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PHARMACEUTICAL ABSTRACTS

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ABSTRACTORS

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CHEMISTRY

ANALYTICAL (*Continued*)

Chemical Microscopy—Laboratory Space for. A three foot strip across the rear of a recitation room is suggested and the design of desks is shown.—C. E. OTTO. *J. Chem. Educ.*, 17 (1940), 331–333. (E. G. V.)

Chemists under the "Blitz." A review of how the chemists are carrying on under war conditions is described in dispatches from local secretaries.—ANON. *Chemist and Druggist*, 134 (1941), 370. (A. C. DeD.)

Chlorides—Qualitative Test for. Using *M*/10 silver nitrate and various dilutions of NaCl in 10 cc. volume of water in 16–18 mm. diameter test tubes, the number of micrograms of chloride necessary to give observable qualitative reactions for chloride at 1, 3 and 5 minutes, and with various amounts of reagent was determined. It was evident that the sensitivity of the test decreased with increase in the quantity of reagent above 3 drops, although sensitivity was somewhat improved with longer observation time than one minute. Sensitivity was greater in acid solution. *Method of test:* 10 cc. of test solution is neutralized if necessary with nitric acid, 1 cc. of 2 *M* HNO_3 is then added and three drops of *M*/10 $AgNO_3$. Observation is at one minute, down the length of the tube against a dark background. Comparison may be made with a chloride standard prepared by diluting 10 cc. of 0.1 *N* NaCl to 1000 cc. If an opalescence is obtained equal to, or stronger, than that given by 2 cc. of the standard chloride solution plus 8 cc. water, 1 cc. of 2 *M* HNO_3 and three drops of the $AgNO_3$ reagent, the test is positive. Some pharmacopœial rubrics speak of "weak opalization" and "opalization." "Weak opalization" is defined as the opalescence obtained with 1 cc. of the standard chloride solution in 9 cc. water, while "opalization" would be the opalescence from a test done with the 2 cc. quantity as above cited.—N. THRON. *Farm. Revy*, 40 (1941), 38. (C. S. L.)

N-Cinnamylephedrines—Some Properties of the, and the Analysis of Aspirin, Caffeine and Cinnamylephedrine in Admixture. Since at least one cinnamylephedrine isomer has been used pharmaceutically, it seemed desirable to supplement the meager information available in the literature and make satisfactory identification possible. N-Cinnamylephedrines may exist in two enantiomorphic forms corresponding to *d*- and *l*-ephedrine, and also in a racemic modification. The three forms were prepared by action of cinnamyl chloride on the corresponding ephedrine, the unsubstituted ephedrine being precipitated as the hydrohalide. Probably deposition of ephedrine salts occurring in solutions of the base in chloroform and other reactive organic halides is the result of similar reaction. Replacement of the amino hydrogen atom of ephedrine by a cinnamyl radical produced a product which rotated the plane of polarized light, in a direction opposite to that characteristic to the particular ephedrine. Such an effect has been observed in the synthesis of other N-substituted ephedrines. The optically active and inactive free bases were obtained easily in crystalline condition, the inactive hydrochloride permitting estimation of optical crystallographic properties but the active salts were microcrystalline. Action of some alkaloidal precipitants was studied and solubilities were studied. Procedure for assay of a mixture of aspirin, caffeine and cinnamylephedrine briefly involved holding back aspirin with cold dilute bicarbonate, extracting the caffeine and cinnamylephedrine base with chloroform, determining combined weight and titrating the cinnamylephedrine since caffeine has no titratable basicity under the conditions employed. Aspirin is determined gravimetrically after extraction of the acidified bicarbonate layer. Experimental work is reported in considerable detail.—ILLEWELLYN H. WELSH and GEORGE L. KEENAN. *Jour. A. Ph. A.*, 30 (1941), 123. (Z. M. C.)

Clematis Angustifolia Jacquin—Chemical Studies on the Roots of. Upon steam distillation of the alcoholic extract of the roots of *Clematis angustifolia* a volatile oil was obtained in 0.72% yield. The physical and chemical constants of the oil are reported. From the non-volatile portion of the alcoholic extract which was insoluble in water the following substances were isolated: (1) an unidentified sterol (empirical formula), (2) sitosterol, (3) an unidentified acid (molecular formula, $C_{16}H_{33}COOH$, m. p. 74–75° C), (4) myristic acid, (5) *alpha*-linoleic acid, (6) *beta*-linoleic acid, (7) oleic acid. The water-soluble portion of the alcoholic extract apparently contained (1) unidentified alkaloidal substances which can be extracted from alkaline solution with ether and with chloroform, (2) a pentose, (3) a methyl pentose and (4) a ketohexose.—T. H. TANG and Y. S. CHAO. *Pharm. Arch.*, 11 (1940), 60. (A. C. DeD.)

Copper—Determination of Traces of. The work carried out during the last few years on the colorimetric sodium diethyldithiocarbamate method has been consolidated in explicit form, and the technique of the method is described in detail. A collaborative study of the method indicated that dithizone extraction to eliminate bismuth interference requires refinement in order to permit differential extraction. It is believed that it may be possible to eliminate the cyanide step, and in the meantime the hydrogen sulfide-cyanide procedure furnishes a workable micro method for copper in the presence of interfering metals. In the absence of bismuth, cobalt and nickel, the carbamate method may be applied directly to a solution obtained by wet combustion or ashing of the sample. Preliminary experiments indicated that lead is the most promising gatherer for copper in the hydrogen sulfide precipitation. The choice of a solvent for extraction of the carbamate complex is largely one of individual preference; from the standpoint of least deviation from Beer's law, bromobenzene is superior to isoamyl acetate and to carbon tetrachloride.—C. A. GREENLEAF. *J. Assoc. Official Agr. Chem.*, 24 (1941), 337–348. (A. P.-C.)

Diethylstilbestrol—Colorimetric Method for the Assay of. It has been found that the xanthoproteic reaction is suitable for the quantitative estimation of diethylstilbestrol in tablets, ampuls and suppositories but the reaction is not specific. It is applicable to preparations in which stilbestrol is known to be the only phenyl derivative present.—EARL B. DECHENE. *Jour. A. Ph. A.*, 30 (1941), 208. (Z. M. C.)

Distilled Spirits—Determination of Denaturants (Methanol) in. Using a special still (described in *J. Assoc. Official Agr. Chem.*, 22 (1938), 154) for the concentration of methanol present in small amount (0.1%) in distilled spirits, no difference was found in the methanol content obtained by the Georgia and Morales method (*Ind. Eng. Chem.*, 18 (1926), 304–307) when the distillate was taken off at the rate of about 22 drops per minute instead of 1.2 cc. per 15 minutes, and there was no difference in the color obtained from the two methods of distillation. These findings were confirmed by a collaborative study.—G. F. BEYER. *J. Assoc. Official Agr. Chem.*, 24 (1941), 223–224. (A. P.-C.)

Drug Investigation. Twenty-two products are listed and ethyl acetate, bismuth oxyiodogallate, quinine citrate and sodium diethylbarbiturate are treated more fully.—KONRAD SCHULZE and ARMIN

MELLE. *Deut. Apoth. Ztg.*, 56 (1941), 325-326; through *Chem. Abstr.*, 35 (1941), 5640. (H. M. B.)

Drugs and Galenicals—Observations on the Investigations of. Among the preparations treated are: cortex cinnamomi, cortex yohimbe, crocus, flores chamomillæ and cinæ, salvia leaves, *Galeopsis ochroleuca*, gum arabic, herba cochleariæ, powdered opium, ginger, secale cornutum, linseed, tragacanth, jalap tuber, fluidextracts of condurango, ergot, and senega, spirit of ethyl nitrite, bitter and aromatic tinctures, tinctures of orange, arnica, and valarian, red raspberry juice, tolu, oils of anise, eucalyptus, peppermint (Polish), camphor (light), anhydrous wool fat, and lanovaselin.—W. PEYER. *Deut. Apoth. Ztg.*, 56 (1941), 257-259, 265-266, 272-273; through *Chem. Abstr.*, 35 (1941), 5251. (H. M. B.)

Drugs and Poisons—Estimation of, from Postonal-Containing Preparations. Postonal, a combination of polyethylene oxide and an oil or fat acid as a softening agent, plays an important role at present as a substitute for cocoa butter especially in the production of suppositories and pills. The difficulties attendant on the separation of this vehicle from accompanying drugs are pointed out and suggestions offered for their circumvention, notably sublimation. Thus, caffeine, acetanilid, antipyrine, pyramidon, phenacetin, santonin, barbital, sulfonal and salicylic acid have been separated and estimated.—BENNO REICHERT. *Deut. Apoth. Ztg.*, 56 (1941), 233-234; through *Chem. Abstr.*, 35 (1941), 5251. (H. M. B.)

Drugs—Chemical Variation of. The author reviews the generalizations which may be drawn from his extensive work on the above topic: (1) chemical variations are as general as morphological variations; (2) the chemical variation of the drug constituents as a rule does not correspond to the binomial distribution and is consequently greater than this would require; (3) the spread of the variation for various groups of drug constituents is unequal and is, for example, considerably greater for alkaloids and glycosides than for fatty oils and proteins; (4) for a number of drug constituents, it has been found that as a rule the smaller specimens of drug are richer in active ingredient on a percentage basis than the larger specimens; (5) if the variation of a constituent becomes so great that the active principle disappears completely and if this variation becomes hereditary, then there is produced a different biochemical species.—L. ROSENTHALER. *Pharm. Acta Helv.*, 15 (1940), 159-162. (M. F. W. D.)

Drugs—Recent Advances in the Analysis of Dangerous. Spectrochemical Analysis. Suggestions for the analysis of cocaine, opium and Indian hemp are given. Analyses by the spark, arc and flame methods are reviewed.—J. G. A. GRIFFITHS and H. K. WHALLEY. *Chemistry and Industry*, 59 (1940), 765-769. (E. G. V.)

Elixir of Terpin Hydrate and Codeine—Report on the Analysis of. The previously described method (*J. Assoc. Official Agr. Chem.*, 21 (1938), 575) was modified by: (1) taking separate portions for the determination of codeine and of terpin hydrate, respectively, in order that a sufficiently large amount of codeine be obtained; (2) evaporating and drying the terpin hydrate extract in a current of air dried by means of a sulfuric acid train (calcium chloride is inadequate in damp weather). The modified technique is described in detail in *A. O. A. C. Methods of Analysis*, (1940), p. 579. Collaborative study gave results considered quite satisfactory for this type of product, and showed that the two objections to the former method had been overcome. Adoption of the method as tentative is recommended.—JONAS CAROL. *J. Assoc. Official Agr. Chem.*, 23 (1940), 757-758. (A. P.-C.)

Ergot—Chemical Assay of. From a study on the extraction and decomposition of the alkaloids of ergot it was found that continuous extraction of ergot with methylene dichloride or shaking ergot with a menstruum of ammoniacal acetone does not completely extract the alkaloids. Previous workers have stated that, when ether is used at least three five-hour periods are necessary for completion, while others have found that eight hours' treatment in a Soxhlet apparatus is necessary to ensure complete extraction. The present authors found that marcs from continuous extractions with ether for five hours, whether freed from solvent below 40° or without further treatment, yielded no further alkaloids on re-extraction. Further support of the completeness of the extraction was obtained by following the course of the extraction hour by hour. A correct estimate of the thermal decomposition of the alkaloids in the assay can be derived from a study of the rate of decomposition of the total alkaloids in the presence of the rate of extraction of the alkaloids. From the latter study it is apparent that about 97% of the alkaloids is extracted in the first hour.—C. H. HAMPSHIRE and M. W. PARTRIDGE. *Chemist and Druggist*, 134 (1941), 252. (A. C. DeD.)

Ethyl Alcohol—Spiral Eccentric Apparatus for Determination of, in Mixtures. Apparatus for the rapid fractionation of ethyl alcohol-water mixtures in a spiral column to which is imparted eccentric motion about the vertical axis is described.—J. PIAZZA. *Industria y quím.*, 3 (1940), 29-30; through *J. Soc. Chem. Ind.*, 59 (1940), 512. (E. G. V.)

Fluidextract of Belladonna Root—Monograph on.—*Bull. Natl. Formulary Committee*, 9 (1941), 301-302. (H. M. B.)

Formaldehyde—Colorimetric Determination of, in the Presence of Other Aldehydes. The reagent is prepared by first dissolving 0.5 Gm. of fuchsin in 500 cc. of water, then adding 5.15 Gm. of sodium bisulfite. Approximately 15 minutes later, 17 cc. of 6 *N* hydrochloric acid are added and the whole solution is allowed to stand for 3 hours. During this time the solution fades to a permanent, pale yellow color. In a determination, 5 cc. of an aqueous solution of the substance to be analyzed are added to a mixture of 5 cc. of the Schiff's reagent and 1.2 cc. of 75% sulfuric acid. A known comparison solution is made up at the same time using a standard formaldehyde solution and the two solutions are compared after they have stood for 2 hours in stoppered test tubes. Too long a time should not be allowed to elapse before the comparison is made, for even the color due to formaldehyde fades slightly on standing. Before results are considered final, the formaldehyde concentrations of the unknown and standard solutions should be within 5% of each other. Accordingly, an approximate calculation of the unknown is made first. If the two solutions differ by more than 5%, one or the other is diluted sufficiently to satisfy this requirement and a new colorimetric comparison is made. Sometimes a third comparison is necessary. The concentration range for the most satisfactory colorimetric comparison is from 0.001 to 0.005% formaldehyde.—W. J. BLAEDEL and F. E. BLACET. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 449-450. (E. G. V.)

Fruits of Chenopodium Album—Phytochemical Study of the. A proximate analysis is presented. Petroleum ether-soluble constituents were equivalent to 4.93%; ether-soluble constituents 1.13%; alcohol-soluble constituents 12.72%; diluted alkali-soluble constituents 31.78%; diluted acid-soluble constituents 26.88%; unsaponifiable matter in the petroleum ether extract 2.29%. The petroleum

ether extract contained roughly 2% linolenic acid, little, if any, ascaridole and the following constants: refractive index at 20° 1.4799, sp. gr. at 20° 0.9353, sapn. value 153.6, acid value 41.5, ester value 112.2, iodine value 69.6, thiocyanogen value 52.46. Twenty-five references.—J. TOMITA and K. L. KAUFMAN. *Pharm. Arch.*, 12 (1941), 72–80. (H. M. B.)

Furfural—Photoelectric Determination of. Conditions necessary for precise determinations of furfural by the colorimetric method are defined.—R. A. STALLINGS and B. L. BROWNING. *Ind. Eng. Chem., Anal. Ed.*, 12 (1940), 499–502. (E. G. V.)

Gas Analysis—Modifications of Apparatus for Volumetric. This paper describes modifications of the volumetric gas apparatus originally described in *J. Research Natl. Bur. Standards*, 6 (1931), 121. Contents are: the burette, burette illuminator, manometer-compensator, distributor and absorption pipette, combustion pipette and apparatus support. The new pipette is adapted for use with small amounts of solid or liquid reagents.—MARTIN SHEPHERD. *J. Research Natl. Bur. Standards*, 26 (1941), 352–356. (W. T. S.)

Glucose Solutions on the Indian Market—Quality of. Fourteen samples of glucose solutions for injection, purchased on the open market, were assayed and tested for sterility by standard procedures. One ampul contained a fungus, the rest were sterile. All contained the stated amount of glucose except four which assayed 61.6, 90, 91.6 and 95.2%, respectively. In most cases the quality of the glass container was satisfactory. These results stress the importance of control in the preparation of this useful and popular therapeutic agent.—C. L. PASRICHA and K. S. MALIK. *Indian Med. Gaz.*, 76 (1941), 153–154. (W. T. S.)

Gravimetric Analysis—Drying and Ignition of Precipitates in. In many publications by L. W. Winkler the weighing of precipitates without ignition was recommended. Balarev, in recent papers, questioned the value of Winkler's method and maintained that the precipitates are hygroscopic and impure. In the present paper over seventy determinations were made of barium sulfate, silver chloride, magnesium ammonium phosphate hexahydrate, calcium oxalate monohydrate, zinc ammonium phosphate, lead sulfate, bismuth sulfide and mercuric sulfide in which the precipitates were dried by washing with several portions of alcohol and then by a stream of air which had passed through saturated calcium chloride solution. Instead of using the wad of cotton, as Winkler recommended and which has been found to be hygroscopic, sintered glass filtering crucibles were used. In every case constant weights were obtained in about fifteen minutes and only with bismuth sulfide and mercuric sulfide did the weights change by drying at 130°. The method of Winkler seems to be efficient and logical. The correction factors recommended by Winkler were not studied; in no case was the weight of the precipitate compared with the theoretical value and only with respect to barium sulfate was the need for correction mentioned. Directions are given for cleaning the used crucibles and in many cases it was shown that several precipitates could be weighed additively in the same crucible.—E. SCHULEK and I. BOLDIZSAR. *Magyar Chem. Folyoirat*, 46 (1940), 65; through *Z. anal. Chem.*, 120 (1941), 410. (S. W. G.)

Heavy Metals—Determination of, in Beer. A collaborative study was made of the Winsor method (*Ind. Eng. Chem., Anal. Ed.*, 9 (1937), 453–455) in which the ferric thiocyanate color is developed in an acid medium of approximately 75% methoxyethanol (methyl cellosolve). Organic matter was destroyed by wet combustion with redistilled nitric acid and double-vacuum distilled 72% perchloric acid. The technique of the method is described in detail. Collaborators also made determinations by the methods they were in the habit of using. The results of the collaborators are not considered, on the whole, to be a true test of the method; some of the results were in excellent agreement, while others varied widely from the average values. The results obtained from the collaborators that used the same kind of an instrument for the final measurement of the color were much more favorable than those obtained by comparisons in Nessler tubes. For most accurate work the flocculent silica precipitate in the solution should be filtered. The fading of the final ferric thiocyanate color seems to be one of the most serious objections to the method. The results obtained by other methods gave results that differed widely from the average by the wet-ash Winsor method, and that also differed widely among themselves.—WM. H. HARRISON. *J. Assoc. Official Agr. Chem.*, 24 (1941), 215–220. (A. P.-C.)

Indifferent Agents. The term "indifferent" as applied in pharmacy and chemistry, officially and otherwise, is cited in numerous cases.—WALTHER ZIMMERMAN. *Deut. Apoth. Ztg.*, 56 (1941), 203–204; through *Chem. Abstr.*, 35 (1941), 5251. (H. M. B.)

Iron Content of Syrup of Ferrous Chloride. The best methods for determining the total and the ferrous iron contents of syrup of ferrous chloride were sought. This syrup is to be included in the Swed. Phar. XI. Analyzed were syrups made by the formula of the Swed. Medicinal Book, 1937, an aged syrup of this formula, and a syrup made by the proposed formula for Swed. Phar. XI. For total Fe, the ashing of the organic matter with concentrated HNO_3 and concentrated H_2SO_4 was found superior to ashing with 30% H_2O_2 and concentrated H_2SO_4. For ferrous iron, titrations with dichromate, permanganate, bromate, ceric sulfate (ferroin indicator) and with iodate and iodine monochloride were compared. The direct ceric sulfate titration was found best. *Methods. Ferrous Iron:* About 10.00 Gm. of syrup are weighed out, 150 cc. of water added, 10 cc. concentrated H_2SO_4, 5 cc. concentrated H_3PO_4 and 1 drop of ferroin solution. This is titrated with *N*/10 ceric sulfate to color change from red to pale blue. *Total Iron:* About 5 Gm. of syrup are weighed into a 250-cc. Kjeldahl flask, 5 cc. of concentrated HNO_3 are added and the mixture warmed till reaction begins. With darkening, more HNO_3 is added as necessary, with gradual heating until the solution has a light yellow color, when a mixture of 5 cc. concentrated HNO_3 and 5 cc. concentrated H_2SO_4 are added, and digestion and evaporation is continued to white sulfuric fumes and a light citron yellow color of the solution. After cooling, 25 cc. water are added, and heating is continued 10 minutes to decompose nitrosyl sulfuric acid. Then 2 cc. of 5 *N* HCl are added, and the flask warmed to dissolve deposit. On cooling the solution is rinsed with three 15-cc. portions of H_2O into a glass stoppered iodine flask and 5 Gm. KI added. After 30 minutes standing the freed iodine is titrated with standard sodium thiosulfate solution.—T. CARLSSON and E. BENGTSSON. *Farm. Revy*, 40 (1941), 227, 293. (C. S. L.)

ISCC-NBS System of Color Names in the Chemical Monographs—Success of the. A report of the work of the Color-Names Committee of the Amer. Pharm. Assoc. on tests for 89 chemicals is made including the recommended color names based on the system of the Inter-Society Color Council and the Natl. Bureau of Standards to be used in the monographs of the Natl. Formulary. A remarkable agreement in the results of the various members of the

committee is noted.—KENNETH L. KELLY. *Bull. Natl. Formulary Committee*, 9 (1941), 302–311. (H. M. B.)

