. It should be employed only under the supervision of a physician. Kapseals Dilantin Sodium are supplied as 0.1 Gm. ($1^1/_2$ grains), and 0.03 Gm. ($^1/_2$ grain), each in bottles of 100, 500 and 1000. —*Modern Pharmacy*, 26 (June 1942), 12. (F. J. S.)

Kennafor (Osmosate Kom.-Ges. Dr. Scheermesser, Dessau) is a salve containing salicylic acid 8%, amidopyrine 4%, menthol 8%, caffeine 4%, eucalyptol 6%, camphor 2%, capsicum 4% and glycerin-opodeldok 64%. It is indicated in the treatment of rheumatism, gout, etc.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Kingson Dragees (Labor. Dr. phil. nat. Koenig, Bad Aachen) contain valerian root, lupulin and melissa leaves. It is recommended as a nervine.—*Pharm. Zentralhalle*, 81 (1940), 281. (N. L.)

Kramsol is an antiseptic solution containing amyl-*m*-cresol, formaldehyde and other ingredients for use as a sterilizing agent for surgical instruments, in place of alcohol, in which the spores of both anaerobic and aerobic bacteria can survive for months. Instruments for sterilization should be cleaned and completely covered with the solution in a closed container for at least half an hour. Metal and rubber articles should be sterilized separately. The instruments should be removed aseptically and rinsed with sterile water. Direct contact of kramsol with the skin should be avoided. Kramsol is supplied in bottles containing 20 fl. oz.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 311. (S. W. G.)

Latucyl Drops (Chem. Fabriken Knoll A.-G., Ludwigshafen a. Rh.) contain the water-soluble standardized active principles of domestic *Lactuca virosa*. The preparation is indicated in the treatment of asthma, grippe, bronchitis, etc.—*Pharm. Zentralhalle*, 81 (1940), 281. (N. L.)

Laxosan (Chemosan-Hellico A.-G., Prag II) is marketed in the form of dragrees and contains fucus, frangula, cinchona, myrtillin, ethereal extract of senna, phenolphthalein and licorice. It is indicated in the treatment of constipation.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Leo-Gurgel Tincture (Leo-Werke G. m. b. H., Dresden) contains myrrh, saliva, salol, benzyloxybenzoic acid and oil of peppermint. It is recommended as a mouth wash.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Levitherpin (Dr. Geissler & Co., Chem.-pharmaz. Präparate, Essen) is a colorless solution containing various phenolic derivatives, formaldehyde and volatile oils. It is recommended in the treatment of stomatitis, etc.—*Pharm. Zentralhalle*, 81 (1940), 281. (N. L.)

Maffee Dragrees (Togalwek, München) consist chiefly of extracts of taraxacum, frangula and aloes, together with phenolphthalein, magnesium oxide and oil of chamomile. It is recommended in the treatment of chronic constipation.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Nasturtiol is described as colloidal phenyl ethyl iodide containing not less than 54% of iodine insoluble in water. It is absorbed by the skin without undergoing decomposition, and its colloidal form is said to facilitate penetration. Nasturtiol is recommended for use in hair preparations and skin applications; in combination with sulfur and traces of chlorine, it is indicated in rheumatism, sciatica and neuritis.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 311. (S. W. G.)

Neo-Hombreol (M) Tablets contain, in each, 5 mg. of methyl testosterone for oral administration in androgenic therapy. The principle indications in men are eunuchism from postpuberal castration, eunuchoidism and hypogonadism, and in women, excessive uterine bleeding, dysmenorrhoea, climacteric symptoms where estrogenic therapy brings back too much hemorrhage and to suppress lactation. In male cases after an initial response has been obtained, the dose is usually 3 tablets daily; the dose for women should not normally exceed 10 tablets daily. Neo-Hombreol (M) is issued in boxes containing 20 and 100 tablets.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 95. (S. W. G.)

Nephriletten I (Aquisgrana, Fabrik pharmaz. Präparate, Aschen) consists chiefly of rubia, berberis, sassafras and various inorganic salts of calcium, lithium, magnesium and sodium. It is marketed in tablet form.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Neuroplant (Dr. Willmar Schwabe, Leipzig) is a preparation containing the fresh plants of arnica echinacea, plantago and corrigium. It is recommended as an analgesic.—*Pharm. Zentralhalle*, 81 (1940), 282. (N. L.)