Isotopes as Indicators. A review of the principles upon which the applications of artificially radioactive isotopes are based, together with a number of examples.—C. ROSENBLOOM. *J. Chem. Educ.*, 17 (1940), 567–570. (E. G. V.)

Lead—Determination of, in Biological Material. A mixed color dithizone method is described.—F. L. KOZELKA and E. F. KLUCHESKY. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 492–494. (E. G. V.)

Leucobases—Use of, as Analytic Reagents. The preparation of methylene leucobases in the form of thiosulfones is due to the direct action of sodium hyposulfite on methylene blue in a hydrochloric medium. The leucobase thus prepared is good for 24 hours and may be used as an indicator in identifying various oxidants such as halogens, nitric acid, peroxides, persulfates and complex chemicals. —A. IONESCU-MATIU and C. Popescu. *Bul. Soc. Stiinte Farm. Romania*, 1 (1936), 3; through *Sup. Anales farm. bioquím*, 12 (1941), 36. (G. S. G.)

Magnesium—Photometric Method for the Determination of. A colorimetric method, based on the use of titan yellow and a photoelectric colorimeter, affords a rapid and reliable means for determining magnesium in quantities ranging from 0.5 to 300 p.p.m. in fertilizers and soil extracts. The colored complex is stabilized by hydroxylamine hydrochloride. The procedure does not involve the separation and purification of any magnesium precipitate and thus eliminates several steps. Calcium, up to a maximum concentration of 800 p.p.m., does not interfere with the determination of 1 p.p.m. Similarly, ammonium and phosphate ions should be kept below 600 to 700 and 100 p.p.m., respectively, while aluminum and tin must be absent. The spectral absorption curves for the colored complex and titan yellow were determined by means of a spectrophotometer. In the analysis of several commercial fertilizers, tap water, and soil extracts good agreement between duplicate determinations was obtained. Results were found to agree well with those obtained by the hydroxyquinolate gravimetric method.—W. S. GILLAM. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 499–501. (E. G. V.)

Merbromin. New Monograph for.—*Bull. Natl. Formulary Committee*, 9 (1941), 296–298. (H. M. B.)

Mercuric Oxide, Ammoniated Mercury and Mercurous Chloride Ointments—Assay of. The following method is recommended: Weigh out a suitable quantity (Ammoniated Mercury Ointment, B. P., 3 Gm.; Calomel Ointment, B. P., 1 to 1.5 Gm.; Mercuric Oxide Ointment (10% HgO), 2 Gm.; ointments for the eye (1% HgO), 5 Gm.) of the ointment into a 250-cc. conical flask, add 25 cc. of xylol and dissolve the base by gently warming. Add 10 cc. of glacial acetic acid, followed by 2 to 3 Gm. of potassium iodide dissolved in 10 cc. of warm water, using this solution to wash down any mercury compound adhering to the walls of the flask. Shake with a swirling motion for a few seconds until the aqueous solution is clear and pale brown in color. Add 2 Gm. of zinc filings, fit the flask to a reflux condenser and boil gently for fifteen minutes, wash down the condenser with 20 cc. of warm water, and boil for a further five minutes. Remove the flame, allow to cool somewhat and add 150 cc. of water. Decant the xylol and aqueous solutions through a filter under slight suction. Wash the amalgam by decantation with xylol and water until the washings give no reaction for iodide. Dissolve the amalgam in dilute nitric acid, boil gently to remove nitrous fumes, cool, oxidize with permanganate, decolorize with a drop of solution of hydrogen peroxide and titrate with 0.1 *N* or 0.05 *N* thiocyanate.—G. J. W. FERREY. *Quart. J. Pharm. Pharmacol.*, 14 (1941), 168–171. (S. W. G.)

Metacresol—Observations on the Determination of, by the Swiss Pharmacopœia Method. Both crude and pure metacresol are official in the Swiss Pharm. V, and the same assay method is specified for both. There is literature evidence that the nitric acid used is not strong enough to give reliable results when pure metacresol is analyzed and the factor 1.74 employed is inaccurate. Pure metacresol was prepared from commercial *m*-nitrotoluene which had been purified by passing through an aluminum oxide column, by reduction to the *m*-toluidine, diazotization and conversion to the cresol. The product was chromatographed and fractionated at 0.1 mm. Hg. and gave a m. p. of 12.5–13°. The modified assay suggested is as follows. Ten Gm. *m*-cresol was treated with 30 Gm. conc. sulfuric acid for 1 hour on a boiling water bath in a 1 liter wide-necked flask. The mixture was then cooled in running water and 90 cc. of a mixture of 6 parts fuming and 4 parts concentrated nitric acid added in one lot. Fifteen minutes after the beginning of the nitration, the mixture was poured into a porcelain dish containing 40 cc. water and the flask rinsed with 40 cc. water. The dish was cooled for 2 hours to at least 10°, the crystals filtered, washed and dried 12 hours at 95–98°. When the pure product was assayed by the Swiss Pharm. V procedure, the results were unreliable. The modified method produced results with a maximum variation of ±0.6 per cent. When known mixtures of pure *m*-cresol with *o*- and *p*-cresol were assayed by the modified procedure good results were obtained. The factor suggested for pure *m*-cresol is 1.7243 and for crude cresols containing approximately 50 per cent *m*-cresol, the factor 1.74 if the Pharmacopœial method is used, or 1.786 if the modified method is used.—H. MÜHLEMANN. *Pharm. Acta Helv.*, 15 (1940), 141–145. (M. F. W. D.)

Metaldehyde—Determination of, in Insecticides. A modification of the Schönberg method (*Ann. Fals. Fraudes*, 32 (1939), 178–181) has been developed. A sample containing about 0.1 Gm. of metaldehyde is placed in a 150-cc. Claissen flask, the side tube of which is connected to a vertical spiral condenser provided at the end with a delivery tube tapered to a point and dipping below the surface of 40 cc. of sodium sulfite (25 Gm. $Na_2S_2O_5$ per liter) in the receiver. Depolymerization to acetaldehyde is effected with 50 cc. of approximately normal sulfuric acid (which strength does not react appreciably with the bran or sawdust used as carrier). Aeration (4 bubbles of air per second) is carried out for 1 hour with the Claissen flask (heated in a water bath) maintained at 60° to 70° C., and entrainment of the liberated acetaldehyde is completed by steam-distilling till 50 cc. of filtrate has been collected. Recoveries of 97.4 to 99.2% were obtained.—EDWARD A. LASHER. *J. Assoc. Official Agr. Chem.*, 24 (1941), 489–493. (A. P.-C.)

Methylene Blue—Iodometric Determination of. The authors discuss a recent article for the iodometric titration of methylene blue. The method as described gave low results in the hands of the authors who refer to an iodometric titration described by them in *Chemiker-Ztg.*, 49 (1925), 561. The method is repeated and some characteristic results tabulated.—T. SABALITSCHKA and W. ERDMANN. *Pharm. Acta Helv.*, 15 (1940), 162–164. (M. F. W. D.)

Microdiffusion Methods Based on the Bisulfite Reaction. I. The Determination of Acetone. A sensitive microdiffusion procedure for the quantitative determination of acetone in blood and urine

has been developed, based on the use of the bisulfite reaction. The method appears to be highly specific in that only volatile substances are measured which can diffuse as gases from whole blood or urine into $NaHSO_3$ solution, forming reversibly dissociable compounds with the latter. The solutions to be analyzed need not be free from protein and sugar. Acetone added to pure water, blood or urine is quantitatively recovered after diffusion periods of 5 to 6 hours at room temperature or 3 hours at 40–50°. The method is accurate to about 2 to 3 per cent for acetone levels of 10 to 30 mg. per 100 cc.—THEODORE WINNICK. *J. Biol. Chem.*, 141 (1941), 115. (F. J. S.)

Morphine—Detection of, in Minutest Amounts in Opium and Opium Preparations. Triturate very carefully 0.1 Gm. of finely powdered opium (exactly weighed) with 10 Gm. of a mixture of 390 Gm. of water plus 10 Gm. 20% nitric acid, then increase the liquid to 400 Gm. so that 1 cc. corresponds to a morphine content of at least 30γ. To 4.5 cc. of this liquid add 2 drops of ammonium molybdate solution (10%). After 1 hour pass through a moistened hard filter and to the clear filtrate add 8 drops of a saturated ammonium vanadate solution. After 1 hour, compare the turbidity with previously prepared standards of 80, 60, 40, 30, 30, and 10γ per cc. For opium tincture add exactly 1 Gm. of the sample to 400 Gm. of the mixture of 10 Gm. of 10% nitric acid plus 300 Gm. water so that 1 cc. corresponds to a morphine content of 25γ; 4.5 cc. of this solution are treated as above.—MAX SCHIRM. *Deut. Apoth. Ztg.* 55 (1940), 436–438 through *Chem. Abstr.*, 35 (1941), 1179. (H. M. B.)

Nepeta Glechoma—Preliminary Studies with. This plant commonly called ground ivy was subjected to steam distillation and the distillate examined. Some physical properties are reported.—J. HOWARD GRAHAM and LOUISE M. BITTO. *Jour. A. Ph. A.*, 30 (1941), 187. (Z. M. C.)

Nicotinic Acid—Photoelectric Determination of. Because of the therapeutic importance of nicotinic acid, it is desirable that a rapid method of assay be available. Various methods that have been used are briefly discussed. The method reported in the present paper hydrolyzes the sample with 20 per cent sodium hydroxide solution, neutralizing to a pH of 4–5 with 60 per cent sulfuric acid solution. Then the solution is treated with acetone to precipitate proteins, salts and colored substances. The acetone solution of the nicotinic acid is filtered off and evaporated. Residual foreign coloring matter is further reduced by treating the acetone solution before evaporation with Darco G-60. The method is given in detail and the results of assays of a variety of materials shown by tabulation. This method is an application of the cyano-*p*-amino-acetophenone reaction; proteins and colored substances are removed to a point where they no longer have any significant effect in the photoelectric measurement of the color compound of nicotinic acid.—WM. S. JONES. *Jour. A. Ph. A.*, 30 (1941), 272. (Z. M. C.)

Nicotinic Acid—Report on the Determination of. A collaborative study of the determination of nicotinic acid combined with the usual diluents in tablets and ampuls, using a sublimation method (technique described in detail in *A. O. A. C. Methods of Analysis* 1940, p. 611) gave satisfactory results.—P. S. JORGENSEN. *J. Assoc. Official Agr. Chem.*, 23 (1940), 765–767. (A. P.-C.)

Organic Quantitative Analysis—Microtechnique of. The microtechnique for tests assisting in the identification of aldehydes, carbohydrates, phenols, acids, esters, ketones, ethers, hydrocarbons and nitrogen, halogen or sulfur compounds is described.—D. F. FOULKE and F. SCHNEIDER. *Ind. Eng. Chem., Anal. Ed.*, 12 (1940), 554–556. (E. G. V.)

Organic Reagents and Methods Involving Their Use. The reactions between seventy-two inorganic ions and salicylaldoxime and its 5-chloro and 5-nitro derivatives have been observed in a qualitative way in various media. A limited series of observations has been made using the 3,5-dibromo oxime, which is of little utility because of its slight solubility. The limits of detection of copper, lead, nickel, and bismuth with salicylaldoxime and with its 5-chloro and 5-nitro derivatives have been established.—J. F. FLAGG and H. FURMAN. *Ind. Eng. Chem., Anal. Ed.*, 12 (1940), 529–531. (E. G. V.)

pH—Review of the Interpretation of. The pH concept is discussed in the light of the modern concept of ionization.—M. GORMAN. *J. Chem. Educ.*, (1940), 343–345. (E. G. V.)

Phenolphthalein and Methyl Orange. A discussion of the structure action of the two indicators.—C. A. PETERS and B. C. REDMON. *J. Chem. Educ.*, 17 (1941), 525–528. (E. G. V.)

Phytochemical Notes. A Suggestion for the Improvement of the Dragendorff Method. Experimental evidence has been cited in support of the successive use of 1% aqueous solutions of sodium carbonate and sodium hydroxide in the examination of the petroleum ether extracts obtained from plant material by the conventional Dragendorff method of extraction with selective solvents. The results obtained suggest the value of this modification as a routine procedure in phytochemical investigations. —P. J. JANNKE. *Pharm. Arch.*, 12 (1941), 6. (A. C. DeD.)

Pills of Ferrous Iodide—Assay of. Kolthoff's procedure was modified as follows: "Transfer a quantitatively prepared mass of ferrous iodide (10 pills of ferrous iodide) to a retort provided with a ground glass opening and dilute with water to about 40 cc. Add 10 cc. of 10% sulfuric acid and heat gently to dissolve the excess iron. Allow the retort to cool somewhat and connect it by means of the ground glass joint to a Dreschel drying apparatus containing 30 cc. of 20% potassium iodide solution. Keep the receiver cold in a bath of circulating water. Add an excess of ferric chloride (about 5 Gm.) to the retort and gently heat to boiling. Continue the distillation for about 30 minutes in such manner to cause the gases to continuously bubble into the potassium iodide solution. Disconnect the apparatus at the ground glass joint, wash the delivery tube with water and titrate the liberated iodine with 0.1 *N* sodium thiosulfate solution using starch T.S. as the indicator. Eleven determinations gave an average recovery of iodine of 99.82%.—EDGAR A. KELLY. *Bull. Natl. Formulary Committee*, 9 (1941), 254–256. (H. M. B.)

Procaine—Method for Determining. The method consists essentially in dissolving procaine or its salt in 150 cc. of distilled water, adding 2 cc. of 50% sodium hydroxide, distilling 100 cc. into a measured excess of standard acid and titrating the excess of acid using methyl red as indicator; 1 cc. of decinormal acid = 0.0236 Gm. of procaine, or 0.0272 Gm. of procaine hydrochloride. Substances yielding an alkaline distillate under these conditions (ammonium salts, stovaine, β-eucaine) interfere; lactose, chlorobutanol, heroine, morphine, cocaine and codeine do not. In presence of some of these, recoveries of 99.62 to 100.17% were obtained.—JOHN R. MATCHETT and JOSEPH LEVINE. *J. Assoc. Official Agr. Chem.*, 23 (1940), 776–777. (A. P.-C.)

Renin—Extraction and Purification of. A process for the purification of the kidney-pressor substance

contained in an impure aqueous extract of kidney cortex involves adjusting the pH to about 2 to 2.5 and the sodium chloride content to at least about 25%, and recovering the precipitate deposited.—WILBUR W. SWINGLE, assignor to RESEARCH CORP. U. S. pat. 2,226,452, Dec. 24, 1940. (A. P.-C.)

Riboflavin-Fluorophotometric Determinations. A modification of the method of assay of Hodson and Norris has been worked out. Phosphoric acid is used to extract riboflavin and also forms part of the buffer system later in the process. The reduction and oxidation steps have been omitted. The method is described and tables give results by both methods. In the experimental work, the method was applied to simple preparations and complex mixtures, natural and artificial. Agreement between biological and fluorophotometric determinations is fair.—WM. S. JONES and W. G. CHRISTIANSEN. *Jour. A. Ph. A.*, 30 (1941), 270. (Z. M. C.)

Solution of Merbromin—New Monograph on.—*Bull. Natl. Formulary Committee*, 9 (1941), 298–299. (H. M. B.)

Sulfur in Organic Compounds—Determination of. The oxidation of sulfur of cystine and methionine, combination of Parr oxygen bomb and acidimetric benzidine method, and determination of small amounts of sulfur compound present as contaminant in organic material are described.—T. P. CALLAN and G. TOENNIES. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 450–455. (E. G. V.)

Sulfur—Microanalytical Determination of. The reduction of the fusion mixture for the determination of sulfur by the bomb method which, at the same time, permits the use of the filter-stick method for filtration is the basis for the proposed method. The sodium peroxide is reduced from 1.5 to 0.35 Gm. and 0.06 Gm. of potassium chlorate is substituted for the 0.30 Gm. of sugar-potassium nitrate mixture, giving a total of approximately one fifth of the quantity used in the original method.—J. F. ALICINO. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 506. (E. G. V.)

Surgical Solution of Merbromin—New Monograph on.—*Bull. Natl. Formulary Committee*, 9 (1941), 299. (H. M. B.)

Terpene Series—Determination of Unsaturation in. The usual halogen absorption methods as well as those using standard potassium permanganate or standard perbenzoic acid were found unsatisfactory for the determination of unsaturation in terpenes. Quantitative hydrogenation using either a platinum or a palladium catalyst furnished satisfactory results with a variety of terpenes, but not with the resin acids. High-pressure reduction was also shown to be a suitable quantitative method for terpenes.—L. M. JOSHEL, S. A. HALL and S. PALKIN. *Ind. Eng. Chem., Anal. Ed.*, 13 (1941), 447–449. (E. G. V.)

Theophylline Sodium Salicylate—Report on the Determination of. Analysis of a commercial sample of the product, both alone and in admixture with starch and lactose, by both the volumetric and gravimetric methods previously described (*J. Assoc. Official Agr. Chem.*, 21 (1938), 587) gave closely agreeing results which indicated that the product examined was not a chemical combination of theophylline sodium and sodium salicylate in equimolecular proportions, but contained these as a mixture in practically equal proportions. Determination of the entire and exact composition of the commercial product is recommended.—M. HARRIS. *J. Assoc. Official Agr. Chem.*, 23 (1940), 761–762. (A. P.-C.)

Titanium Peroxide and Fluorine—Spectral Colorimetric Determination of. Schmidt and Haensch (Berlin) sell a colorimeter designed by Hirschmüller and Bechstein which can be used with sodium light and with three wave-lengths of mercury light by the use of three color filters. Then, with the aid of a photoelectric cell the extinction E can be measured which is proportional to the molar extinction coefficient, ϵ, of the substance measured, its concentration and the depth of solution through which the light passes. The studies described were carried out in green mercury light of 546 mμ. The reaction between titanium and excess hydrogen peroxide gave $\epsilon = 35.3$ which is nearly six times as large as the value obtained with sodium light. Beer's law was found to hold for titanium with excess hydrogen peroxide up to the limit of the solubility of pertitanic acid. An attempt was made to adapt the method to the determination of fluoride, which bleaches pertitanic acid, but the extinction in this case did not follow Beer's law.—M. BENDIG and H. HIRSCHMÜLLER. *Z. anal. Chem.*, 120 (1941), 385–393. (S. W. G.)

Vanilla Extract—Determination and Significance of Phenols in. The blue color developed in the phenol reagent of Folin and Ciocalteau (*J. Biol. Chem.*, 73 (1927), 627), measured by means of a photometer and calculated as % vanillin, is designated as the "phenol value." The method is as follows: dilute 0.50 cc. of vanilla extract to 500 cc. with water; to 5.00 cc. of the dilution in a 50-cc. Erlenmeyer flask add successively 10.0 cc. of two-fifths-normal sodium hydroxide and 3.0 cc. of the diluted phenol reagent (agitating during addition of the latter); after allowing to stand for 5 minutes read the % transmission with respect to water and translate on the standard curve to vanillin. A Coleman double monochromator spectrophotometer was used; with this instrument it is important to use the same tubes for water and colored solutions that were used in making the standard curve. Data presented on the vanillin contents and phenol values of extracts prepared from vanilla of known origin and curing treatment indicate that phenolic bodies other than vanillin contribute to the flavor and aroma of the product and that some of these bodies are sufficiently different from vanillin and coumarin in their behavior to be unextractable by ether.—A. K. BALLS and FRANCISCA E. ARANA. *J. Assoc. Official Agr. Chem.*, 24 (1941), 507–512. (A. P.-C.)

Zinc—Determination of Traces of. A collaborative study of the previously described (*J. Assoc. Official Agr. Chem.*, 22 (1939), 333–338) dithizone method was carried out, most of the collaborators having had no previous experience with the method. On a sample of ensilage corn, reasonably consistent results were reported, but on a sample of spinach (20% ash) the results were not so satisfactory, possibly due in some cases to insufficient hydrochloric acid or boiling to completely dissolve the zinc in the ash. The most serious obstacle in the accurate determination of zinc in foodstuffs seems to be contamination of the solutions by zinc from the glassware; possibly new high-silica glass may meet the requirements.—E. B. HOLLAND and W. S. RITCHIE. *J. Assoc. Official Agr. Chem.*, 24 (1941), 348–350. (A. P.-C.)

PHARMACOGNOSY

A. VEGETABLE DRUGS

Azulene Content of Yarrow and Its Colorimetric Estimation. A colorimetric method is described based on the comparison of a benzine extraction of the steam distillate of the drug with an aqueous solution of copper sulfate and ammonia in an Authenreith colorimeter. The azulene content of the available commercial dry drugs was very variable and in no case reached the azulene content of flores chamomil-

lae. Several personally collected samples of *Achillea millefolium* from different stations were entirely from azulene. A sample from the neighborhood of Loebschütz contained in the flowers 166.2, in the leaves 80.3 and in the stems 1.68 mg. % azulene. In the examination of samples, *Achillea compacta, A. cypeolata, A. filipendulina, A. grandiflora, A. macrophylla, A. ptarmica, A. setacea,* and *A. tanacetifolia* yielded no azulene on distillation. On the other hand *A. asplenifolia* contained in the entire plant, without root, 51.0 mg. % azulene.—K. KOCH. *Deut. Apoth. Ztg.*, 55 (1940), 758–759; through *Chem. Abstr.*, 35 (1941), 2674.

(H. M. B.)

Capsicum—New Monograph For.—*Bull. Natl. Formulary Committee*, 9 (1941), 300–301.

(H. M. B.)

Cinchona Cultivation and the Production of Totaquina in the Philippines. An account of cinchona cultivation and the production of totaquina in the Philippines are presented. The industry was started in 1912 in Baguio, Mountain Province. In 1927 it was transferred to Mindanao. Large scale cultivation is under way on the following: *Cinchona succirubra, C. ledgeriana, C. hydrida, C. officinalis.* Detailed instructions on methods of planting which have been found successful are given and some important disease problems are discussed. The production of totaquina in the Philippines was started in June 1936 at the experimental pilot plant of the Bureau of Science. The totaquina prepared from three species of Philippine-grown cinchona conforms in composition with the requirements set forth for this product by the Malaria Commission of the League of Nations. Studies made on the therapeutic efficacy of Philippine totaquina have shown that the product compares favorably with quinine. No untoward effects have been observed following its administration.—JOAQUIN MARANON and H. H. BARTLETT. *Nat. & Appl. Sci. Bull. U. of Philipp.*, 8 (1941), 111. (P. A. F.)

Microsublimation As a Practical Method for Drug Investigation. In the examination of drugs containing purine derivatives, as also their galenicals, the method of microsublimation is indicated. In drugs with anthraquinone derivatives the process offers no particular advantage over wet reactions; it may be appropriately limited in the testing of araroba, chrysarobin, rhizoma rhei, radix rhapontici, radix rumicis and radix rubiae tinctorum. Galenicals may well be tested in the wet way. Flores cinae are subject to botanical tests and to estimation of santonin. A more certain procedure for the detection of santonin in the wet way is given, and the carrying out of the microsublimation suited to the examination of confectio cinae is described. In doubtful cases microsublimation should be resorted for verification of the results, hence the microsublimation of several drugs is described.—RUDOLF SEIFERT. *Deut. Apoth. Ztg.*, 55 (1940), 576–578; through *Chem. Abstr.*, 35 (1941), 2673.

(H. M. B.)

Rhubarb—Anthracene Derivatives of. Pharmacopœial tests for rhubarb are based on the solubility in chloroform of its oxymethanthroquinone compounds, both free and combined, and on the hydrolysis of the respective heterosides. The different anthracene derivatives vary in composition though all are soluble in chloroform and give a red color with alkalis. Chrysophanic acid is moderately active, emodin is strongly active, anthranol in spite of its rose color with bases, possesses a strong purgative action. This purgative action can be determined by biological tests. The present method of the various pharmacopœias does not test all the anthracene derivatives nor does it provide biological tests. It is recommended that a better method would be to omit the present chemical tests, give more importance to the microscopic and macroscopic descriptions and use assays which will detect adulteration.—ALOISIO FERNANDES COSTA. *Noticias Farm.*, 6 (1940), 358. (G. S. G.)

Tannic Acid and Foreign Tannin Drugs—Substitute Plant Sources for.—K. KOCH. *Deut. Apoth. Ztg.*, 55 (1940), 467–469; through *Chem. Abstr.*, 35 (1941), 1931. (H. M. B.)

PHARMACY

GALENICAL

Blaud's Pills—Study of the Assay of, and Effects of Various Sugars upon Their Stability. The U. S. P. procedure was used and seven masses were made. Of monosaccharides, the pentoses, arabinose and rhamnose were used and of hexoses, galactose and fructose. Sucrose and maltose represented the disaccharides and raffinose, the trisaccharides. Each mass was divided into eight portions, one being kept as control and one assayed immediately. The rest were assayed at intervals of two to six weeks through the year. Details of experimental work reported cover volumetric solutions and indicators. Titration data are represented in seven graphs. All masses except the one with sucrose retained good color and plasticity. It was fine at first but soon developed reddish brown color and the final assay showed it to be almost wholly oxidized to ferric iron. Masses made with maltose and rhamnose showed some crystallization after several months. Observations seem to bear out previous observations that reducing sugars are capable of changing ferric iron to ferrous. Variations between ferrous and ferric iron content are consistent except for galactose. The ceric ammonium sulfate assay is more accurate than that with dichromate. There seems to be no difference between ortho-phenanthroline-ferrous complex and phenylanthranilic acid as internal indicators with ceric ammonium sulfate. Xylene cyanole F. F. was not altogether reliable as an indicator. Results were erratic. Potassium dichromate with diphenylamine T.S. as an indicator invariably gave high results.—M. L. NEUROTH and C. O. LEE. *Jour. A. Ph. A.*, 30 (1941), 166. (Z. M. C.)

Belladonna—Alkaline Tablets with. By Allport and Wilson's colorimetric method for belladonna alkaloids, read in the Pulfrich photometer, the alkaloid content of belladonna extracts, and of granules made from this extract, lactose and agar was determined. No loss of alkali was observed with these excipients. Alkaline formulas were made with sod. bicarb., mag. subcarb., potato starch, white gelatin, lactose and belladonna extract. Such granules showed loss of about 27% of the alkaloids. Separate granulations of the alkalies with starch and gelatin, and of the belladonna extract with lactose and agar (granulated with aqueous alcohol) followed by mixing of the granules gave better results. Formula: I. Sod. bicarb. 250 Gm., Mag. subcarb. 250 Gm., potato starch 35 Gm., mixed and granulated with white gelatin 5 Gm., distilled water *q. s.* (about 400 Gm.), dried at room temp.; II. Belladonna extract 3.75 Gm., suspended in about 20 cc. of a mixture of equal parts concentrated spirit and distilled water and granulated with lactose 88.75 Gm. and powdered agar 7.5 Gm., dried in air at room temp. until alcohol evaporates, and finally in a line chamber. Granules I and II were mixed and 40 Gm. talcum added. Makes 1000 tablets (each with 25 cg. sod. bicarb., 25 cg. basic mag. carb. and 3.75 mg. belladonna extract). Test of the uniformity of distribution of the alkaloids in such tablets indicated maximum deviation of 7% from the average; while maximum weight deviation of the tablets was 2%, so the belladonna extract content might at

maximum deviate 10% from the label declaration. There was no loss of alkaloid from these tablets after 3 months standing in corked glass bottles.—K. K. JENSEN. *Arch. Pharm. Chemi*, 48 (1941), 71. (C. S. L.)

Elixir of Thiamine Hydrochloride—Stability of. Four lots of the elixir were prepared and stored under the following conditions: stored in a refrigerator at 0°–10° C. for six months, stored on an open shelf at room temperature for six months, stored in the dark at room temperature, and a fresh sample. These samples were submitted to collaborative study by six laboratories. The results obtained by a colorimetric method, the thiochrome method and biological method indicate that the elixir is reasonably stable for at least six months, that the elixir stored in the refrigerator shows a consistently higher content of thiamine than does the sample stored on the open shelf or the dark room at room temperature, exposure to light does not seem to affect the potency of the preparations. The colorimetric method of assay of Melnick and Field (*J. Biol. Chem.*, 127 (1939), 505, 515, 531) gives consistently higher results than those obtained by the thiochrome method of Cerecedo and Hennessey (*J. Am. Chem. Soc.*, 59 (1937), 1617) and the U. S. P. biological assay method. The thiochrome method gives uniform results which conform reasonably well with those of the U. S. P.—RICHARD A. DENO. *Bull. Natl. Formulary Committee*, 9 (1941), 256–258. (H. M. B.)

Percolation, Diacolation, Evacolation. In extractions of cinchona with a menstruum consisting of glycerol 20, spirit 20, and diluted hydrochloric acid 20 grams, the yields were 67.6, 35.5 and 46.0%, respectively, for percolation, diacolation, and evacolation.—HANNS R. FROMM. *Deut. Apoth. Ztg.*, 55 (1940), 275–276; through *Chem. Abstr.*, 35 (1941), 4548. (H. M. B.)

Sulfanilamide—Decomposition of, in Tablets. Because of a report of untoward reactions in four patients who had taken sulfanilamide tablets showing a brownish discoloration, an investigation of the extent of such decomposition of sulfanilamide on the market was undertaken. The questionable tablets were extracted with acetone and after several recrystallizations yielded a residue which was darker in color and had a lower melting point than the residue obtained from a second brand of tablets. The chemical nature of the residues was not then determined. Nineteen samples representing thirteen brands of tablets and seven samples representing four brands of U. S. P. quality powder were examined and all quantitative results by the U. S. P. method showed them to be well within limits. This procedure is general, not specific for sulfanilamide. Extraction of tablets with acetone followed by recrystallizations concentrated the impurity. Residue was dark brown and melting point range was 156° to 170° C. (Sulfanilamide, U. S. P. XI is 164.5° to 166.5° C.) Examination of the solidified material by polarized light showed that crystal structure was broken by the foreign substance while pure sulfanilamide showed continuous fan-like crystals. Because pure sulfanilamide developed a brown color when exposed to bright light, it seemed likely color was due to photochemical decomposition. Also it seemed apparent that some substance used as "filler" or "lubricant" was at fault. Ether was found to be a better solvent and the method recommended uses it. Results are tabulated, amount of residue varying from 0.24 per cent to 0.43 per cent for sulfanilamide and from 0.30 per cent to 1.24 per cent for tablets. Melting points are tabulated also. Pictures show sulfanilamide and residues. Other experiments were made to test effect of ultraviolet and of sunshine. No appreciable decomposition was found. Impurities found are traceable either to residual impurities in drug or to added lubricant in tablets. The use of stearic acid is not advisable since it seems to promote photochemical decomposition. Under extreme conditions of exposure to ultraviolet light or to sunshine appreciable photochemical change may take place especially in presence of impurities.—FELICE A. ROTONDARO. *Jour. A. Ph. A.*, 30 (1941), 161. (Z. M. C.)

Thiamine—Galenical Preparations of. Galenical products of thiamine were prepared in the Tikitiki Laboratory as follows: Ampuls of thiamine HCl, elixir of thiamine containing thiamine HCl, extract of tikitiki fortified with 0.2 mg. thiamine HCl per 1 cc. of extract. The elixirs were made with several wines from lipote, cashew nut, guava, pineapple, duhat, banana and with sherry wine. Elixirs from all these wines compare favorably with that from sherry wine, except that from guava which had too much tannin. Pineapple and lipote wines contain larger amounts of thiamine than the others.—PATROCINIO VALENZUELA and JESUSA CONCHA. *Rev. Filipina Med. Farm.*, 32 (1941), 62. (G. S. G.)

Tinctura Anticholerica. The composition and method of production of an opium-free tinctura anticholerica are described.—WALTER MEYER. *Deut. Apoth. Ztg.*, 55 (1940), 492–493; through *Chem. Abstr.*, 35 (1941), 1931. (H. M. B.)

Tincture of Digitalis—Deterioration of. Temperature of storage and alcoholic concentration, both have important effects on the rate of deterioration of tincture of digitalis as measured by the overnight frog method of assay. The stability of the tincture would be significantly increased by using U. S. P. alcohol as the menstruum and storing in a refrigerator at a temperature below 5° C.—R. E. THOMPSON. *Pharm. Arch.*, 12 (1941), 58–64. (H. M. B.)

PHARMACOPŒIAS AND FORMULARIES

N. F. VII—Admissions to. The monographs for twenty-four items which represent the transfer from U. S. P. XI or are revisions of N. F. VI monographs, are offered.—ANON. *Bull. Natl. Formulary Committee*, 9 (1941), 225–247. (H. M. B.)

N. F. VII—Admissions to. The monographs for twenty-one products are presented.—ANON. *Bull. Natl. Formulary Committee*, 9 (1941), 262–279. (H. M. B.)

Proximate Assays—General Discussion of. The term "proximate assay" is well chosen and the author discusses some of the reasons for variable results when such processes are employed. The importance of coöperative study in the development of new or modified methods is stressed and the suggestion made that the Pharmacopœia use a system similar to that employed by the A. O. A. C. in publishing "Tentative Methods of Assay."—F. O. TAYLOR. *Am. J. Pharm.*, 113 (1941), 93. (A. C. DeD.)

NON-OFFICIAL FORMULAS

Foundations for Make-up. Creams and cakes used for this purpose are discussed and three formulas are offered: (1) Stearic acid 25.0, cetyl alcohol 2.0, glycerin 8.0, amino glycol 1.5, pigment 2.5, perfume 0.5, preservative such as methyl *p*-hydroxybenzoate 0.1, water 60.4. The acid and alcohol are melted together at about 65° C. and the preservative added. The glycerin and amino glycol are dissolved in water and heated to the same temperature as the above and both products are mixed together. Stir until cool and allow to stand overnight and then add the perfume and pigment with thorough incorporation. (2) Glyceryl monostearate 20.0, sper-

maceti 5.0, glycerin 5.0, pigment 3.0, perfume 0.5, preservative 0.1, water 66.4. Heat all ingredients together with boiling, stir thoroughly and cool. Then add pigment and perfume and stir until uniform. (3) Beeswax 80, petrolatum 10.0, mineral oil 30.0, pigment 8.0, perfume 0.5, borax 0.6, water 42.9.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 48 (1941), 658–659. (H. M. B.)

Menthol Camphoratum—Formula for. It has been noted that this product is not always a homogeneous liquid but contains crystalline materials at room temperature. Eutectic studies indicate that a mixture of menthol and camphor, 60 and 40 per cent, respectively, is homogeneous at room temperature.—FREDERICK GRILL. *Bull. Natl. Formulary Committee*, 9 (1941), 249–251. (H. M. B.)

Permanent Wave Solutions. Hair structure and its relationship to waving are discussed. Factors controlling the use of these solutions are stressed. Six formulas are given.—JOSEPH KALISH. *Drug and Cosmetic Ind.*, 49 (1941), 156–157, 161. (H. M. B.)

Wartime Cosmetic Formulas. Formulas for brilliantines, hair creams and hair tonics are given.—*Chemist and Druggist*, 134 (1941), 376. (A. C. DeD.)

DISPENSING

Apothecaries Shops—New Machines for. Three recent Scandinavian offerings of machines for small scale manufacturing in the apothecary shop are briefly described and are depicted in illustrations: I. An electric motor-driven mixing and homogenizing machine for making salves and emulsions, 8 liters capacity, supplied by the Gadur Co., Stockholm. II. A roller mill for salves supplied by Jörgensen, Copenhagen, who also supplies III, a small dragee coating kettle, which can be used either with the usual rotating globular coating kettle, or with a cylindrical kettle which can be slung in a circular path without turning on its own axel. An electric hot air drier can be mounted over the coating kettles.—S. KJELLMARK. *Farm. Revy*, 40 (1941), 213. (C. S. L.)

Charcoal Tablets—Preparation of Non-Crumbling. Various charcoal tablets commercially available in Denmark were studied as to their power of absorbing methylene blue. Wide differences in absorptive power were observed. One non-crumbling commercial tablet even had an absorptive power only about $^1/_3$ that required by the Dan. Phar. for its content of medicinal charcoal. It was found that a good way to prepare non-crumbling charcoal tablets was to use a coating of gum sterula mucilage (1 part gum to 100 parts water; 20 Gm. to 100 tablets, applied twice). This gave tablets with but very slight decrease of absorptive power as compared with uncoated tablets; and they could be stirred without crumbling, yet disintegrated in water in from 30 seconds to $1^1/_2$ minutes.—K. K. JENSEN. *Arch. Pharm. Chemi*, 48 (1941), 33. (C. S. L.)

Chemical Incompatibilities. Certain prescriptions combining drugs necessary to combat specific diseases may present chemical incompatibilities regardless of the method of preparation or order in which ingredients are added. An example is this following: sodium phenosulfate 10 Gm., sodium benzoate 10 Gm., uroformin 5 Gm., alfozono 3 Gm., syrup 75 cc., water 225 cc. In this an insoluble and inescapable white precipitate formed, which was identified as benzoic acid, released by the alfozono (a peroxide of succinic acid). Uroformin (methenamine U. S. P.) in an acid medium forms formic aldehyde (methanal), a gastric irritant. These conditions make this prescription impossible to compound.—ALMIRA VARGAS V. *Rev. Cien. Costa Rica*, 1 (1940), 77. (G. S. G.)

Emulsions—Influence of Surface Tension on Stability of. In a mixture of aqueous and oily substances dispersion is much more prompt when the surface tension of the oil is low. If sugar, saponin or soap is added to the water the difference in surface tension is less and the oil is more promptly dispersed, breaking into more and smaller drops on mechanical agitation. The number of drops per cc. of an emulsion was measured by a specially calibrated curved pipette plunged into the mixture. Pressure and temperature remained constant. Oil of sweet almond mixed with water was used as a standard, registering 16 drops per 3 cc. Adding 10, 20, 30 and 50% of sugar to the water increased the number of drops to 23, 31, 39 and 44, respectively, while the diameters of the drops diminished proportionately. Saponins and mucilaginous principles possess four times the emulsifying property of gum arabic. 1% butyric acid in almond oil reduces surface tension 50% on mixing with water, but 10% of chloroform added has no effect due to its different molecular structure and the greater cohesive strength of its drops. Emulsions with a low surface tension are more stable than those with larger drops and more difficult dispersal.—EDGARD PIRES DA VEIGA. *Rev. Syniatrica*, 33 (1940), 187. (G. S. G.)

Enteric Coating. In this paper, reasons for using enteric coatings are given and drugs commonly administered in this way are listed. Also the history of enteric coating is briefly reviewed. Experimental work undertaken covered the following points: (1) Construction of a mechanical device for testing enteric coatings. (2) Correlating results of the mechanical laboratory method with those of roentgen rays. (3) Conducting a series of tests to determine to what extent tablets, now on the market, vary in respect to the disintegrating time. (4) A study of the physiological conditions in the gastrointestinal tract, to create a type of coating which will resist the fluids of the stomach, but disintegrate in the fluids of the intestines. (5) Development of a new enteric coating. Objective of the mechanical device for laboratory testing was to simulate as nearly as possible, the condition found within the gastrointestinal tract. The apparatus is described and illustrated. The formulas for Artificial Gastric Fluid, Artificial Intestinal Fluids (Alkaline, Neutral and Acid) are given. Some thirty tablets were tested and variation in disintegrating time is shown in a tabulation. To compare results of the tests *in vitro* with those *in vivo*, 185 mechanical, roentgenogram, roentgenoscopic observations were made. Physiological conditions in the gastrointestinal tract as shown by the literature are briefly reviewed. Nature of the food taken, time of day when tablets are administered, regularity of exercise by patient, whether medication is in tablet or capsule, optimum position for disintegration, variation in the pH index of duodenal contents, all have an influence. Development of a new enteric coating took into consideration the findings of several previous workers in connection with fatty acids. Fatty acids investigated were lauric, myristic, stearic and eutectic mixtures of palmitic and stearic. To make a coating with greater firmness and elasticity than the fatty acids possessed, castor oil and "Opal Wax" a commercial hydrogenated castor oil, were added. Cholesterol increased the emulsifying qualities. Sodium taurocholate was added as a timing factor. The following formula was developed: myristic acid 68%, opal wax 25%, castor oil 2%, cholesterol 1%, sodium taurocholate 4%. Details of procedure are given and several photographs of roentgenograms. The coating shows a high de-

gree of efficiency.—PAUL V. MANEY and RUDOLPH A. KUEVER. *Jour. A. Ph. A.*, 30 (1941), 276. (Z. M. C.)

Enteric Coatings. A review dealing with the work of various workers in recent years. Twenty-five references.—M. A. LESSER. *Drug and Cosmetic Ind.*, 49 (1941), 151–154, 161. (H. M. B.)

Ethylene Glycol—Pharmaceutical Solvent. Glycols are of enormous use as solvents in chemical industry, and pharmaceutically are useful as bactericides and in perfumes. They make satisfactory vehicles for medicines insoluble in water and for which alcohol or glycerin are unsuitable. Such drugs as sulfanilamide, sodium iodobismuth, salts of quinine, antipyrine and urethane combine well with the glycols. Ethylene glycol is preferable to diethylene or propylene glycols, but is toxic when concentrated. However, a perfect tolerance has been demonstrated for intramuscular injections of 30% solutions of ethylene glycol.—C. H. LIBERALLI. *Pub. Farm. (São Paulo)*, 6 (1941), 23–25. (G. S. G.)

Magna of Bentonite—New Monograph for. Since bentonite as a suspending and emulsifying agent usually must be hydrated before being added to the other ingredients of the preparation and this hydration process requires 24 hours or more, a monograph for a magma containing 7% of the substance is proposed.—C. L. COX *Bull. Natl. Formulary Committee*, 9 (1941), 218–219. (H. M. B.)