Nicorbin Tablets contain in each, aneurine hydrochloride, 1 mg.; ascorbic acid, 25 mg.; nicotinic acid, 10 mg. They are recommended for the treatment of subclinical multiple-deficiency states and not as a dietetic supplement. A dose of three tablets daily is stated to supply the optimum amount of each water-soluble factor. Nicorbin is supplied in bottles containing 25 and 100 tablets.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 311. (S. W. G.)

Nonad Tulle is a gauze with a 2-mm. mesh impregnated with soft paraffin containing 1% of each of balsam of Peru, and halibut liver oil. It is designed to prevent dressings from adhering to wounds, the open mesh allowing secretions to be absorbed by the outer dressings. Halibut liver oil is added to promote nutrition of the epithelium. The dressing is sterilized in a high pressure steam autoclave. Nonad Tulle is supplied in hermetically sealed tins, containing ten pieces, each 4 inches square, interleaved with paper.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 312. (S. W. G.)

Oestromon (E. Merck, Chem. Fabrik, Darmstadt) is 4,4-dioxy-α,β-diethylstilben. It is indicated in the treatment of dysmenorrhea, climacteric disturbances and amenorrhea.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Orgakinine is quinine di-ascorbinate, a combination of quinine, approximately 48%, and ascorbic acid, 52%. This compound is very soluble in water and the solution is stable. Orgakinine is recommended for the treatment of pneumonia and colds and influenza. It is supplied in the form of ampuls and as tablets. Each 2-cc. ampul contains 520 mg. of quinine di-ascorbinate, equivalent to 250 mg. of quinine base, and 270 mg. of ascorbic acid. Each tablet contains 75 mg. equivalent to 36 mg. of quinine, and 39 mg. of ascorbic acid. In pneumonia the adult dose is 2 to 3 ampuls daily by deep intramuscular injection. In colds and influenza 2 tablets three times a day is the dose suggested. The tablets are supplied in bottles of 20, 100 and 500.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 312. (S. W. G.)

Osmolax (Dr. J. Dietrich M. Scheel, Brunsbüttelkoog, Bez. Hamburg) is a purgative containing citrates and sulfates, together with frangula, senna and other plants.—*Pharm. Zentralhalle*, 81 (1940), 282. (N. L.)

Osteosan B (M. Brockmann, Chem. Fabrik, Leipiz) is a liver preparation containing 1% of free fatty acids, a high content of vitamins A and D, mineral substances and pepsin.—*Pharm. Zentralhalle*, 81 (1940), 259. (N. L.)

Ovibion (Chem.-pharmaz. Fabrik A. Klinge, Berlin SO 36) is an ovarian extract marketed in the form of drops. It is indicated in menstruation and climatic disturbances.—*Pharm. Zentralhalle*, 81 (1940), 260. (N. L.)

Pectevan (Evans Sons Lescher & Webb Ltd.) is a synergic combination of guaiacol and codeine phosphate compounded with other ingredients to produce a palatable mixture and recommended to be a particularly effective elixir for diseases of the respiratory tract. Supplied in bottles of 3 fl. oz.—*Retail Chemist*, 12, No. 3 (1941), 20. (A. C. DeD.)

Pitocin (Parke, Davis & Co., Detroit, Mich.) is the oxytocic principle (*alpha*-hypophamine) of the posterior pituitary gland in sterile aqueous solution containing ten oxytocic units per cc. and a negligible amount of pressor principle (*beta*-hypophamine). The low protein content and freedom from impurities minimize the possibility of reactions. It is used in obstretrical practice for stimulating contraction of the uterine musculature and is especially indicated in conditions in which blood pressure rise is undesirable. It is supplied as 1-cc. ampuls (10 oxytocic units) in boxes of 6, 25 and 100; and as 0.5-cc. ampuls (5 oxytocic units) in boxes of 6, 25 and 100.—*Modern Pharmacy*, 26 (June, 1942), 12. (F. J. S.)