Pharmaceutical Emulsions. IV. Mixtures of Acacia and Tragacanth as Emulsifying Agents. Various methods were used with acacia-tragacanth mixtures as emulsifying agents. Oils studied were cod liver, linseed, castor and heavy mineral, all of U. S. P. quality. Tragacanth and acacia were of U. S. P. quality. Tragacanth emulsions are not as white as those made with acacia. Using mixtures and emulsifying by means of mortar and pestle, it was necessary to use rather high proportions of tragacanth in order to increase the viscosity, but if prepared by means of a hand homogenizer the viscosity was markedly increased. Viscosity determinations indicated that in some cases beneficial results due to addition of tragacanth were due to other factors than viscosity. Mixtures gave whiter emulsions than either alone and showed less creaming than with acacia alone. These results did not hold for castor oil.—WILLIAM J. HUSA and CHARLES H. BECKER. *Jour. A. Ph. A.*, 30 (1941), 171. (Z. M. C.)

Tragacanth Mucilage—Viscosity of. The structure of the mucilage of tragacanth greatly affects its viscosity. Attempts have been made by others to finely powder the tragacanth, or to homogenize the mucilage by boiling, but this decreased the viscosity of the mucilage and the results were not reproducible. It was found that passing the mucilage four times through a simple emulsifying machine raised the viscosity of the mucilage and this became maximal and constant after four passages. Using such mucilages the relation of viscosity to pH was studied. Seven such preparations showed the same course of variation of viscosity with pH. The maximum viscosity was obtained at pH 8, and the viscosity curves rapidly fell off on either the acidic or the basic side of this H ion concentration.—S. A. SCHOU and W. J. FRÜST. *Dansk Tids. Farm.*, 15 (1941), 34. (C. S. L.)

Tylose as an Emulsifying Agent. Experiments are described showing the adaptability of this substance in place of tragacanth, acacia and agar agar heretofore employed almost exclusively in the production of emulsions. Several formulas are given for its successful application. Thirteen references.—G. DULTZ. *Deut. Apoth. Ztg.*, 55 (1940), 524–526; through *Chem. Abstr.*, 35 (1941), 1931–1932. (H. M. B.)

PHARMACEUTICAL HISTORY

Anthelmintics—Historical Aspects of Some. In an editorial the treatment of hookworm infection is reviewed with especial reference to the history of the use in this disease of thymol, chloroform, beta-naphthol, oil of chenopodium, carbon tetrachloride and tetrachloroethylene. The writer doubts that carbon tetrachloride is as safe as the results from its mass use on the American continent in 1921 indicated.—*Indian Med. Gas.*, 76 (1941), 161–164. (W. T. S.)

Finlay and Yellow Fever. An historical sketch and appreciation of the life and work of Dr. Carlos Finlay.—HORACIO ABASCAL. *Vida Nueva (Habana)*, 48 (1941), 176. (G. S. G.)

India's Malaria Problem. India made the first successful attempt in cinchona planting. The editor traces the history of this, and points out the need for a cheap and efficient antimalarial in this country.—*Indian Med. Gas.*, 76 (1941), 225–229. (W. T. S.)

Jesuit Naturalists. A historical sketch of the Jesuits who came to Brazil from 1549 on, and their work of classifying and identifying animals. Tobacco, ipecac and oysters seem to have aroused their greatest enthusiasm.—NARCISO SOARES DA CUNHA. *Trib. Farm., Curitiba*, 9 (1941), 29, 64 and 85. (G. S. G.)

Lavoisier. An address.—ANON. *Chemistry and Industry*, 60 (1941), 182–183. (E. G. V.)

Leeches in Old Literature. A historical report dealing with the use of leeches in Europe and China for medicinal and cosmetic purposes.—R. HOEPPLI and C. C. TANG. *Chinese Med. J.*, 59 (1941), 359–378. (W. T. S.)

Memorial Ceremony of the Fiftieth Anniversary of the Discovery of Serum Therapy. The Government Institute and the Kitasato Institute held a memorial service in Tokyo on Oct. 16, 1940, to celebrate the fiftieth anniversary of the announcement of serum therapy by Prof. v. Behling and Prof. Kitasato. Speeches were made by Prof. Kitashima, director of Kitasato Institute, G. Otto, ambassador from Germany, and Ministers Hashida and Kanamitsu.—*Kitasato Arch. Exp. Med.*, 18 (1941), i–x. (W. T. S.)

Organotherapy—History of. In the middle ages organs of animals were prescribed for diseases of corresponding human organs, examples being wolf's liver for liver dysfunction, or fox's lungs for pulmonary tuberculosis. The gonads of various animal goats or swine for males and hares for females, were prescribed for treatment of sterility or infecundity. To these were added other nauseous concoctions of insects, preferably ants and scorpions, and toads, frogs and snakes. Memory was restored by the heart of a nightingale. Honey from Egyptian tombs was such a valued remedy that substitutes were distilled from more recent cadavers. Dried excreta of various animals was supposed to have curative power. This sort of therapy continued into the 17th and 18th centuries. Entrails of fox and hare were used for the rich and calves and kids for the poorer patients. Crabs were used for cancer and frogs eggs for burns and erysipelas. Warm blood was drunk to increase vigor; and human organs were also tried. A new era opened with medical progress in the 19th century. We still use organotherapy but with more precise knowledge of its effects.—EDUARDO SARAVIA. *Escuela Farm.*, 3 (Mar.-Apr. 1941), 37. (G. S. G.)

Science and Civilization. A lecture.—VISCOUNT SAMUEL. *Chemistry and Industry*, 59 (1940), 499–502. (E. G. V.)

PHARMACEUTICAL LEGISLATION

Chinese Drug Requirements—Suggested War-Time Measures for. A special Therapeutic Requirements Committee of the British Medical Research Council recently published some recommendations concerning the supply of drugs in Britain. The editor has reprinted some of these, especially as they apply to the drug situation in China. The drugs have been listed as follows: (*A*) drugs which are readily available or required; (*B*) essential drugs but the use of which should be restricted; (*C*) non-essential drugs. In the case of China, list *A* includes at least some of the following: important organic acids, laxatives, alkaloids, halogen compounds, phenols, glucosides and several synthetics including sulfanilamide and hexamine. List *B* includes, in part, wool fat, bismuth salts, cinchona, sugars, alkaline earth metal salts, fixed oils, glandular products. List *C* includes, among other things, acids of phosphorus, numerous vegetable drugs, some volatile oils and active constituents thereof. In the case of list *C* the editor extends the remarks of the M. R. C. and adds his own suggestions with respect to the Chinese situation. China intends to use Chinese polygala in place of senega, bleaching powder in place of expensive disinfectants. Synthetics are reaching China from Germany *via* Siberia while plants in Shanghai produce some.—*Chinese Med. J.*, 59 (1941), 287–293. (W. T. S.)

Drug Control in Colombia. Every establishment dealing in drugs is inspected by the Public Health Police who record the purchases and sales of drugs subject to control, such as hypnotics and narcotics. They also keep a register of drug addicts and of patients requiring potent drug prescriptions. Their vigilance is directed particularly toward the traffic in marihuana with the aim of abolishing it. Licensed nurses are also registered with this office.—JOSE IGNACIO RAMIREZ. *Rev. Farm., Colombia*, 26 (1940), 38. (G. S. G.)

Intoxicants in Indian Pharmacies—Laws Concerning. In an abstract concerning various drug acts of India, section 53 of the Bengal Excise Act reads: "If any chemist, druggist, apothecary or keeper of a dispensary allows any intoxicant (defined in section 18 as Indian hemp preparations, intoxicating or narcotating substances) which has not been bona fide medicated for medicinal purposes, to be consumed in his business by any person not employed in his business, the penalty is up to 3 months' imprisonment and fine up to Rs. 1,000."—*Indian Med. Gaz.*, 76 (1941), 121. (W. T. S.)

Legal Responsibility of Pharmacist. I. Common Law Liability. The article presented under the headings: Compounding the Prescription; Failure to Explain Dangerous Properties of Drug; Sale of Patent or Proprietary Remedies; Negligence of Clerk; Refusal to Fill or Return Prescription; Negligence of Purchaser; Liability of Drug Manufacturer; is summarized as follows. The principles here considered are merely those granted by the common law, *i. e.*, exclusive of the remedies secured by statutory enactment. This latter category implies by far the more drastic controls. The liabilities imposed by these laws are distinct from those of the common law and more far-reaching. Although not infrequently enforceable at the instance of the aggrieved by governmental agencies, these statutes are for the benefit of the public at large and not for private suitors. Eighty references are given.—B. WERNE. *Merck Rept.*, 50, No. 4 (1941), 20–24. (S. W. G.)

National Nutrition Program—Control Problems of the. The program that has recently been launched of enriching flour and bread with vitamins and minerals has imposed certain problems on those agencies which have a legal obligation to see that standards of quality are maintained. They are at present no definition and standard for flour or for bread under the Federal Food, Drug and Cosmetic Act, but it is anticipated that those for flour will become effective within six months and those for bread will follow. Chemical methods for the rapid determination of vitamin B_1, riboflavin, and nicotinic acid would aid immeasurably in the manufacture of flour which contains these vitamins in substantial quantities and in the production of flour and bread to which they are added. There is an opportunity now for biochemists to render useful service to the industry and to enforcement agencies by developing chemical methods for the determination of several of the vitamins. The value of "enriched" flour and bread in a national nutrition program will depend in considerable measure on the facilities for their proper production and the assurance the public will have of their composition.—E. M. NELSON. *Ind. Eng. Chem.*, 33 (1941), 721–722. (E. G. V.)

U. S. A. Export Control Extended. In three proclamations recently President Roosevelt added sixteen commodities to the export license list and required a license for the export of plans, specifications or technical information utilized in connection with the production or processing of any of the items on the control list. The first proclamation covers among other articles coconut oil, copra, fatty acids produced from vegetable oils under export control, glycerin, palm-kernel oil and palm kernels, pine oil and titanium dioxide.—ANON. *Perfumery Essent. Oil Record*, 32 (1941), 126. (A. C. DeD.)

Vitamin A—Control of. The Minister of Food has issued an order, operative from June 23, prohibiting, except under license, the manufacture or use of vitamin A. The order does not apply to manufacture or use for medicinal, pharmaceutical or scientific purposes. Applications for licenses should be made to the Ministry of Food, Oils and Fats Division, Pollycrochan Hotel, Colwyn Bay.—ANON. *Chemist and Druggist*, 134 (1941), 345. (A. C. DeD.)

PHARMACEUTICAL ECONOMICS

American Apparatus, Instruments and Instrumentation. A survey of American instruments and apparatus, with an indication of trends and representative activities. The accomplishments of the industry are magnificent; its future is clearly defined; its importance in the maintenance of our industrial and scientific supremacy and our national security cannot be overestimated. There is included a directory of instruments and related apparatus.—R. H. MULLER. *Ind. Eng. Chem., Anal. Ed.*, 12 (1940), 571–630, and advertising pages 19–50. (E. G. V.)

Belgian Congo Geranium Oil. In September and October of 1940 the United States purchased the total amount of geranium oil on hand, some 350 kilograms, thereby restoring Belgian Congo geranium cultivation, which was abruptly reduced following the blockade of Belgium during the middle of 1940, according to the United States Department of Commerce. Prior to that time Belgium was the only consumer of the production of geranium oil, although much of it had been reëxported to Germany. The colony is expected to produce about 3000 kilograms of this oil in 1941 and about 4000 in 1942. Geranium cultivation dates from 1934. However, production of the essential oil began to be important only in 1937, and remained more or

less stable until the middle of 1940.—ANON. *Perfumery Essent. Oil Record*, 33 (1941), 282. (A. C. DeD.)

Dagenan, M. & B. 693—Price Reduction of. May and Baker Ltd., the makers of this product, announce a price reduction of the tablets and ampuls. For example, a container of 25, 0.5-Gm. tablets is listed at Rs. 4–12.—*Indian Med. Gaz.*, 76 (1941), 128. (W. T. S.)

Packaging Industry—Restrictions in the. A review of war-time legislation and the use of alternative substances in the presentation of perfumery and cosmetic preparations.—P. ROCHE. *Perfumery Essent. Oil Record (Annual Special Number* 1941), 23. (A. C. DeD.)

Raw Material Shortages. Of prime and probably leading importance in the New York market is the fact that more and more it is becoming difficult to get prompt deliveries of aromatic chemicals. The stock position in essential oils is no better.—ANON. *Perfumery Essent. Oil Record*, 33 (1941), 337. (A. C. DeD.)

Research in India. As a result of research carried out formerly at Lahore, it has been possible for at least two factories in the Punjab to manufacture lemon and orange peel oil and a good industry has already come into being, according to the United States Department of Commerce. Researches have been completed on lemongrass oil at the University of Travancore and on using mahua oil for making soaps at Technological Institute.—ANON. *Perfumery Essent. Oil Record*, 33 (1942), 281. (A. C. DeD.)

Sale Prices in Pharmacy—Calculation of. This is a comprehensive study on the method of calculating sale price of drugs with due referenee to manufacturer, commission merchant and retailer. Prices are studied in relation to monopoly and competition; and also to origin, whether direct from the factory or field or through a commission house. The cost of compounding prescriptions is also computed by percentages and with consideration of whether the sale is a single article or several. All calculations include in addition to wholesale price, heat, light, rent or taxes on salesroom, time and labor of compounding, packaging and demand for the product.—RAFAEL RAMOS BOSCH. *Escuela Farm.*, 3 (Mar.-Apr. 1941), 6. (G. S. G.)

Vanillin from Lignin. Recent expansion of the plants producing lignin vanillin are illustrated and described in a folder issued by the General Drug Company of Brooklyn, N. Y. This lignin vanillin is described as a pure, natural source, U. S. P. vanillin produced by an alkaline extraction process in plants located in Rothschild, Wis.—ANON. *Perfumery Essent. Oil Record*, 33 (1941), 281. (A. C. DeD.)

MISCELLANEOUS

Aspirin Preparations. Various details are given of the preparation of a pharmaceutical composition in the form of a solid solution comprising sugar in which is dispersed in the form of fine discrete particles a substantial quantity of acetylsalicylic acid or bromatological salts thereof in such finely divided condition that at least about 90% thereof passes a 140-mesh screen.—WM. B. COLEMAN. U. S. pat. 2,208,120, July 16, 1940. (A. P.-C.)

Astringent Preparations—Suitable for Cosmetic Purposes. *2,230,082*—A cosmetic preparation is formed containing an astringent material such as aluminum chloride together with urethan or other soluble compound of the general formula $RCONR'R''$, where R is from the group consisting of alkyl, cycloalkyl, aralkyl, aryl and the corresponding oxy radicals, and R' and R'' are from the group consisting of hydrogen, alkyl, cycloalkyl, aralkyl and aryl. *2,230,083*—This patent involves the use of an astringent material such as aluminum chloride together with a soluble imide such as succinimide. *2,230,084*—This patent involves the use of an astringent material such as an aluminum salt together with a soluble nitrile such as succinonitrile.—JULES B. MONTENIER. U. S. pats. 2,230,082 to 2,230,084, Jan. 28, 1941. (A. P.-C.)

Collapsible Tubes—Sterilization of Tin or Tin-Coated Lead. The effect of various methods of sterilization of collapsible tubes on the bursting strength and on the uniformity of coverage of the lead by the tin coating was studied. Unprocessed and processed tubes (10 of each) were filled with vaseline, a pressure gage was screwed on the cap end and the tubes were squeezed between rollers while observing the pressure at which the tubes burst. The sterilization methods employed were: (1) autoclaving the empty tubes at 120° C. for 20 minutes and drying at 50–60° C. for 24 hours; (2) same as (1) except drying at 105° C. for 1 hour; (3) same as (1) except drying at 140° C. for 30 minutes; (4) dry sterilization of vaseline-filled tubes at 140° C. for 3 hours; (5) same as (4) with empty tubes; (6) empty tubes dry sterilized at 155–165° C. for 2 hours. Tin tubes withstood the first four processes well, but with process (5) the strength declined slightly and with process (6) the tubes were decreased in strength to one-half, in a few cases to 1/6. The tin-coated lead tubes withstood all the processes without decline in strength. The effect on the coverage of tin-coated lead tubes by the tin coat was followed by testing the inner surface of the treated tubes with an aqueous KI-acetic acid solution. Yellow lead iodide appeared where there was uncovered lead. All of the sterilization processes affected slightly the tin coverage; but either process (1) or (2) had relatively no effect.—K. NILOU. *Dansk Tids. Farm.* 15 (1941), 16. (C. S. L.)

Cosmetic Stockings. A discussion of this new type of preparation.—JOSEPH KALISH. *Drug Cosmetic Ind.*, 49 (1941), 269, 271. (H. M. B.)

Deodorant Compositions. A mixture is used comprising benzyl alcohol with small quantities of gum resin such as myrrh resin, an aldehyde such as anisaldehyde, essential oils such as oil of bergamot and phenylethyl alcohol, suitable for ejection into air to be deodorized.—ARTHUR W. GOLDSTEIN, assignor of 16% each to LEON GOLDBERG, ALBERT A. YUNGBLUT and CHAS. E. HOWARD. U. S. pat. 2,228,993, Jan. 14, 1941. (A. P.-C.)

Disinfectant. A disinfectant preparation that readily emulsifies when mixed with water to form a permanent emulsion consists of 75% of tar-acid oil containing 15% to 18% of phenolic compounds, 11% of an oil-soluble sulfonate produced by treating a mineral oil with sulfuric acid, 4% of mineral oil and 10% of isopropyl alcohol.—REUBEN SCHULER and FRANCIS M. ARCHIBALD, assignors to STANCO, INC. U. S. pat. 2,228,407, Jan. 14, 1941. (A. P.-C.)

Insecticidal Composition. A neutral copper salt solution containing kaolin in suspension is treated with aqueous sodium cyanide to form an intimate mixture of copper cyanide and kaolin which, after washing, is mixed with a protective colloid, for example, molasses or goulac; the mixture is diluted with water for the wet spraying of plants.—C. DANGELMAJER. U. S. pat. 2,101,704; through *J. Soc. Chem. Ind.*, 59 (1940), 692. (E. G. V.)

Insecticidal Composition. A reaction product of nicotine or coniine and pectic acid is used, formed in the presence of moisture in an amount of about 25% to 35% based on the weight of pectic acid plus

moisture.—CLARENCE W. WILSON, assignor to CALIFORNIA FRUIT GROWERS EXCHANGE. U. S. pat. 2,207,185, July 9, 1940. (A. P.-C.)

Insecticidal Compositions. Pyrethrum and *o*-cyclohexylphenol are used together, suitably in kerosene or naphtha.—EDWARD HARVILL, assignor to BOYCE-THOMPSON INSTITUTE FOR PLANT RESEARCH, INC. U. S. pat. 2,243,207, May 27, 1941. (A. P.-C.)

Insecticidal Oil. The oil consists of a refined cut from a naphthalene-base petroleum having viscosity of 65–200 seconds Saybolt at 37.5°, density 0.9000–0.9600; it distills at 260–427° and yields an unsulfonated residue of 60–85%.—L. R. COLEMAN and G. L. COWLEY. U. S. pat. 2,105,856; through *J. Soc. Chem. Ind.*, 59 (1940), 756. (E. G. V.)

Insecticidal Nicotine Compounds. Products suitable for use in sprays contain nicotine compounds such as nicotine tridecyl, dodecyl, decyl, amyl and heptyl benzene sulfonates (general mention being made of the possible use of various other related nicotine salts).—GEO. L. HOCKENYOS, assignor to MONSANTO CHEMICAL CO. U. S. pat. 2,232,662, Feb. 18, 1941. (A. P.-C.)

Insecticide. Pectic acid is made to react with a volatile poisonous alkaloid such as nicotine or coniine, suitably in aqueous slurry.—WILLARD E. BAIER, assignor to CALIFORNIA FRUIT GROWERS EXCHANGE. U. S. pat. 2,207,694, July 9, 1940. (A. P.-C.)

Insecticide (A) and Insect Repellent (B). (*A*) Stable petroleum solutions of pyrethrin and derris constituents are obtained by incorporating mono- or diethylene glycol ethyl ether acetate. (*B*) Petroleum (for example, spindle oil) containing 5–15% of dihydroxy-diphenyl ether butyl ether or ethyl ether acetate is an odorless insect repellent.—W. A. SIMANTON. U. S. pat. 2,089,766–7; through *J. Soc. Chem. Ind.*, 59 (1940), 756. (E. G. V.)

Insecticides. Use is made together of an insecticidal rotenone product, a petroleum oil and a phenol-aldehyde condensation product, the phenolic nucleus of which has a long hydrocarbon chain characteristic of the phenols of cashew nutshell liquid, which condensation product is a common solvent for the rotenone product and the petroleum oil.—MORTIMER T. HARVEY, assignor to THE HARVEL CORP. U. S. pat. 2,242,911, May 20, 1941. (A. P.-C.)

Larvicide and Insecticide. A method of preparing a material suitable for sprays, etc., involves subjecting base material containing cashew nutshell liquid including anacardic acid to the action of a compound such as sodium hydroxide adapted to form a salt of the anacardic acid and dissolving such salt, separating the residual compound containing the toxic principle by use of a solvent such as gasoline which is immiscible with the solvent holding the anacardic salt, evaporating at least partially such solvent from the toxic compound, and then admixing the toxic compound with a liquid hydrocarbon vehicle in a quantity which will prevent oxidation of the toxic principle by the air and thereby prevent loss of toxicity.—NARAYAN A. VALVALLI assignor of 50% to F. S. KERR & Co. U. S. pat. 2,230,995, Feb. 11, 1941. (A. P.-C.)

Lip-Rouge Compositions—Liquid. A mixture is used comprising 1 to 12 parts of a film-forming material such as ethyl cellulose, 65 to 95 parts of a volatile organic solvent such as ethanol, 3 to 15 parts of a plasticizer such as hydrogenated methyl abietate and 0.05 to 3 parts of a coloring material such as an alcohol-soluble dye.—MILTON KLIMIST, assignor to M. MARTIN GORDON. U. S. pat. 2,230-063, Jan. 28, 1941. (A. P. -C.)

Manipulation Notes—Some. Sifting and filling are discussed.—ANON. *Perfumery Essent. Oil Record* (*Annual Special Number* 1941), 30. (A. C. DeD.)

Ointment Bases—Role of, in Protection Against Sunburn. Many drugs have been suggested as a means of protection against sunlight. The ideal protective application should be non-irritating, easily removed and non-staining, and should protect the skin against erythema but at the same time permit tanning. The author, using an artificial source of ultraviolet light, experimented with various ointment bases to determine whether the base itself was of importance. As a result of the experiments it was found that petrolatum or lanolin afforded ineffective protection but when emulsions such as aquaphor or Abbott's Hydrosorb base were applied, a protective action was evident. Quinine and tannic acid are widely used protective drugs. The addition of these drugs to petrolatum or lanolin did not increase the protection afforded by the bases but the addition to emulsions of fine and more even distribution showed definite protection. The author concludes that the base definitely influences the effect of the light-absorbing chemical.—E. A. STRAKOSCH. *J. Invest. Dermatol.*, 4 (1941), 233; through *Abbott Abstract Service*, (1941), No. 996. (F. J. S.)

Parasiticidal Spray Compound. A small proportion (for example, 1–5%) of tung oil is admixed with the low-viscosity hydrocarbon oil used in aqueous emulsions as horticultural sprays (for example, against red scale) in order to retard the penetration of the hydrocarbon oil into the pores of the leaves, etc.—F. F. LINDSTAEDT. U. S. pat. 2,101,-373; through *J. Soc. Chem. Ind.*, 59 (1940), 692. (E. G. V.)

Parasiticide. As an active ingredient, use is made of a product obtained by the reaction of an aliphatic ketone such as methyl ethyl ketone and ammonium thiocyanate.—WM. P. TER HORST, assignor to U. S. RUBBER CO. U. S. pat. 2,244,547, June 3, 1941. (A. P.-C.)

Perfumery Chemist's Notebook—From a. Observations on perfumery topics of current importance and popular preparations, and available raw materials are discussed.—S. P. JANAWAY. *Perfumery Essent. Oil Record*, 33 (1941), 286, 321. (A. C. DeD.)

Postonal and Its Application. This product is a substitute for cocoa butter and is a high molecular polymer of ethylene oxide; it is very stable, decomposes at 300° C. and is used in suppositories.—J. BREINLICH. *Deut. Apoth. Ztg.*, 55 (1940), 397–398; through *Chem. Abstr.*, 35 (1941), 1179. (H. M. B.)

Potassium Nitrate—Decomposition of, in Sunlight. The photodecomposition of potassium nitrate in aqueous solution has been shown to occur in sunlight filtered through Pyrex glass. The results are discussed in relation to the absorption spectrum of nitrates.—T. V. SUBBA RAO and G. GOPALARAO. *J. Indian Chem. Soc.*, 18 (1941), 229. (F. J. S.)

Pulverulent Insecticide, Fungicide and Germicide. Tobacco and barium sulfide are used together, so that the sulfide gradually decomposes in the presence of moisture, the resulting decomposition gradually liberating nicotine from the tobacco.—ROY H. ELLIS. U. S. pat. 2,207,482, July 9, 1940. (A. P.-C.)

Suppositories. Suppositories which absorb substantial quantities of water, and swell on contact with aqueous fluids, are formed with a base containing as a principal ingredient sorbitol or mannitol stearate or other fatty acid ester of a fatty acid having at least 12 carbon atoms with a compound of the class consisting of polyhydric alcohols having

an unbroken carbon-linked chain and having 4 to 6 hydroxyl groups and their anhydrides.—ROBERT S. SHELTON and LOUIS MAGIS, assignors to THE WM. S. MERRELL CO. U. S. pat. 2,241,331, May 6, 1941. (A. P.-C.)

Surgical Adhesive Tape. A sterilizable surgical adhesive tape is formed by coating one side of a fabric with a composition such as one containing 5.4% ethyl cellulose, 35.2% of titanium dioxide (barium base), 8.8% of a plasticizer, 23.8% of toluene, 22.3% of 99% ethyl acetate and 4.5% of 95% ethyl alcohol, removing the volatile solvents by passing through a heated chamber, passing the dry material between heated embossing rolls and applying a pressure-sensitive rubber adhesive mass on the uncoated side the tape thus prepared being adapted for sterilization by subjecting it to an atmosphere of steam at a temperature of 240° F. for 30 minutes.—ALVA W. BATEMAN and RAYMOND E. THOMAS, assignors to E. I. DU PONT DE NEMOURS and Co. U. S. pat. 2,241,384, May 13, 1941. (A. P.-C.)

Toilet Soap Tablets—Imparting Gloss to. A continuous automatic process consisting in passing the tablets successively through a steaming and a drying chamber, with subsequent cooling is described.—ANON. *Perfumery Essent. Oil Record*, 32 (1941), 256. (A. C. DeD.)

War-Time Cosmetics Formulas. X. Deodorants. The physiology of perspiration, perspiration remedies and the formulation of deodorants are discussed. **XI. Lipsticks and Liquid Rouges.** The raw materials, lipstick colors, preparation, improvised molds and liquid lip rouges are discussed.—ANON. *Chemist and Druggist*, 135 (1941), 58, 103. (A. C. DeD.)

8 - Hydroxyquinolinesulfonic Acids — Water-Soluble Therapeutic and Disinfectant Compounds of. A method of producing water-soluble complex metal compounds involves adding zinc or aluminum oxide to a substance selected from the group consisting of 8-hydroxyquinolinesulfonic acid, 7-iodo-8-hydroxyquinoline-5-sulfonic acid, their alkali metal and their triethanolamine salts, at an elevated temperature as long as solution of the substances of the first-named group takes place, thereupon adding an excess of the reacting substances from the first-named group, boiling the solution for a comparatively short time, separating the solution from the undissolved substances and obtaining in the resulting solution the 8-hydroxyquinolinesulfonic acid compound in the complex water-soluble form. The products are suitable for treating the skin after shaving and have antiseptic and astringent properties.—FRITZ FEIGL, assignor to INTERPUBLIC A.-G. U. S. pat. 2,228,051, Jan. 7, 1941. (A. P.-C.)

PHARMACOLOGY, TOXICOLOGY AND THERAPEUTICS

PHARMACOLOGY

Acacia—Some Effects of Injections of, with Special Reference to Renal Function. In experiments on dogs, after the intravenous injection of acacia, it was found that the rate of glomerular filtration is essentially unchanged; water excretion shows a diphasic response; chloride excretion is markedly increased; plasma proteins and hematocrit values diminish in comparable extent.—ARNOLDUS GOUDSMIT, JR., MARSCHELLE H. POWER and JESSE L. BOLLMAN. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 254. (A. E. M.)

Adrenaline—Stability of, in Solutions of Procaine and Adrenaline, I. For the assay of adrenaline in the presence of procaine it is suggested that a series of doses of standard adrenaline solution be given first, to determine the sensitivity of the animal, followed by a single dose of the solution under test. The pressor response produced by the latter is then equated with that given by one of the doses of the standard. This method is suitable for the assay of isolated solutions, but is quite impossible when a number of solutions have to be assayed at intervals. The method recommended in this case is to give several doses of the test solution containing procaine without attempting to equate with a dose of standard solution, the doses being given over a period of about fifteen minutes. It has been stated that the potentiation by procaine has reached a maximum in eight minutes, and persists less than an hour. It is assumed, therefore, that after these initial doses the potentiation of the pressor effect is equal on the adrenaline in the standard solution and in the test solutions. As injections of solution containing procaine are given every few minutes, it is almost impossible for the potentiation to diminish, or, if it does so, to diminish irregularly. As all the test solutions have been made up to contain 1 in 50,000 adrenaline, the standard used has been a fresh 1 in 50 dilution in normal saline of the stock 0.1% solution of adrenaline used. Results are expressed as percentage activity compared with the standard solution, *e. g.*, a solution which has lost 40% of its original pressor activity, is noted as 60% A. The effects of certain suggested catalysts on the stability of adrenaline in solutions of procaine hydrochloride and adrenaline have been investigated. (*a*) It has been shown that cupric copper and both ferrous and ferric iron have a pronounced catalytic effect, leading to rapid decomposition of the adrenaline. Care is necessary, therefore, to exclude these substances. (*b*) The ammonium ion and the nitrate ion have no such catalytic effect. Storage in an inert atmosphere produces no increase in stability in the presence of catalytic agents. Normal solutions stored in the dark are more stable than those exposed to light.—G. WOOLFE. *Quart. J. Pharm. Pharmacol.*, 14 (1941), 49–55. (S. W. G.)

Aloin—Irritant Effect of. Preliminary Note. In addition to assay methods for cathartic drugs it is of importance to find means of measuring untoward effect that may or may not contribute to catharsis. The author has developed a technique for determining the irritating effect of aloins on intestinal mucosa. The degree of redness of the interior surface of an excised loop of the large intestine of a guinea pig was compared with a control. Details of procedure are given.—MELVIN W. GREEN. *Jour. A. Ph. A.*, 30 (1941), 186. (Z. M. C.)

***p*-Aminobenzoic Acid—Failure to Cure or Prevent Graying of Rats with.** *p*-Aminobenzoic acid showed no effect on graying of the hair in rats in contrast to pantothenic acid.—GLADYS A. EMERSON. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 448. (A. E. M.)

Amphetamine Sulfate—Gastrointestinal Motility in the Albino Rat after Administration of. Amphetamine sulfate relaxes the stomach and small intestine, constricts the pylorus and delays the passage of material along the gastrointestinal tract. Isolated segments of the colon are stimulated by minimum effective doses; larger doses inhibit.—EMMA SMITH and K. E. PENROD. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 418. (A. E. M.)

Androgen and Pregnandiol Excretion in Hypertrichosis. A case of adrenal hypertrophy is described in which the clinical diagnosis is confirmed by the assay of male hormone excretion. The patient excreted no sodium pregnandiol glucuronidate, from which one may assume that no progesterone was excreted by her adrenal glands.—R. GREENE. *Lancet*, 239 (1940), 486. (W. H. H.)

Anesthetics—Local. Therapeutic compounds inducing local anesthesia are prepared by treating an alkylhydroxybenzoyl halide with an amino aliphatic alcohol or by treating an alkali metal salt of an alkylhydroxybenzoic acid with an amino aliphatic halide. The resulting amine esters are generally recovered in the form of their addition salts with hydrochloric acid; but other acids forming addition salts with amines may be used, such as boric, nitric, lactic, tartaric, citric, phosphoric, sulfuric, picric and picrolonic acids. The addition salts may be converted into the corresponding free bases in the usual manner. Details are given of the production of a number of such products.—WALTER G. CHRISTIANSEN and SIDNEY E. HARRIS, assignors to E. R. SQUIBB & SONS. U. S. pat. 2,243,694, May 27, 1941 (A. P.-C.)

Anterior Pituitary Extract—A Comparison with Frolan. An extract of anterior pituitary of beef administered alone produced no increase in weight in the ovaries of rabbits, even in very strong doses. Mixed with prolan (from pregnancy urine) it increased the weight with small doses, and prevented increase with large doses. This antagonistic effect may be attributed to the existence in the anterior pituitary extract of a substance which makes the ovary refractory to prolan. The synergistic factor of the anterior pituitary is effective on animals only immediately after hypophysectomy.—A. CHAMORRO. *Evolucion (Bogota)*, 3 (1941), 26, 28. (G. S. G.)

Anticoagulants—Biological Standardization of. The following method is recommended: A number of small test tubes of strong glass, about 0.5 cm. wide and 4.5 cm. high, are marked at the level corresponding to 1 cc. and fitted with stoppers. The tubes and rubber stoppers must both be perfectly uniform, clean and dry. The tubes should be brushed with soap and water, placed for twenty-four hours in dichromate-sulfuric acid, well rinsed first with hot tap water and then with distilled water and dried with acetone. If these precautions are neglected, the results may be erratic. A series of solutions of the standard preparation in normal saline (0.9% sodium chloride) is measured into about twelve tubes, in such a way that each tube contains 0.25 cc. of solution, and the concentrations are arranged in geometrical progression, so that the concentration in each successive tube is a constant proportion (say, 80%) of that present in the previous tube. The dilutions can conveniently be made in the tubes themselves by means of a micrometer syringe (*Biochem. J.*, 19 (1925), 1111). A similar series of solutions of the unknown sample is also prepared. From the carotid artery of a rabbit, anesthetized intravenously with pernocton, blood is run quickly through a light cannula, made from drawn out glass tubing and bent to a suitable shape, so as to fill each tube up to the mark. The flow is controlled by a bulldog clip, the jaws of which are covered with rubber, on the artery. All the tubes can be filled in a few minutes, but in order to avoid possible progressive changes in the blood, it is best to fill tubes from two series alternately so that, as far as possible, the corresponding tubes in the final comparison shall be filled with blood drawn at the same time. It is best to start by filling the tubes containing the higher concentrations of the anticoagulant. As each tube is filled with blood, turn it over once to mix the contents, and when all have been filled, they are simultaneously turned over once again and immediately placed in a refrigerator at a temperature of about 44° C. The two series of tubes are left undisturbed, since movements may affect coagulation and sedimentation, and are compared with one another the next day. If the two sets of tubes are placed in separate racks, it is possible to move the racks parallel to each other until each tube in one set is matched by a tube in the other set. The concentration of heparin in the preparation being tested can then be calculated on the assumption that corresponding tubes contain equal amounts. Since the concentrations are arranged in a geometrical series, the same results will be obtained whichever pair of tubes is used for the calculation. The method of comparison is illustrated.—F. SCHÜTZ. *Quart. J. Pharm. Pharmacol.*, 14 (1941), 45–48. (S. W. G.)

Ascorbic Acid—Dependence of Cortical Hormone upon. The authors found that the content of suprarenal cortex hormone diminished considerably when ascorbic acid was suppressed and that the injection of synthetic ascorbic acid sufficed to reëstablish the primary hormone content. They believe that the production of suprarenal cortical hormone depends upon ascorbic acid and that only the normal amount of ascorbic acid permits satisfactory hormonal production.—A. GIROUD, N. SANTA, M. MARTINET and T. BELLON. *Soc. de Biol.*, May 18, 1940; through *Presse méd.*, 51–52 (1940), 577. (W. H. H.)

Ascorbic Acid—Effects of Clinical Doses of Phenobarbital on Blood and Urine, in Human Subjects. No significant change occurs in the blood, plasm or urinary excretion of ascorbic acid following administration of 180 mg. phenobarbital daily to human subjects. Twenty-five mg. of crystalline ascorbic acid is insufficient to maintain blood or plasma values when these subjects take an ascorbic acid-free diet.—SYDNEY T. WRIGHT, TOM J. CALLAGHAN and VIRGINIA MINNICH. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 490. (A. E. M.)

Benzedrine—Influence of, on Cardiac Debt, Pulmonary Ventilation and Basal Metabolism. The nasal spray of a fresh solution of benzedrine increases the cardiac debt for sometime. The action persists for minutes. The oxygen, difference between arterio-venous, is lowered considerably during the first minutes, later however the consumption of oxygen is increased. The action persists thirty minutes and longer. Pulmonary ventilation increases during the first minutes; transitory elevation of the respiratory quotient and basal metabolism. A solution fifteen days old when sprayed into the nose has practically no activity.—F. NOGAREDE. *Presse méd.*, 58–59 (1940), 635. (W. H. H.)

Benzene—Absorption, Distribution and Elimination of, by Body Tissues and Fluids of Dogs Exposed to Benzene Vapor. A study of absorption, distribution and elimination of benzene by body tissues and fluids showed that: (*a*) The initial rate of absorption of benzene by the blood was extremely rapid, but final values were obtained slowly; (*b*) There was a linear relationship between the concentration of benzene in air and the equilibrium blood concentration of exposed animals and the coefficient of distribution was 6.58; (*c*) The red blood cells contained approximately twice the concentration of benzene found in the plasma; (*d*) Distribution of benzene throughout the body occurred rapidly, but equilibrium values depend upon blood supply; (*e*) The fat, bone marrow and urine contained approximately 20 times as much benzene as the blood; (*f*) Benzene concentration in muscle and vital organs was about 1 to 3 times the blood concentration; (*g*) Benzene absorbed into the body by inhalation apparently was excreted into the stomach; (*h*) Elimination occurred rapidly at first, but, owing to the large amount of benzene stored in the fat and the poor blood supply to the fat, elimination was not complete until about 137 hours after termination of the exposure.—H. H. SCHRENK, *et al.* *J. Ind. Hyg. Toxicol.*, 23 (1941), 20–34. (F. S. M.)

Bile Salts—Effect of, on the Secretion of Liver. The essential bile acid in hog bile is hyodesoxycholic acid. The authors studied the comparative response of the dog's liver to ox bile and to hog bile salts and found that weight for weight desiccated hog bile causes the same increase in the output of the bile as an equal weight of ox bile salts. Purified hyodesoxycholic acid caused the same response as desiccated hog bile. Oxidation of hog bile or pure hyodesoxycholic acid did not increase the choleretic properties in contrast to the results obtained with cholic acid from ox bile. The hog bile preparations do not thin the bile like oxidized unconjugated cholic acid. The augmentation of the choleretic activity of any bile acid by oxidation and the effect of conjugation of the oxidized bile acid depends on the position of the carbonyl groups. The hog bile preparations increased total cholesterol output slightly, but had little effect on pigment and the concentration of non-volatile solids.—A. L. BERMAN, E. SNAPP, A. C. IVY, V. H. HOUGH and A. J. ATKINSON. *Am. J. Physiol.*, 131 (1941), 752; through *Abbott Abstract Service*, (1942), No. 1013. (F. J. S.)

Bio-Assays. A review of the growth and present status of bio-assays and some indications of further applications.—J. C. MUNCH. *Merck Rept.*, 50, No. 4 (1941), 27–30. (S. W. G.)

Blood Urea and Plasma Chloride in Experimental Hemorrhage. After severe hemorrhage in dogs the blood urea increases by about 15 mg. per 100 cc.; the rise in blood urea level is not increased by large doses of cortin, D. O. C. A. or adrenaline. Bleeding prolongs the uremia produced by feeding urea; this suggests that renal function is impaired by hemorrhage. The changes in plasma chloride after hemorrhage are relatively slight. The results of the experiments confirm the advisability of giving fluid feeds after alimentary hemorrhage in man.—D. A. K. BLACK. *Lancet*, 239 (1940), 618. (W. H. H.)

Calcium Acetylsalicylate (as Calsamate)—Comparison of, to Acetylsalicylic Acid. Calsamate is composed of 60.6% acetylsalicylic acid and 39.4% calcium glutamate. The urinary excretion in man of salicylic acid was the same after the oral administration of acetylsalicylic acid and the equivalent amount of calsamate. Calsamate was less prone to cause vomiting in dogs and was less prone to produce gastric ulcers than acetylsalicylic acid. Calsamate was also found to be less acutely toxic for rats and rabbits by oral administration.—J. W. STUTZMAN, O. S. ORTH and C. H. MELLISH. *J. Pharmacol.*, 73 (1941), 420–430. (H. B. H.)