Pyrifer is a preparation from nonpathogenic bacteria containing pyrogenic albuminous substances for use as a substitute for malaria treatment in the fever treatment of mental diseases. It is made in seven strengths containing 50 to 5000 million organisms per cc. to allow for a graduated dosage. Within half to one hour after injection, a sharp rise in temperature occurs; the temperature reaches a maximum after 2 to 4 hrs. and returns to normal after a further 4 to 6 hrs. After the first or second injection, the decline of the fever may be retarded. Before use, the ampuls are very thoroughly shaken. The initial dose, by slow intravenous injection, is usually 1 cc. of the lowest strength; for subsequent injections, the dose is increased to obtain a temperature of at least 101.3° F. The treatment may be interrupted at any time. In syphilitic cases simultaneous antisyphilitic treatment is recommended. Pyrifer is supplied in boxes containing the following quantities: 1 ampul of the strengths 50, 100, 200 and 500 million organisms per cc.; 2 ampuls of the strengths 1000 and 2000 million organisms per cc.; 4 ampuls of the strengths 5000 million organisms per cc.; 10 ampuls of each strength.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 95. (S. W. G.)

Santron is a solution of chloroxylenol in potash-castor oil soap with certain essential oils which give the preparation a faint agreeable odor. It is recommended as an antiseptic with a low toxicity, nonirritant to the skin or mucous membrane, and having marked penetrative power. The Rideal-Walker test shows its antiseptic power to be five times that of phenol. It is suggested as being especially useful in midwifery, and as a general antiseptic in surgery and the sickroom—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 312. (S. W. G.)

Siccolam (The British Drug Houses Ltd.) is a desiccant paste for exudatory dermatoses. Siccolam is a thick creamy preparation containing titanium dioxide, zinc oxide and small quantities of purified silicates in a fat-free base. It possesses the dehydrating properties of lotions of the calamine type, but it is claimed, to a much greater degree, and is therefore of value as a surface application for the treatment of dermatoses associated with marked exudation in which fatty preparations are contraindicated. Laboratory investigations have shown that Siccolam has a dehydrating effect considerably greater than that of any of its constituents employed alone. In clinical use the dehydrating and healing effects of Siccolam have been demonstrated in a series of chronic dermatitis, most of which had not responded to other forms of treatment applied for considerable periods. Siccolam is issued in collapsible tubes.—*Retail Chemist*, 12, No. 2 (1941), 26. (A. C. DeD.)

Sulfathiazole Ointment (Parke, Davis & Co., Detroit, Mich.) consists of 5% of sulfathiazole (2-sulfanilylaminothiazole) in a petrolatum-adeps lanae base. It is indicated in the treatment of many dermatoses caused by streptococci and staphylococci; and it is supplied in 1-oz. collapsible tubes and in 1-lb. and 5-lb. jars.—*Modern Pharmacy*, 26 (June, 1942), 13. (F. J. S.)

Synkavit is tetrasodium 2-methyl-1:4-dihydroxynaphthalene diphosphate. This substance is stable and water-soluble, and it is stated to have a higher vitamin K activity than the natural vitamin. Its administration by mouth is effective without the addition of bile salts. The adult dose is 10 to 40 mg. daily. The dose in obstructive jaundice is 10 mg. by injection daily for several days before operation and for two or three days subsequently. In sprue, the optimum dose should be found by trial; 10 mg. daily for a week, followed by weekly or fortnightly doses, has been found satisfactory. As a prophylactic measure in pregnancy, the suggested dose is 10 mg. by injection daily for two or three days before labor, or 50 mg. by mouth in divided doses during the 24 hrs. preceding labor. The dose in neo-natal hemorrhage is 5 to 10 mg. by intramuscular injection. Synkavit is available in 10-mg. tablets or in solution in ampuls each containing 10 mg. in 1 cc. The tablets are supplied in phials of 10 and 100, and the ampuls in boxes of 6.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 96. (S. W. G.)

Tanexin (Parke, Davis & Co., Detroit, Mich.) is a sterile tannic acid jelly preparation consisting of tannic acid 7.5%, a germicide 2-hexyl-4,6-dichlororesorcinol 0.1% and glycerin 10% in a water-soluble jelly. Tanexin is used for the treatment of burns and it is supplied in 1-oz. tubes, $4^1/_2$-oz. tubes and in 1-lb. jars, and hospital size jars containing approximately $6^1/_4$ lbs.—*Modern Pharmacy*, 26 (June, 1942), 12. (F. J. S.)