Camphosulfonate of Sulfanilamide. This medicament is a definite product resulting from the combination of a molecule of sulfanilamide with a molecule of camphosulfonic acid. It considerably strengthens in a durable manner the amplitude of the auricular and ventricular contractions. This effect is greater than, and surpasses, that of the usual camphoric preparations. It is known that the sulfamides produce grave alterations of the blood. The camphosulfonate of this sulfamide reveals that in this respect it is perfectly innocuous. *In vitro*, it modifies neither the number nor the form of white and red cells, it does not produce hemolysis or methemoglobin in the same or higher concentrations than that produced by other sulfamides. *In vivo*, the same innocuous action upon the blood was observed; the product has been injected in very high doses intravenously to horses suffering from equine typhoid fever without altering the blood constituents and with favorable therapeutic results. The medicament is an extremely energetic diuretic; intravenously in the dog it quintupled the quantity of urine excreted in the same time interval. The diuretic action is verified by other modes of administration but is less pronounced. It augments and prolongs considerably the tonus of isolated virgin guinea pig uterus quite similar to that produced by extract of pituitary. It appeared from the experiment that this compound may produce oxytocic effects similar to pituitary and also possess an antistreptococcic action to prevent general infection which may develop in gynecological work. The antigenetic activity of this compound *in vitro* in boullion culture in a concentration of 1–150 is three times more active than sulfanilamide in a concentration of 1–50. It is effective against gonococci raised on blood agar (Besancon and Griffon) in a dilution of 1–1000. Very large doses have no effect upon spermatogenesis of the dog. This is in contrast to the spermatogenic diminution reported by Jaubert and Motz when using sulfanilamide therapy. The bactericidal action has been verified upon coli bacillus paratyphoid A, the red microbe and fowl cholera. This compound in man exerts the same effect as sulfanilamide when given in a daily oral dose of 3 grams.—H. BUSQUET and C. VISCHNIAC. *Soc. de Therap.*, May 8, 1940; through *Presse méd.*, 60–61 (1940), 658. (W. H. H.)

Cannabis Indica. III. Relationship between Chemical Constitution and Hashish Activity. In view of the hashish activity shown by the synthetic tetrahydrocannabinol in dogs and rabbits, the following structurally related compounds have been prepared by the action of excess CH_3MgI on the corresponding coumarin synthesized by the Pechmann method: 6-Hydroxy-2:2-dimethyl-4″-*N*-amyl-3′:4′:5′:6′-tetrahydrodibenzopyran, 5″-hydroxy-2:2:5′-trimethyl-4″-*N*-amyl-3′:4′:5′:6′-tetrahydrodibenzopyran, 5-hydroxy-2:2:4-trimethyl-7-*N*-amyl-Δ^3-chromen and 5-hydroxy-2:2-dimethyl-7-*N*-amyl-3:4-cyclopenteno-Δ^3-chromen. Only the first named compound showed hashish activity.—P. B. RUSSELL, A. R. TODD, S. WILKINSON, A. D. MACDONALD and G. WOOLFE. *J. Chem. Soc.*, (1941), 169–172. (W. T. S.)

Carnosine—Smooth Muscle Effects of. Carnosine is a stimulant of isolated intestine and prevents the morphine relaxation of such tissue.—DONALD SLAUGHTER, T. U. JOHNSON and J. WESLEY GALES. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 95. (A. E. M.)

Cobalt Metabolism in the Animal. In the sixth of a series of papers concerned with the study of mineral metabolism with the aid of artificial radioactive isotopes, the authors report on cobalt. Cobalt is chemically associated with iron and manganese and is essential for maintaining the health of certain animals. "Coast disease," "pine disease" and "bush sickness" in sheep and "salt sickness" in Florida cattle are evidences of its deficiency. The basal requisite for the cow is estimated at 1.0 mg. per day. Larger doses of cobalt produce polycythemia in many species of animals. A number of foodstuffs have analyzed from 6 to 47 micro-Gm. per 100 Gm. of dry weight. From a study of the excretion and tissue distribution of radioactive cobalt in male rats, the authors conclude that cobalt is chiefly excreted in the urine, in contrast to manganese which is excreted in the feces, and iron where excretion occurs by both paths. Small doses (10 micro-Gm.) are quickly and almost totally eliminated, indicating that body requisites for the rat are very small.—D. HAROLD COPP and DAVID M. GREENBERG. *Proc. Nat. Acad. Sci. U. S.*, 27 (1941), 153–157. (W. T. S.)

Cortico-Suprarenal Hormone Function—Variations of, Contributed by Ascorbic Acid. A remarkable parallelism exists between ascorbic acid and the cortical hormone of the suprarenal. In a definite manner a deficiency in ascorbic acid caused a progressive lowering of the cortical hormone. The

function of the cortico-suprarenal depends upon the contribution of ascorbic acid which is necessary to synthesize the cortical hormone. Only a normal rate of vitamin C will permit a normal functioning of the suprarenal. The method employed for cortical hormone dose is based upon the semi contraction of the pigmented cells of isolated scales of *Cyprinus carpio;* this reaction is very different from the adrenalenic total contraction.—A. GIROUD, N. SANTA and M. MARTINET. *Soc. Endocrinol.*, May 25, 1940; through *Presse méd.*, 60–61 (1940), 657. (W. H. H.)

Cyclopropane—Adrenolytic Action of. Although cyclopropane initially sensitizes the dog's heart so that the injection of adrenaline causes ventricular tachycardia subsequently it may exert an adrenolytic effect on the cardiovascular system.—J. W. STUTZMAN and C. R. ALLEN. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 218. (A. E. M.)

Diethylstilbestrol Dipropionate—Effect of, on Mammary Development and Lactation. Progestin is not necessary for complete mammary development in cattle. Estrogens will induce mammary development and copious milk secretion without the injection of prolactin. The turgidity of the udder may be used as an indicator of the secretory activity of the non-lactating gland. The titer of estrogen determines its effect on the mammary gland. A low titer induces proliferation of the parenchyma and the secretion of milk; a high titer suppresses lactation and brings on evolution of the gland.—SHEPPARD M. WALKER and ALLAN J. STANLEY. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 50. (A. E. M.)

Digitalis Assays—A Simple Statistical Method for the Calculation of Mortality Percentages in. A simple statistical method is presented for rapid and accurate calculation of comparative potencies in digitalis assays. It is not intended to supplant more elaborate methods but it does avoid transformation of the data into artificial units which may tend to obscure interpretation of results and prevent their comparison with results of other workers. The method employs two assumptions: "That an animal which dies from a given dose would, under the same conditions, have died had it received any higher dose, and that an animal which survives a given dose would also have survived had it received a smaller dose." These assumptions are applied by integrating survivals at higher dosages with those at the dosage under consideration and also integrating deaths at lower dosages with those at the dosage under consideration. The integrated results have an accuracy of approximately 1 per cent throughout the 25–75 per cent mortality range. Application of the method is described in detail and results are tabulated and shown graphically.—HAROLD N. WRIGHT. *Jour. A. Ph. A.*, 30 (1941), 177. (Z. M. C.)

Drugs in Experimental Leishmaniasis—Evaluation of. The authors describe a method for evaluating drugs proposed for the treatment of leishmaniasis. Neostibosan and ureastibamine were tested in experimentally infected hamsters with the use of controls. It is necessary to employ drugs of known composition on which acute and chronic toxicity data are available. Each group of animals should include at least 30 and these should be subjected to tissue studies of the effects produced by the drugs and the disease. Many comments concerning essential conditions for testing these drugs are included.—H. Y. SOONG and HAMILTON H. ANDERSON. *Am. J. Trop. Med.*, 21 (1941), 461–467. (W. T. S.)

Epinephrine—Increased Plasma Prothrombin Activity after, Injections; Relation to Hyperglucemia. Epinephrine, by slow intravenous injection, increases the prothrombin activity of human and dog plasma. An identity of the type seems to exist between the forces capable of exciting hyperglucemia and increases in plasma prothrombin activity.—LEANDRO M. TOCANTINS and JAMES F. O'NEILL. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 477. (A. E. M.)

Estrogens and Chorionic Gonadotropin—Augmentative Effects of. The preliminary administration to immature rats of high doses of stilbestrol or alpha-estradiol dipropionate produces a significant increase in the effect of chorionic hormone on the resultant ovarian weight.—C. F. FLUHMANN. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 378. (A. E. M.)

Folliculin—Influence of Injections of, upon Glycemia. Strong doses of folliculin (estradiol benzoate) have been injected into four diabetic women having passed menopause. In two cases where the diabetes dated the menopause the folliculin injections produced a diminution of the glycemia. This lowering persisted many days after the last injection. In two other cases when the diabetes and the menopause were not simultaneous a similar diminution of glycemia was not noted. The authors believe that the diabetes in the first two cases is of hypophyseal origin: hypersecretion of the gonadotropic hormone during menopause seems to be accompanied in these cases with an exaggerated production of "diabetic factor." The lessening of glycemia in these cases appears to be due to an inhibition of this hypersecretion by the folliculin injections. The possibility of this mechanism is confirmed by the diminution of gonadotropic hormone content in the urine following the series of folliculin injections. This condition does not hold true for the latter two cases. It is interesting to note that in one of the first two cases doses of 1 and 2 mg. were efficacious whereas in the other, 5 mg. were necessary to produce diminution of glycemia. The 5-mg. dose is equivalent to 50,000 International Units.—G. GESSLER. *Presse méd.*, 75–76 (1940), 780. (W. H. H.)

Galactosuria—Part of the Kidney in Producing. The provoked galactosuria test always faithfully reflects the quality of the hepatic cells to the double condition, intestinal absorption and renal elimination. Renal troubles modify the provoked galactosuria test. The more marked the renal damage the slower the elimination of galactosuria. The same is not the case with nephritis and likewise when the hepatic cells are in a damaged state. Galactosuric elimination is inverse to renal and hepatic lesions. When the two reach a point close to equilibrium, the final result gives a number corresponding to that of a healthy individual. This explains certain cases of normal or subnormal galactosurias where hepatic damage is clinically evident. The test in reality is not without fault but requires delicate interpretation. When renal damage is very marked, the elimination of galactose in the urine becomes nullified; the same when hepatic cells have completely decayed. One cannot appreciate the state of these cells and it becomes impossible to measure the degree of damage when this is evidenced. It is likewise difficult to determine when it is not suspected clinically. In these cases the galactosuria test is found at fault.—M. CHIRAY, H. MASCHAS and J. GERMOND. *Presse méd.*, 62–63 (1940), 665. (W. H. H.)

Galacturonic Acid—Is, Absorbed by the Small and Large Intestine? Galacturonic acid is one of the decomposition products of pectin. If an isosmotic and isotonic solution is introduced into the small and large canine intestine or into the human small intestine, less than 10%, if any, is absorbed.

Isosmotic galacturonic acid stimulates the secretion of fluid by the small intestine of unanesthetized human subjects and dogs.—S. WERCH and A. C. IVY. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 9. (A. E. M.)

Gramicidin—Effect of, on Metabolism of Bovine Spermatozoa. Crude and purified gramicidin after initial stimulation inhibits the oxygen consumption of bovine spermatozoa completely in Ringer phosphate of acid pH and renders the cells immobile. Small amounts produce stimulation only. In alkaline phosphate buffer only the increase of oxygen consumption is noted, however in bicarbonate Ringer medium respiration is inhibited. Aerobic as well as anaerobic glycolysis are depressed on the average 40% and the motility of the spermatozoa is impaired.—GERTRUDE HENLE and CHARLES A. ZITTLE. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 193. (A. E. M.)

Gramicidin—Mode of Action of. Gramicidin and tyrocidin depress the surface tension of aqueous solutions. The latter is more active in this respect. The ability of gramicidin to depress surface tension is enhanced by organic solvents such as glycerol. Serum decreases the activity of tyrocidin less than it does the activity of gramicidin, sodium oleate and aerosol OT. The bactericidal and hemolytic effects of gramicidin are destroyed by heat but the property of altering surface tension is heat stable.—DOROTHY HEILMAN and WALLACE E. HERRELL. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 480. (A. E. M.)

Heat and Cold—Effect of, in Shock. Shock was produced in animals by causing hemorrhage or by traumatizing one of the legs and the subsequent effect of heat and cold was observed. Significant elevations of temperature decreased the animals' chances for life and shortened the period of survival. The application of cold did not increase the chance of survival but lengthened the time of survival. It should be remembered that in a man in shock the extremities may be cold because circulation is partly diverted to more important structures. The authors do not advocate that the body temperature of patients in shock should be reduced, but attempts to warm the skin may result in further impairment of the circulation to the essential and more easily damaged organs. They believe that drastic means to elevate the temperature of the skin should be used with great caution. Supplying material to restore blood volume is more important.—A. BLALOCK and M. F. MASON. *Arch. Surg.*, 42 (1941), 1054; through *Abbott Abstract Service*, (1941), No. 969. (F. J. S.)

Heparin—Assay of. The principles of the biological assay of heparin are discussed. The anticoagulant potency of heparin is tested against either freshly drawn blood or various artificial clotting systems which have been developed by the authors. These methods are: (1) the Howell assay as modified by Charles and Scott (*Biochem. J.*, 30 (1936), 1927), in which the degree of clotting in samples of cat's blood containing varying amounts of the unknown is compared with similar samples containing a standard preparation, (2) a new thrombin assay (see below) and (3) the Fischer assay (*Z. physiol. Chem.*, 210 (1932), 129), in which the clotting time of chicken plasma on addition of thrombokinase is determined for varying concentrations of unknown and standard heparin. Factors which affect the results of the assays are discussed. With impure extracts, it is necessary to demonstrate that the anticoagulant activity is due to heparin. In purified tissue extracts, the potency is reduced through interference by the impurities present, such as salts. The value for the anticoagulant potency of pure heparin will be affected by the base bound and the water content. In the barium salt the cation interferes in assays which make use of oxalated blood or plasma. The crystalline heparins isolated from different species show marked differences in their specific biological activity. It has been found that their relative anticoagulant activities vary with the method of assay. The difference in activities is most marked with the Howell assay. The new method is as follows: Modifying the Howell method by using oxalated beef blood and thrombin markedly improves the end-point and may be found more convenient in some laboratories. The thrombin solution is standardized by adding varying amounts to a clotting system composed of 0.5 cc. of blood, 0.1 unit of heparin and normal saline solution to give a total volume of 1 cc., and examining the tubes after standing fifteen minutes at 25°. That amount of thrombin which is just sufficient to cause clotting is then taken for the assay. The stock thrombin solution is diluted as required to contain this amount of thrombin in 0.1 cc. For the assay, a 0.4 unit per cc. solution of the heparin standard is used and 0.2, 0.22, 0.25, 0.27, 0.32 cc. taken in carefully selected tubes. For maximum accuracy, tubes with volumes between these may also be taken. The volume is made up to 0.4 cc. with saline and 0.5 cc. of oxalated beef blood is added. In another series of tubes equivalent amounts of the unknown, as found by preliminary assay, are taken. The tubes are allowed to stand in a water bath at 25° for exactly ten minutes to come to temperature equilibrium and then 0.1 cc. of the thrombin is added to each tube, the system being mixed immediately by inverting the tube twice. The tubes are allowed to stand in a constant temperature water bath at 25° for fifteen minutes and then read. Below a certain concentration of heparin, the clot is found to be solid and slides down the tubes. Above this concentration, which is the end-point, the clot breaks up, and with higher concentrations no clot is formed. The end-point will be found between one pair of tubes. The reagents are prepared as follows: Beef blood is collected in 1-liter flasks containing 10 cc. of 20% neutral potassium oxalate. The blood is obtained from a cannula in the carotid artery. Where it is not possible to obtain blood in this manner, mixed venous blood from the abattoir may be used. This blood does not give so sharp an end-point and requires less thrombin than the arterial blood. Oxygenation of the venous blood has no effect on this difference. The blood is stored in a refrigerator and keeps for about three weeks. Every few days the blood is strained through a double layer of cheese cloth to eliminate small clots which may seriously interfere with the pipetting of the blood. The thrombin is prepared by the method of Mellanby (*Proc. Roy. Soc.* (*London*), B, 113 (1933), 93). The potency is retained for years when kept in a desiccator in a refrigerator. As required, 500 mg. of the thrombin is extracted with 50 cc. of normal saline solution (containing 0.3% of tricresol) at 25° for an hour, the reaction being kept between pH 7 and pH 8 by adding solid sodium carbonate. Clarify the extract by centrifugation and store in a refrigerator. After two or three days its potency remains fairly constant for about a month. The standard heparin must be in the form of the sodium or ammonium salt. A unit of anticoagulant potency is regarded as the amount of heparin necessary to prevent 1 cc. of cat blood from clotting for twenty-four hours in the cold.—L. B. JAQUES and A. F. CHARLES. *Quart. J. Pharm. Pharmacol.*, 14 (1941), 1–15. (S. W. G.)

Hot Atmospheres—Effect of, on the Body. The author made a study of the effects of heated atmospheres on the human body. In conformity with previous investigators, he found three main types

of disturbance of function: heat exhaustion, heat stroke and heat cramps. The first of these is caused by a collapse of the vasomotor system, and resembles shock. The second is due to a disturbance of the heat-regulating centers, and leads to hyperpyrexia of a marked degree. The third arises chiefly in persons resistant to the former two effects and is caused by excessive loss of sodium chloride. In an effort to improve the circulation and vascular tone so as to prevent the onset of heat exhaustion, the author administered by injection an extract of whole suprarenal cortex to a series of experimental subjects. It was found that the extract definitely increased the excretion of sodium chloride and sweat, and stabilized circulation so that vascular collapse occurred less frequently. Subjective sensations of overheating were also lessened.—B. SCHLEGEL. *Klin. Wochschr.*, 20 (1941) 506; through *Abbott Abstract Service*, (1941), No. 964. (F. J. S.)

Hypnotics—A Pharmacological Study of Some New Synthetic. An evaluation has been made of a large group of compounds which for the most part have not been described. The experimental work is reported in detail and results tabulated. In all, eighty-seven compounds were studied by intraperitoneal injection in rats for estimation of the therapeutic ratio, Minimum Lethal Dose/Minimum Hypnotic Dose. Six of the most promising compounds were studied further by oral administration in rabbits. These were ethyl-*n*-amyl acetamide, ethyl-*β*-phenylethyl acetamide, ethyl-*n*-butyl acetamide, ethyl-isoamyl acetamide, allyl-*β*-phenylethyl acetamide and ethyl-benzyl acetamide. Only one, ethyl-*n*-butyl acetamide was found to be more active than carbromal by both tests.—JOHN W. NELSON, STANLEY C. LYSTER and GEORGE F. CARTLAND. *Jour. A. Ph. A.*, 30 (1941), 180. (Z. M. C.)

Intravenous Injections and Enemata Used in the Tropics. Intravenous solutions prepared by dissolving a solid drug in sterile distilled water should be used on the day on which they are made; the solutions should never be left to stand overnight. Pyrogen-free distilled water should be freshly prepared, preferably on the day of use, in a Pyrex all-glass apparatus, of which details are given. Antimony sodium tartrate is less toxic than the potassium salt. Solutions can be sterilized by boiling without harm, but must be freshly prepared. Quinine dihydrochloride solution can also be sterilized by boiling or in the autoclave; it should not be stronger than 1 grain in 1 cc. Sodium bicarbonate solution must not be sterilized by heat as this converts the bicarbonate to the toxic carbonate; the chemically pure salt should be added to fresh, cooled, double distilled water. Sodium citrate solution may be sterilized by heat. In preparing chiniofon enemata tap water must not be used and the vessels for storage must not contain any trace of acid; boiling causes decomposition. Cod liver oil enemata should be prepared as emulsions with gum acacia (not with the irritating tincture of quillaja). In preparing bismuth subgallate in olive oil or cod liver oil no emulsifying agent is used; grinding in a mortar and thorough stirring immediately before use are essential.—O. TURNER. *Trans. Roy. Soc. Trop. Med. Hyg.*, 34 (1940), 109; through *Quart. J. Pharm. Pharmacol.*, 14 (1941), 90. (S. W. G.)

Liver of Herbivores—Antianemia Substance from. Fresh liver is reduced to pulp and macerated for 48 hours in 95% alcohol. It is then extracted with ether and finally with distilled water. This extract is concentrated, precipitated with absolute alcohol and redissolved in distilled water, then allowed to crystallize. These crystals are the double phosphate of potassium and colamine identified by precipitating with magnesium phosphate. Clinical tests of this double phosphate indicate a high antianemia potency.—A. M. BARRIGA VILLALBA. *Evolucion (Bogota)*, 3 (1941), 18. (G. S. G.)

Magnesium and Potassium—Influence of, on Experimental Cancerization and on the Culture of Neoplasic Tissue. The author has produced, by injection of 3,4-benzopyrene, an experimental cancer in animals which were divided into three lots: the first received besides the elementary base identical for the three groups, bread soaked with magnesium salts. The second received bread soaked with potassium salts. The third simply received the bread. The intense mineralization by magnesium and potassium seemed to augment the general resistance; and the magnesium lot have been more frequently attacked by ulceronecrotic accidents. Comparison of the action of magnesium and potassium seemed to show that the latter favored the process of cancerization. The potassium subjected mice presented many more cancers than the magnesium mice. The author has not stated the efficaciousness of anticancerous preventive action of magnesium. The volume and evolution of the tumors of the three lots of animals have been identical. *In vitro*, magnesium hinders the growth of neoplasic tissue; potassium, sufficiently strong, stimulates.—J. SZARFF. *These de Montpellier*, 1939; through *Presse méd.*, 66–67 (1940), 698. (W. H. H.)

Male Sex Hormone—Vegetative Nervous System and. The authors give the results of their studies upon the relationship between the male sex hormone and the neuro-vegetative system. They have studied the action of testosterone propionate upon the insulin glycemic and adrenalin curves. After these results were obtained they made the following hypothesis: the male hormone stimulated the vagus and inhibited the sympathetic system; in the case of preëxisting vagal hypertonus, the hormone acted to equalize the same.—T. GALLI and L. RAFFE. *Endocrinol. e Patolog. Constituz.*, 14 (1939), 461; through *Presse méd.*, 62–63 (1940), 77. (W. H. H.)

Mammotropin in Postpartum Urine. Reports conflict as to whether the lactogenic hormone of the anterior pituitary stimulates duct and lobule-alveolar growth in addition to stimulating and maintaining lactation. The present authors have isolated "mammotropin" (prolactin, lactogen, galactin) from postpartum urine and have found, by rubbing it into the mammary glands of male mice, that it does produce arborization. Estrone priming in the mice seemed to give best results.—CH'ING-SHAN LU and HAZEL AI-CH'UN LIN. *Chinese Med. J.*, 58 (1940), 612–615. (W. T. S.)

Morphine—Azo Compounds from. I. Morphine has been coupled with various diazotized amines to produce azo dyestuffs. It has been found that the pharmacological activity of morphine becomes modified but is not destroyed.—AMARESH CHANDRA ROY. *J. Indian Chem. Soc.*, 18 (1941), 29. (F. J. S.)

Morphine Excretion in the Urine of Opium Addicts with and without the Lecithin-Glucose Treatment. The continuation of a study of morphine addiction led the authors to these conclusions. The rate of excretion of morphine bears no relationship either to the daily dose of opium or to the duration of the addiction. The time required to render the urine free of morphine was estimated by a turbidimetric test employing ammonium molybdate and ammonium vanadate.—R. N. CHOPRA, G. S. CHOPRA and A. C. ROY. *Indian J. Med. Research*, 29 (1941), 195–201. (W. T. S.)

Nicotinic Acid—Action of, on Coagulation of Blood. Nicotinic acid has no coagulant effect when tested *in vitro* with heparinized recalcified

plasma. With whole blood the coagulant action is equal to that of water. As nicotinic acid is an active hemolytic agent its coagulant effect is apparently due to the release of thromboplastin from disrupted elements of the blood.—P. M. AGGELER and S. P. LUCIA. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 522. (A. E. M.)

Nicotinic Acid Injected in Blood Stream—Curve of Disappearance of. Nicotinic acid injected intravenously in normal dogs disappears quickly from the blood, but this disappearance is retarded in nephrectomized dogs. The kidneys may be considered the principal route of excretion of nicotinic acid.—A. D. MARENZI and R. CODAS. *Anales farm. bioquim.* (Buenos Aires), 12 (1941), 40. (G. S. G.)

Phenolsulfonphthalein—Elimination of, in Liver Affections. The authors report that their studies on liver showed that phenolsulfonphthalein may be disturbing. They have observed an augmentation of elimination in cases of icterus and secondary cancer of the liver; figures are essentially variable in cirrhosis and hepatomegalia with liver insufficiency. They also proved that phenolsulfonphthalein should not be employed in kidney determinations when liver troubles are present because the figures obtained fail to show the true renal functioning.—P. VALLERY-RADOT, M. ROUX and P. MILLIEZ. *Presse méd.*, 75–78 (1940), 777. (W. H. H.)

Phenothiazine as an Anthelmintic. Phenothiazine, a thiazine dye, has been shown to be effective against culicine larvae, against strongyloid worms in sheep, and against stomach worms in animals. It is excreted in the urine and acts as a urinary antiseptic. Three Indian lascars infested with *Ancylostoma duodenale* were given phenothiazine in doses ranging from 30–40 Gm. but the results suggested that the drug is ineffective for worms in the small intestine; similar results have been found in animals. Nine patients with *Ascaris lumbricoides* were treated; five had a double infection with roundworms and hookworms and two a double infection with roundworms and whipworms. These seven patients were given total doses ranging from 16 to 48 Gm. Only one roundworm was recovered and the whipworms were unaffected. Of the remaining two patients, one had a multiple infection with roundworms, hookworms, whipworms and threadworms, the other had roundworms only. They were given 8 Gm. daily for three days, followed by a dose of sodium sulfate, and results were more satisfactory, all the roundworms being removed. Phenothiazine has given good and permanent results in the treatment of threadworm infections, especially in children. Effects on six children and three adults are recorded; all were cured; although three—one child and two adults—required a second course. The following doses are advised: 2 Gm. daily for seven days for children under 8, half the dose for under 4; 8 Gm. daily for 5 days for adults.—P. MANSON-BAHR. *Lancet*, 239 (1940), 808. (W. H. H.)

Picrotoxin and Coramine in Avertin Narcosis. In studying the toxicity of avertin it was found necessary to differentiate between the production of "acute" and "delayed" death. The former is characterized by wide variations in results based on dosages; the latter by secondary visceral lesions, bearing no clear relation to the dosage, that appear after the reversal of narcosis. Two groups of animals given 150 and 250 mg. of avertin, respectively, were studied to determine the effect of picrotoxin as an antagonist to avertin narcosis. Four groups of animals given 300, 500, 750 and 1000 mg. doses of avertin, respectively, were studied regarding their comparative responses to the action of picrotoxin and coramine in affecting the awakening time. In all the groups picrotoxin was found to hasten arousal in threshold, but subconvulsive doses. Coramine, even in large doses, was less effective. In some instances this compound prolonged the arousal time. Tables setting forth the results in figures are submitted. Tables I and II give figures on picrotoxin antagonism to light avertin narcosis. Table III shows that the average arousal time for the three groups representing in this order controls, coramine- and picrotxin-treated animals was 185, 253 and 102 minutes, respectively. Pertinent material contained in the literature is discussed.—A. H. MALONEY. *Arch. intern. pharmacodynamie*, 64 (1940), 432. (W. H. H.)

Posterior Pituitary Solution—Proposed Modification in the Official Method for the Assay of. A critical evaluation of the assay of the official guinea pig uterine method for the assay of posterior pituitary extracts has been undertaken. Many have objected that the description of procedure and apparatus lacks detail. Points needing amplification are preparation of the standard solution, description of the guinea pig uterus best suited for assay purposes, description of apparatus, technique involved in making the assay and definition of what constitutes an assay. The present report deals only with the definition. The present monograph requires "equal, submaximal contractions in two successive pairs of contractions" but provides no means of testing submaximal character and does not define "equal." Procedure is given, the results of a cooperative study are reported and a change is presented in the wording of the rubric in regard to potency of solution. It is as follows: "Owing to the many variable factors in the assay of solution of posterior pituitary, evidence of potency in all assays of solution of posterior pituitary to within 20 per cent above or below the standard, is acceptable." Points still under consideration are composition of the bathing fluid; alternative or subsidiary methods of assay, namely the pressor assay for the pressor principle using the anesthetized dog, a modification using the anesthetized cat and the blood pressure depressor assay of Coon; for the oxytocic principle using the anesthetized chicken.—BLACKWELL SMITH, JR., JULIUS M. COON, PRISCILLA FOURT and E. M. K. GEILING. *Jour. A. Ph. A.*, 30 (1941), 151. (Z. M. C.)

Potassium and the Vagal System. The metabolism of potassium is poorly known regarding its role in the organism. It has been known for some time that the K ion alkalinizes the Ca and Mg ion which acidifies and which possesses a synergistic action to the Na ion. The pharmacodynamic effects of the potassium salts are to excite the vagal system; while stimulation of the pneumo-gastric liberates potassium. It may be accepted then that a correlation exists between the blood potassium and the parasympathetic system. In true vagotonic states it has been found in a general manner that a disruption of the acid-base equilibrium of the blood exists in the sense of alkalosis. The author wonders if the vagotonic state is not initially a case of hyper potassium.—J. ROBERT. *Le Bull. Med.*, 54 (1940), 273; through *Presse méd.*, 77–78 (1940), 89. (W. H. H.)

Pressor Drugs. I. Chemistry and Pharmacology of an Analogue of Epinephrine. An increasing number of clinical reports of the effectiveness of pressor drugs in the relief of asthma and hay fever led to a coöperative investigation. In this paper information is presented on the chemical and pharmacological properties of methylamino-hydroxy-ethyl-dihydroxy-benzene and its hydrochloride, the solution of which is known as "Vaponefrin." Experimental work is explained, chemical differentiation between vaponefrin and epinephrine tabulated and blood pressure tracings shown. In acute toxicity tests on animals, vaponefrin was about two-thirds as

toxic as epinephrine, following injections. In chronic inhalational studies on rabbits, no toxic effects were observed following inhalations up to 4000 inhalations of vaponefrin. Pressor reactions of cats, dogs and monkeys to epinephrine and to vaponefrin were similar, epinephrine being 50% stronger. Vaponefrin solutions were more stable than epinephrine solutions under similar conditions. Discolored vaponefrin solutions retained pressor potency.—JAMES C. MUNCH, VINCENT H. GATTONE and HARRY J. PRATT. *Jour. A. Ph. A.*, 30 (1941), 183. (Z. M. C.)

Procaine-Epinephrine Solutions—Adsorbents for. Colloidal tricalcium phosphate diminishes the pressor effect of submucosally injected epinephrine.—F. S. WOZNIAK, J. R. RUSSELL and A. B. LUCKHARDT. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 493. (A. E. M.)

Progesterone—Contribution to the Study of the Proliferative Action of. The authors found that progesterone is capable of producing in female rabbits, rats and guinea pigs an intense cellular proliferation in the mucosa and muscle of the uterus which is disclosed by colchicine. Progesterone and the presence of a foreign body in the uterus of rats or guinea pigs provoke a decidual reaction by producing an intermediary cellular proliferation by the same method as colchicine.—MUSSO-FOURNIER, ALBRIEUX and BUNO. *Acad. de Med.*, June 4, 1940; through *Presse méd.*, 54–55 (1940), 609. (W. H. H.)

Propazone (5,5 - Di - *n* - Propyl - 2,4 - Oxazolidinedione)—Clinical Studies on the Hypnotic Properties of. By oral or intravenous application of aropazone all stages of hypnosis and anesthesia have been produced in patients without ill effects. The absence of side reactions, the striking degree of relaxation which comes in the early stages of hypnosis and its long duration of action indicate that this substance might be of therapeutic value.—FRANK H. LUTON, JOHN BLALOCK, J. H. BAXTER, JR., and ROGER W. STOUGHTON. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941) 245. (A. E. M.)

Psyllium Seed Pigmentation—Effect of, on Renal Function. It has been shown in a previous report that preparations of pulverized psyllium seed fed to dogs and rats cause considerable pigmentation of the kidneys. The present paper describes experiments on cats and rats designed to determine whether the pigmentation of the kidneys from the use of psyllium seed in these animals caused any decrease in the ability of the kidneys to remove urea from the blood stream. The results showed no diminution of urea clearance in these psyllium-fed animals. Urea clearance is but one phase of renal function, but when it is considered in conjunction with a rather wide use of psyllium-agar flakes in the practice of a number of competent clinicians with complete absence of renal damage, it would seem that the reputed benefits from this type of laxative outweigh the theoretical hazards and that the pigmentation found in the kidneys is harmless.—C. H. THIENES and E. M. HALL. *Am. J. Digestive Diseases Nutrition*, 8 (1941), 307; through *Abbott Abstract Service*, (1941), No. 997. (F. J. S.)

Santonin—Anthelmintic Action of. This is an experimental study *in vitro* of the effect of santonin on human ascaris (roundworms). Observation of individual worms in solutions showed diminution and final cessation of movements. Santonin solutions were made with bile and sodium bicarbonate, but depression occurs even in the absence of bile. However weak sodium bicarbonate solution is a better solvent for santonin than plain distilled water. There is evidence to show that santonin may produce tolerance on repeated application.—R. GUEVARA, *et al. J. Philippine Isls. Med. Assoc.*, 20 (1941), 513; through *Rev. Filipina Med. Farm.*, 31 (1941), 283. (G. S. G.)

Sulfaguanidine—Use of, in Nutrition Experiments. The addition of 0.5% sulfaguanidine to a purified basal diet greatly reduces the growth of young rats. When liver extract is added to this mixture optimum growth is obtained. *p*-Amino benzoic acid fed with 0.5% sulfaguanidine from the beginning of an experiment gives a definite growth response, but gives no response during the first week when fed to rats which have received sulfaguanidine alone for several weeks. The bearing of these results with reference to the possible synthesis of unidentified growth factors by intestinal bacteria is discussed.—S. BLACK, J. M. MCKIBBIN and C. A. ELVEHJEM. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 308. (A. E. M.)

Sulfanilamide—Inhibition of Acetylation of, in the Body. The chief danger in the use of the derivatives of sulfanilamide lies in the damage to the urinary tract resulting from the formation of crystals of the compounds in the kidneys and ureters. The process underlying this crystallization has been carefully studied and it is now a well-known fact that it is partly the result of acetylation of the sulfonamides in the body forming less soluble conjugation products. Therefore, the facilitation and inhibition of the formation of conjugation products have become a most important problem when these drugs are employed. In the course of investigation of this detoxication of sulfanilamide, the authors found that acetylation in the body can be increased by the administration of acetate. On the other hand, it was definitely demonstrated that acetylation at 24 hours is completely blocked by glucuronic acid. It is thought that in this reaction the sulfanilamide is conjugated with glucuronic acid to form a soluble glucuronide.—G. J. MARTIN, E. H. RENNEBAUM and M. R. THOMPSON. *J. Biol. Chem.*, 139 (1941), 871; through *Abbott Abstract Service*, (1942), No. 1023. (F. J. S.)

Sulfanilamide, Neoprontosil, Sodium Sulfapyridine and Sodium Sulfathiazole—Interstitial Myocarditis in Mice and Rats Produced by. In the mouse and rat an interstitial myocarditis, of which the cellular infiltration is in part eosinophilic, results from the intraperitoneal injection of neoprontosil and other drugs of the sulfanilamide group. This myocarditis is histologically similar to that observed in the hearts of humans dying after the administration of these drugs.—A. JAMES FRENCH. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 1. (A. E. M.)

Sulfanilamide—N^1,N^4-Nicotinyl Derivatives of. The N^4-nicotinylsulfanilamide and the N^1,N^4-dinicotinyl sulfanilamide are described. The melting points of N^1 and N^4-nicotinyl sulfanilamide are the same. The preliminary pharmacologic investigation indicates that the N^4-nicotinylsulfanilamide is effective in the treatment of experimental hemolytic streptococcus infections and also certain types of pneumococcus infections. The toxicity of the N^4-nicotinylsulfanilamide is lower than that of either sulfanilamide or sulfapyridine.—T. C. DANIELS and H. IWAMOTO. *J. Am. Chem. Soc.*, 62 (1940), 741–742. (E. B. S.)

Sulfonamide—Effect of, on the Fetus. Seven cases of gonorrhea in pregnant women and eight cases of pyelitis of pregnancy were studied to discover what damage sulfonamide treatment might have on the fetus. Fourteen of the fifteen infants showed no pathological symptoms that could be contributed to the sulfonamide treatment. While it cannot be stated with certainty whether or not subthreshold organ damage was produced, no evidence of this could be found. It is thought that the fetus excretes the drug as soon as the kidneys are functioning. One intra-uterine fetus death occurred. In

this case the mother had received 112.5 grams of a sulfonamide derivative during the fifth and sixth months of pregnancy because of a very severe form of gonorrheal arthritis. From this study, the author believes that pregnancy does not require discontinuation of sulfonamide treatment, but he recommends limiting the total dose to 80 grams and, if possible, providing rest periods between courses.—E. PHILLIP. *Deut. Med. Wochschr.*, 67 (1941), 372; through *Abbott Abstract Service*, (1941), No. 985. (F. J. S.)

Suprarenal Cortical Hormone—Biological Assay of, by Means of its Effect Upon Potassium Metabolism of Normal Albino Rats. The following summary is given: (1) A method of assay of the adrenal cortical extract on normal male rats has been described. It is a quick test and hence should be of great value for routine assay work. The procedure involves the control of the intake of potassium, in order that the increase in potassium excretion after subcutaneous injection of the extract can be measured. As the log. dose-response graph is a straight line, extracts can be compared by this means. Four rats should be used for each dose, and the error is likely to be reduced by performing a "cross-over test," the potencies then being calculated by Mark's method. For routine use, however, four groups of four rats should be employed, two of these groups being injected with doses of one extract, and the other two with similar doses of the other extract. The potencies can then be calculated, using the formula for the regression line, and the whole assay can be completed in a week and a half. (2) Modifications of the cobaltinitrite method for estimations of potassium have been described, so as to make the method applicable for estimations in urine, serum, foods and other biological material. The method is applicable to materials containing 0.2 to 0.5 mg. of potassium. (3) The use of desoxycorticosterone acetate as a standard is suggested, its effect on the urinary potassium having been found to be graded to the dose, but more experiments must be carried out to prove that the effect is consistent.—G. B. WEST. *Quart. J. Pharm. Pharmacol.*, 14 (1941), 26–39. (S. W. G.)

Surgical Shock—Fluid Administration in. Some methods of replacing fluids in the shocked experimental animal are compared. The temporary beneficial effect of intravenous saline in shock is again shown. Hypertonic saline given intravenously directly stimulates the circulation in shock. The rise in blood pressure is probably prolonged by osmotic absorption of tissue fluids also. Fluids absorbed by the capillary circulation from the intestines or subcutaneous tissues may restore blood pressure permanently in shock. No absorption occurs by capillaries in severe shock. Some evidence is brought to show that hypotonic saline may be absorbed by the tissues in severe shock and produce a sustained rise of blood pressure when the circulation is stimulated by hypertonic saline and an osmotic gradient is maintained. The clinical application of the above principles of fluid administration is proceeding. Up to the present, several cases of severe shock have been successfully treated, and in one instance the blood pressure recovered from the low level of 30 mm. Hg.—R. A. KING. *Brit. Med. J.*, 4162 (1940), 485. (W. H. H.)

Thiamine Excretion—Effect of Diet on. Many animal experiments have shown that fat has a "thiamine-sparing" action and that animals require more thiamine on a high carbohydrate diet than on a high fat regime. In an attempt to determine whether the carbohydrate content of the diet, like the thiamine content, influences the urinary output of thiamine, a study was made of the thiamine excretion of adult individuals on comparable high fat and high carbohydrate diets. The urinary thiamine excretion has been found to be a useful index of thiamine deficiency and it is important that all factors which might possibly influence the thiamine excretion be studied. In all the experiments reported it was found that even greater alterations in the ratio of fat to carbohydrate in diets of the same thiamine content did not significantly affect the urinary thiamine excretion. The bearing of these findings on the validity of tests for thiamine deficiency based on a determination of urinary thiamine excretion is pointed out.—W. M. CAHILL. *J. Nutrition*, 21 (1941), 411; through *Abbott Abstract Service*, (1942), No. 1005. (F. J. S.)

Thymoxyethyldiethylamine—Effect of, on Gastric Secretion in Dogs Treated with Histamine Antagonist. Studies on gastric secretion in dogs with Heidenhain pouches indicated that thymoethyldiethylamine (929F) given subcutaneously does not induce gastric secretion. Following an injection of histamine in animals thus treated, the gastric secretion was markedly increased in volume and acidity over that obtaining when only histamine stimulus was employed. This result shows that 929F does not destroy histamine or antagonize its action as a gastric stimulant.—EARL R. LOEW and ORVILLE CHICKERING. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 65. (A. E. M.)

Trypsin—Effect of, upon Blood Histamine of Rabbits. The intravenous injection of trypsin into rabbits results in a prompt reduction in the total blood histamine with an associated leucopenia. The addition of trypsin to heparinized rabbits blood *in vitro* results in a shift of histamine from cells to plasma. In both respects the effects of trypsin are similar to those produced by antigen in sensitized animals.—CARL A. DRAGSTEDT and M. ROCHA E. SILVA. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 420. (A. E. M.)

Vitamin B Complex Factors—Effect of, on Peristalsis. The most recently identified member of the B complex is inositol. Experiments were performed on dogs maintained on a mildly constipating diet to test the effect of inositol and the other known factors of the vitamin B complex on the motility of the gastrointestinal tract. The results show that inositol is responsible for small bowel motility since it markedly increases the peristalsis of the stomach and the small intestine. Nicotinic acid decreases the peristaltic action of the small intestine. Both influence gastric emptying time. Other members of the B complex available in pure form: thiamine, riboflavin, choline, pyridoxine and pantothenic acid have no apparent action of this type. It is suggested that the balance or ratio of nicotinic acid or similar compounds with inositol is the nutritional factor which apparently determines the hypo- or hypermotility of the gastrointestinal tract.—G. J. MARTIN, M. R. THOMPSON and J. DE CARVAJAL-FORERO. *Am. J. Digestive Diseases Nutrition*, 8 (1941), 290; through *Abbott Abstract Service*, (1941), No. 991. (F. J. S.)