Taumasthman Tablets contain, in each, ephedrine hydrochloride 0.01 Gm., theophylline 0.1 Gm., amidopyrine 0.1 Gm., extract of belladonna 0.01 Gm., starch 0.05 Gm., made up to 0.5 Gm. with lactose. They are recommended for the prevention and relief of asthma attacks; the small dosage of the various ingredients is stated to eliminate undesired secondary effects. The prophylactic dose is one-half to one tablet; for the abortion of asthmatic attacks, the dose is one to two tablets. The tablets are directed to be taken disintegrated in water or swallowed with water. Taumasthman is supplied in packets containing 10 and 60 tablets.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 96. (S. W. G.)

Tetanus Antitoxin (Parke, Davis & Co., Detroit, Mich.) is a highly concentrated and refined product from the blood of horses immunized to the toxins of the *Bacillus* (*Clostridium*) *tetani* and this antitoxin has been treated by a special enzymatic process which results in a greatly reduced horse serum specificity. Prophylactically, it is used in the treatment of contaminated wounds; and therapeutically, the antitoxin must be given early and in large doses.

Tetanus Antitoxin is supplied as follows: 1500 standard American units in syringe; 1500 units in vial; 5000 units in syringe; 5000 units in vial; 10,000 units in syringe; 10,000 units in vial; 20,000 units in syringe; and 20,000 units in vial.—*Modern Pharmacy*, 26 (June, 1942), 13. (F. J. S.)

Varistab is a stable aqueous 5% solution of ethanolamine oleate with 25% of glycerin and 3% of tricresol for the injection treatment of varicose veins. It is almost painless on injection, and the risk of sloughing due to leakage into the surrounding tissues is slight. Idiosyncrasy to varistab is unlikely, and it does not produce allergic reactions. From two to three injections of 1 to 2 cc. may be given, but the total volume should not exceed 5 cc. Varistab is supplied in 5-cc. ampuls in boxes of 3 or 6 ampuls, and in 30-cc. rubber-capped vials.—*Quart. J. Pharm. Pharmacol.*, 14 (1941), 312. (S. W. G.)

Vitexia Tablets contain, in each, vitamin A, 1000 International Units; aneurine hydrochloride, 100 International Units; vitamin D, 300 International units; ascorbic acid, 150 International units; ferrous sulfate, 1/8 grain; magnesium phosphate, grain; calcium gluconate, 1 grain; and potassium bicarbonate, 1/2 grain. They are recommended to supplement deficiencies in vitamins and mineral salts in normal diet. Vitexia Tablets are issued in bottles containing 42 and 100.—ANON. *Quart. J. Pharm. Pharmacol.*, 15 (1942), 96. (S. W. G.)

"Zisp" Paste consists of equal parts of zinc peroxide, iodoform and sulfanilamide mixed with sufficient liquid paraffin to form a thin paste. It is applied on gauze in place of petroleum jelly gauze in the Winnett Orr treatment of wounds. Used in this way it is an effective deodorant and has a bacteriostatic action.—S. J. HOFFMANN. *Brit. Med. J.*, 1 (1941), 786; through *Quart. J. Pharm. Pharmacol.*, 14 (1941), 312. (S. W. G.)

BACTERIOLOGY

Alcohols—Bactericidal Action of. Methyl, ethyl, propyl and iso-propyl alcohol were tested *in vitro* to determine the influence of the water content of the alcohol on its bactericidal action. The following organisms were used: *Bact. coli*, *Staph. albus* and *aureus*, *Ps. pyocyanea*, *Strep. hemolyticus* and *Bact. paratyphosum* B. Absolute alcohol was ineffective against most of the organisms used, except the streptococci and *Ps. pyocyanea*. Absolute methyl alcohol was bactericidal to all bacteria, while absolute propyl and iso-propyl alcohols were always ineffective. Staphylococci were the most resistant organisms to all four alcohols. The alcohols, diluted in water, showed optimal bactericidal action in the following ranges of concentration: methyl alcohol 60–90%, ethyl alcohol 50–90%, propyl alcohol 20–90% and iso-propyl alcohol 30–80%.

One per cent methyl and ethyl alcohol dissolved in dry petrol ether had a strong bactericidal action. The optimal concentration of propyl and iso-propyl alcohol in petrol ether ranged between 2.5% and 7.5%. There was no definite correlation between the water content and the bactericidal potency of any solution tested.—G. LOCKEMANN, F. BAR and W. TOTZECK. *Zentr. Bakt. I Orig.*, 147 (1941), 1; through *Bull. Hyg.*, 17 (1942), 131. (T. C. G.)

Alkylphenylphenols—Branched-Chain. Compounds useful as antiseptics, preservatives, intermediates, etc., are formed by treating a phenylphenol with an alkyl halide or olefin containing at least 3 carbon atoms in the molecule in the presence of a Friedel-Crafts catalyst. Details are given of the production of a number of such compounds.—EDGAR C. BRITTON, GERALD H. COLEMAN and RALPH P. PERKINS, assignors to THE DOW CHEMICAL CO., U. S. pat. 2,248,401, July 8, 1941. (A. P.-C.)

Anopheles Leucosphyrus—Observations on, in the Digboi Area, Upper Assam. The results of a malaria survey in and near Digboi during 1938 and 1940 are given. In particular *A. leucosphyrus* yielded a plasmodium infection rate of 3.1% to 4.9% in areas where *A. minimus* is the less plentiful species. In one particular area (Kharjan), the small local population had a very high incidence of malaria. The habits and breeding places of *A. leucosphyrus* are commented on. It is concluded that *A. leucosphyrus* is a vector species of importance in Digboi and its vicinity.—ANON. *J. Malaria Institute of India*, (1941) 4, 103. (A. C. DeD.)

Anterior Pituitary Gland—Hormonal Antigen of. The author outlines the method of making a comparative serological study of the anterior pituitary hormones by using ammonium sulfate to precipitate the various fractions. The problems discussed are: (1) The serological reaction of the different fractions in relation to physicochemical properties; (2) The occurrence of identical or similar antigens in organs without hormonal activity; (3) The importance of the carbohydrate component in respect to antigenicity; (4) Whether a specific antibody against the "diabetogenic hormone" can be demonstrated. The same antigens isolated from the pituitary glands were also found in the kidney of the ox. Observations are presented on antigens other than those associated with known hormonal fractions and on the influence of carbohydrate and lipoid components on the antigenicity of the pituitary gland.—E. SINGER. *Australian J. Expt. Bio. Med. Sci.*, 19 (1941), 125–132. (W. T. S.)

Antibody Response of Persons with Pellagra, Beriberi and Riboflavin-Deficiency. Response to antigenic stimulation with *B. tularense* in persons with pellagra, beriberi and riboflavin deficiency was less than in normal persons. In general, the agglutinative titers were lowered in proportion to the severity of the deficiency, and persons with the greatest degree of deficiency had less ability to maintain their titers. There was a quantitative relation between the higher titers and the amount of agglutinin-nitrogen.—GORDON R. MOREY and TOM D. SPIES. *Proc. Soc. Exptl. Biol. Med.*, 49 (1942), 519. (A E. M.)

Antibodies—Theory of the Structure and Process of Formation of. It is assumed that antibodies differ from normal serum globulin only in the way in which the two end parts of the globulin polypeptide chain are coiled, these parts, as a result of their amino acid composition and order, having accessible a very great many configurations with nearly the same stability; under the influence of an antigen molecule they assume configurations complementary to surface regions of the antigen, thus forming two active ends. After the freeing of one end and the liberation of the central part of the chain this part of the chain folds up to form the central part of the antibody molecule, with two oppositely directed ends able to attach themselves to two antigen molecules. Among the points of comparison of the theory and experiment are the following: the heterogeneity of sera, the bivalence of antibodies and multivalence of antigens, the framework structure and molecular ratio of antibody-antigen precipitates, the use of a single antigen molecule as template for an antibody molecule, criteria for antigenic activity, the behavior of antigens containing two different haptens, the antigenic activity of antibodies, factors affecting the rate of antibody production and the specificity of antibodies, and the effect of denaturing agents. It is shown that most of the reported experimental results are compatible with this theory. Some new experiments suggested by the theory are mentioned.—LINUS PAULING. *J. Am. Chem. Soc.*, 62 (1940), 2643. (E. B. S.)