Vitamin B_1—Effect of, on Cardiospasm. Marked analogy between the effect of avitaminosis B_1 on the motility of the bowel and the findings in cases of cardiospasm is pointed out. A degeneration of Auerbach's plexus can be demonstrated in both conditions. The author presented case histories which clearly demonstrated that certain cases of cardiospasm with dilation of the esophagus responded in an almost specific manner to the administration of thiamine. Because of this experience with thiamine the author believes that current theories of the etiology of cardiospasm should be modified. Anorexia, the first symptom of B_1 deficiency, leads to a greater deficiency; with dilatation of the esophagus and loss of the motor stimulus through degeneration of Auerbach's plexus, stasis of food follows as a result of

the loss of propulsive force of the wall rather than by constriction at the cardia. Mega-esophagus may also be caused by chronic B_1 deficiency.—W. D. STINSON. *Ann. Otol., Rhin. Laryng.*, 50 (1941), 898; through *Abbott Abstract Service*, (1942), No. 1009. (F. J. S.)

Vitamin D_2—Parenteral and Peroral Administration of. Following, by the line test in rats in a 10-day test period, the effect of vitamin D_2 administration, a dose-action curve was established for oral administration of a standard calciferol dissolved in olive oil. On administering the oil solution subcutaneously the doses were found about one-fourth as effective by this route as when given perorally. Thus 2.5 units (International Units) corresponded in effect to 0.60 unit given orally; 5.0 units given subcutaneously equalled 1.35 units given orally. Intramuscular administration of the oil solution gave the same activity as subcutaneous administration. Even if the test period was lengthened from 10 to 17 days absorption was not essentially improved. After 17 days the vitamin had not been destroyed in the intramuscular oil depot. Only a little oil had penetrated the tissues (shown by injecting the oil colored with Sudan III). After 10 days the oil deposit in the muscle lay in a cyst. Microscopic studies of the kidneys showed no excretion of the Sudan III. In the 10-day test, 5.0 units given intramuscularly equalled in effect 1.26 oral units, after 17 days they equalled the effect of 1.45 oral units. Intraperitoneal administration of the oil solution of the vitamin did not improve absorption greatly. Here 5.0 units administered intraperitoneally equalled 1.56 oral units. Administering vitamin D_2 in an alcohol-water mixture orally, the effect was the same as after oral administration of the oil solution. Injecting subcutaneously such aqueous alcoholic solutions of the vitamin, the response exceeded the effect of either oil or aqueous alcoholic solutions given by mouth. Given in the aqueous alcohol, 5.0 units given subcutaneously equalled the response of 8.1 oral units. Hence the parenteral absorption of vitamin D depends markedly on the solvent used. Parenteral injection for the purpose of standardization of vitamin D preparations is not of practical importance, for the substances tested are as a rule solutions of the vitamin in oil.—P. F. BECH, *Dansk Tids. Farm.*, 15 (1941), 1. (C. S. L.)

Vitamin E—Influence of, on the Action of Estrogenic Substance. Since vitamin E is the vitamin known to be closely related to the process of reproduction, it was interesting to study what influence it might have on the two most important female sex hormones, estrogen and progestin. During the course of studies on this problem, the author demonstrated that vitamin E is necessary for the action of estrogens in animals. Treating an oöphorectomized woman, he found that in the absence of vitamin E, estradiol and corpus luteum hormone, even in large doses, produced only a moderate proliferation of the endometrium. However, when vitamin E, in the form of alpha-tocopherol, was given in doses of fifteen milligrams daily, the same hormone dosage produced a normal amount of proliferation and an early secretory phase of the endometrium. The deficiency of this vitamin may be the cause of some failures encountered with estrogen therapy and may be responsible for the abnormal development of the female sex hormones.—F. STAHLER. *Klin. Wochschr.*, 20 (1941), 356; through *Abbott Abstract Service*, (1942), No. 1019. (F. J. S.)

Vitamin K Activity of Naphthoquinones. The preparation and vitamin K activity of a number of naphthoquinones is described. None of these compounds surpasses or even approaches 2-methyl-1,4-naphthoquinone in activity.—E. FERNHOLZ, S. ANSBACHER and H. B. MACPHILLAMY. *J. Am. Chem. Soc.*, 62 (1940), 430–432. (E. B. S.)

Vitamin K as a Hypotensor. Both natural and synthetic vitamin K have appreciable hypotensive action. Injections are intragluteal rather than intramuscular or hypodermic. Any hepatic lesion is a contraindication to use. From 4000 to 60,000 units may be given in extreme emergency, dosing on alternate days, twice weekly or twice monthly until maximum dose is reached. Alcohol, smoking, high altitudes and extreme cold are to be avoided. Certain foods which appear to have hypotensive activity may possess vitamin K.—HEITOR LUZ. *Gaz. Farm. (Rio)*, 10 (1941), 24. (G. S. G.)

Vitamin K—Failure to Replenish Store of, Cause of Postoperative Hypoprothrombinemia. The point of view held by most workers has been that the anesthetic agents employed were capable of producing sufficient damage to the liver to account for any fall in prothrombin which might appear during the postoperative period. The authors studied one hundred and six patients who had been subjected to surgical procedures under various types of anesthesia and concluded that inadequate preoperative administration of vitamin K is the most important single factor in the production of postoperative hypoprothrombinemia. It was found that the longer the period of administration of vitamin K and bile salts, the longer the prothrombin could be maintained at normal levels after discontinuing these drugs. The authors believe this is evidence that either prothrombin or vitamin K can be stored within the body, and that hyperprothrombinemia is not the result of the anesthetic agent employed, but of failure of the body to replenish the store of vitamin K.—J. G. ALLEN and H. LIVINGSTON. *Arch. Surg.*, 42 (1941), 522; through *Abbott Abstract Service*, (1941), No. 889. (F. J. S.)

TOXICOLOGY

Actinomycin—Toxicity of. A crystalline substance, actinomycin, was prepared from a strain of *Actinomyces* possessing strong antibacterial properties. It is extremely toxic to all species of animals, death apparently occurring from respiratory failure. Although it is a powerful bacteriostatic and bactericidal agent *in vitro*, it has no protective value against infection in animals.—SELMAN A. WAKSMAN, H. ROBINSON, H. J. METZGER and H. BOYD WOODRUFF. *Proc. Soc. Exptl. Biol. Med.*, 47 (1941), 261. (A. E. M.)

Aniline Poisoning and Acid-Base Equilibrium. A gaseous acidosis was found in acute aniline poisoning and a non-gaseous acidosis in chronic poisoning.—C. SEGLINI and C. TRAVAGLIO. *Pathologica*, 33 (1941), 89–97. (F. S. M.)

Aniline Poisoning—Hematological Changes in. An extensive review of the material on blood changes in aniline poisoning and a brief report of the author's experience on rabbits, showing that the acid-base balance is of little if any importance in this type of poisoning.—C. SEGLINI. *Med. del lavoro*, 32 (1941), 29–39. (F. S. M.)

Arsenic Poisoning—Peripheral Circulatory Disturbances in Chronic. Among 180 cases of chronic arsenic poisoning seen in vineyard workers, there were 15 cases with objective circulatory disturbances in the extremities. Gangrene developed in six. No objective signs were present in 27 other cases beyond sensations of cold in the hands or feet, permanent or temporary, or blanched or cyanotic fingers or toes, especially in winter. It seems conclusive that these circulatory disturbances are a consequence of chronic arsenic poisoning.—K. H. BUTZENGEIGER. *Klin. Wochschr.*, 19 (1940), 523–527. (F. S. M.)

Atabrine—Report of Two Cases of Toxicity to. The following summary is given: (1) Two cases of toxicity to atabrine in a total of 109 cases of ma-

larial fever treated with atabrine are here reported. (2) Initial signs and symptoms appeared in both cases after 0.6 Gm. of atabrine had been given orally over a period of twenty-eight to thirty hours. (3) Toxic manifestations due to atabrine in one case were those of a psychosis with suicidal tendencies. In the second case, paresthesias of the entire body (burning sensations) were evident when tepid water sponges were applied or slight pressure (ice cap) made on the head, with severe gastrointestinal symptoms, manifested by repeated nausea, retching and vomiting. (4) Both cases completely recovered when atabrine was discontinued and quinine instituted. (5) No evidence of ill effects have been noted due to atabrine toxicity after a period of five months. —S. J. LERRO. *Military Surgeon*, 89 (1941), 668. (F. J. S.)

Atabrine—Toxic Reactions Following. New synthetic remedies are often condemned as toxic before their application has been thoroughly studied. Before the U. S. Army accepted atabrine for use a complete report was required. This led to a study of 49,681 fully reported cases of which 7915 were under the supervision of the writer. Prophylactic cases in which the drug was administered over long periods were included. Reported toxic reactions are: severe headache, abdominal pain, gastrointestinal disturbances, mental depression and psychoses. Headaches disappear on cessation of treatment. Abdominal pain was minor but was usually increased by plasmochin. Other gastrointestinal complications are infrequent. Mental depression disappeared on drug withdrawal. Other reported psychotic conditions can usually be attributed to other causes. Persons having malarial infection may have attacks of blackwater fever following the administration of atabrine or quinine. Increasing elimination of atabrine eliminates most of its toxic symptoms.—W. N. BISPHAM. *Am. J. Trop. Med. Paras.*, 21 (1941), 455–459. (W. T. S.)

Benzene and Its Homologues—Some Reflections on the Problem of Poisoning by. Analysis of blood formation in benzene poisoning shows that the balance of destructive and regenerating processes determines the resulting blood picture and the state of the blood forming organs. A review of all the cases of poisoning that have been published in the last ten years shows a large number of serious cases. There are 156 cases with 67 fatalities, besides a large number of slight intoxications. The number of cases in this country is increasing markedly. Toluene and xylene are more widely used today than in earlier years, often mixed with benzene, while formerly the latter was used alone. These homologs have, as industrial poisons, a greater effect on the nervous system than benzene and they may also injure the blood-forming tissues and cause death although very rarely. The blood picture is somewhat different. There are also other substances present in mixed solvents, such as benzine, butyl alcohol and acetate, methyl alcohol, some of which may have an influence on the blood-forming organs, at least under certain conditions. Atypical cases of benzene poisoning may be viewed as caused by a mixture of different toxic solvents and are becoming more frequent.—E. SCHWARZ and L. TELEKY. *J. Ind. Hyg. Toxicol.*, 23 (1941), 1–19. (F. S. M.)

Benzene and Pyramidon—Late Damage to the Leucopoetic Bone Marrow Function by. Blood disorders caused by benzene may occur several days to weeks after cessation of exposure. This reported case showed new exacerbation of the bone marrow one and one-half years after cessation of the exposure. Another case is mentioned in which aplastic anemia developed ten years after exposure stopped. —R. STODTMEISTER. *Deut. Med. Wochschr.*, 67 (1941), 263–265. (F. S. M.)

Benzene Poisoning—Chronic. Three cases of chronic benzene poisoning are described and the hematological pictures of eighteen fellow workers are given. The diagnosis of benzene poisoning can be missed if the occupational history is not investigated and if only one type of blood picture is looked for. The blood may show: either anemia or polycythemia, leucopenia or leucocytosis; a relative decrease or increase of polymorphs and eosinophilia. The commonest findings, however, are leucopenia and anemia. Any menstrual disturbance is suggestive. The ratio of inorganic to organic urinary sulfates is decreased. Urinary sulfate estimation is valuable during, and up to a month after, the period of exposure to benzene. Residual changes in the blood picture may persist indefinitely and may be accompanied by disability.—J. L. HAMILTON-PATERSON. *Lancet*, 240 (1941), 73. (W. H. H.)

9-Bromofluorene—Case of Dermatitis from, and a Peculiar Reaction to the Patch Test. A generalized rash in a chemistry student was traced to contact with 9-bromofluorene. Fluorene, fluorenone and fluorenol, to which the student was also exposed, were found to be innocuous.—ALFRED CAVENDISH. *Brit. J. Dermatol. Syphilol.*, 52 (1940). 155–164. (F. S. M.)

Carbon Monoxide Poisoned Monkeys—Recovery of, under X-Ray Treatment. Since X-rays and strong light have been found to aid recovery from carbon monoxide poisoning in smaller animals, the authors experimented with stronger X-rays on monkeys. In each test two monkeys were kept in an atmosphere containing carbon monoxide, for the same time, then removed and kept under the same conditions except that one was exposed to the X-rays, with its head protected. In 9 experiments with 12.5% carbon monoxide, two test animals died before the X-ray could be applied, but the remaining 7 recovered on treatment with X-rays, while all those not so treated died. In other experiments, the same animal was exposed to sublethal carbon monoxide concentrations twice with an interval of a week or more between the two exposures, one of which was followed by X-ray treatment. In each case the recovery time was reduced by one-half by the treatment.—J. A. CAMERON. *Radiol.*, 36 (1941), 486–487. (F. S. M.)

Carbon tetrachloride—Low Concentrations of, Capable of Causing Mild Narcosis. It is felt that exposure to carbon tetrachloride in the amounts indicated produced both mild narcosis and gastric irritation. It is also felt that the narcosis, as manifested by the feeling of fatigue and the gastric irritation, are symptoms of toxicity due to the exposure to carbon tetrachloride in relatively low concentrations, the average being 79 p. p. m. The examined men were required to live relatively abnormal lives due to their occupation. Mild narcosis is also a liability to the employer as workers so affected are less efficient and liable to accidental injury. The authors believe the present permissible concentration of 100 p. p. m. too high.—H. HEIMANN and C. B. FORD. *N. Y. State Dept. of Labor Ind. Bull.*, 20 (1941), 209–210, 226. (F. S. M.)

Copper Poisoning—Observations on. The copper content of the fresh tissues of normal adult rabbits and sheep lies between about 0.1 and 0.5 mg. %, except that it is often much larger in sheep's liver. In acute copper poisoning the principal increase in copper content of tissues is mostly in the liver and kidneys. Chronic intoxication was induced in sheep by daily quantities of 1.5 mg. copper sulfate either in the form of a drench or damped onto a palatable mixture of concentrates, the condition developing in 30 to 80 days. Clinical symptoms included dullness, depression and anorexia, and post mortem examination generally showed icterus, cirrhotic liver and

swollen and congested kidneys. The blood copper rose slowly to twice the initial value, followed a day or two before death with a sharp rise to about 10 times the normal value. There were no significant changes in blood sugar, inorganic phosphorus and calcium values, and only a slight rise in serum magnesium content at the terminal phase. Hemoglobin values fluctuated considerably. The copper content of the liver and, to a lesser extent, of the kidneys was very considerably increased but relatively little change occurred in the remaining soft tissues examined. It is emphasized that liver analysis alone is invalid for diagnosis of copper intoxication, either acute or chronic.—A. EDEN. *J. Comp. Path. and Therap.*, 53 (1940), 90–111. (F. S. M.)

Digitalis—Generalized Muscular Weakness as a Toxic Reaction to. A case history illustrating generalized muscular weakness as a toxic effect of digitalis is presented. Four dogs given daily injections of a cardiac glucoside developed generalized muscular weakness. Four days after discontinuance of the drug, the animals were able to exercise without fatigue. With the present trend toward increased digitalis dosage, it is possible that this syndrome may be encountered by other investigators.—JOHN S. LA DUE. *Proc. Soc. Exptl. Biol. Med.*, 48 (1941), 5. (A. E. M.)

Ethylene Dichloride Poisoning. Report of two cases of chronic poisoning with ethylene dichloride. All previously reported were of acute poisoning, either from ingestion or a four-hour exposure. These individuals had been exposed to the vapors of ethylene dichloride for two- and five-month periods. They showed signs and symptoms of anorexia, nausea, vomiting, epigastric distress, drowsiness, tremors, nervousness and nystagmus.—W. D. MCNALLY and C. FOSTNEDT. *Ind. Medicine*, 10 (1941), 373–374. (F. S. M.)

Hydrogen Cyanide—Automatic Signal for Dangerous Concentrations of, in the Air. Decoloration of iodine solution with hydrogen cyanide causes a photoelectric colorimeter to operate a sound signal. The air containing hydrogen cyanide passes first through a tube containing calcium carbonate which absorbs ammonia and sulfur dioxide. At 5 gamma of hydrogen cyanide per liter in the air the sound signal started after 4 or 5 minutes.—V. P. VENDT. *J. Applied Chem. (U. S. S. R.)*, 13 (1940), 1535–1538. (F. S. M.)

Hyperparathyroidism—Acute Fatal. A woman aged 44, with chronic hyperparathyroidism and osteitis fibrosa, died in the second of two crises of acute hyperparathyroidism, with acute necrosis and calcinosis in kidneys and pancreas.—F. B. SMITH and R. T. COOKE. *Lancet*, 239 (1941), 650. (W. H. H.)

Iroko—Toxic Effects of. Iroko is an African wood which produces intense irritation of exposed areas when the dust of this timber comes in contact with the skin. In some cases there is marked edema of the face with occular irritation. The irritation is accompanied by severe itching which subsides very slowly, taking four or five weeks to disappear. The same symptoms will reappear after an attack upon further contact with the material. Iroko is a vernacular name and also the British Standard trade name for the wood of *Chlorophora excelsa* Benth. and Hook. f., a tree of East and West Tropical Africa. It has been marketed as African teak or Iroko teak, but this designation is incorrect and misleading since the timber is not botanically related to true teak (*Tectona grandis*). It is one of the most widly used utility timbers in Africa and considerable quantities have been exported in recent years to Europe where it is used as a substitute for teak. The timber is resistant to decay and presumably contains some principle, probably an essential oil, which is toxic to microörganisms. A French investigator (Marmasse 1931) has found the acetone solubility to be 4.46%, and he describes the extractive as being of a resinous nature, soluble in alcohol, slightly soluble in ether and insoluble in water and benzene. —J. M. DAVIDSON. *Lancet*, 240 (1941), 38. (W. H. H.)

Lead Arsenate—Study of the Relative Toxicity of the Molecular Components of. An investigation to determine whether the toxicity of lead arsenate was due to the lead radical, to the arsenate or to both. The decreasing order of toxicity of the compounds studied was found to be calcium arsenate, lead arsenate and lead carbonate. Lead compounds seem to damage the kidneys while blood destruction was greatest with the calcium and lead arsenates. Using bone deposits as the index, it appears that the arsenate radical either decreases absorption or increases lead excretion.—L. T. FAIRHALL and J. W. MILLER. *Pub. Health Reports*, 56 (1941), 1610–1625. (F. S. M.)

Lead Poisoning—Effect of Therapeutic Agents in the Treatment of. Lead determinations were made on the whole blood, serum and cells and fibrin of a number of healthy persons, patients with disorders other than plumbism and patients with latent plumbism. In non-leaded persons, there was no lead in the serum, a maximum of 0.013 mg. per 10 Gm. in the cells and fibrin, and of 0.006 mg. per 10 Gm. in the whole blood. The 92 cases of latent plumbism always showed 0.001 to 0.004 mg. of lead per 10 Gm. of serum, but in 43 of the 92 cases the whole blood and cell and fibrin contents were within the normal range, and symptoms of lead poisoning were absent but could be produced by acid therapy. These results are in sharp contrast to those reported recently, in which it was claimed that abnormal quantities of lead could be present in the blood without indicating lead poisoning. Therapeutic measures are of two distinct classes according to the result desired, elimination or storage. The choice must be made for each case. Where the elimination of lead is massive, inactivation by storage or tissue absorption is indicated. The treatment involves no hospitalization, but the possibility of development into an active case always remains. In chronic lead poisoning, controlled deleading should be used during an inactive phase without allowing the occurrence of acute lead intoxication. Lists of therapeutic agents for producing elimination and storage are given, and clinical reports on the effects of most of the agents are presented in some detail. For elimination, phosphoric acid appears to be most successful. Results with magnesium sulfate were adverse and it should never be used in lead poisoning cases. Vitamin B had no effect. Storage is most successfully accomplished by administration of ascorbic acid. The procedure adopted by the author is indicated by the experimental results which include (1) deleading with acid; (2) stopping too rapid a liberation of lead with ascorbic acid, ferrous ascorbate or calcium gluconate and vitamin D; (3) resting the patient on ascorbic acid therapy; (4) repeating the process until a normal blood lead picture is obtained which does not change on (5) the administration of phosphoric or hydrochloric acids. —F. L. SMITH II. *Penna. Dept. Labor Industry, Safe Practice Bull.*, No. 52 (June 1941), III, 13 pp. (F. S. M.)

Mercurialism—Risk of, in Laboratories and Workshops. Three stages of mercury poisoning following prolonged inhalation of small amounts of mercury from free surfaces of metallic mercury used in apparatus in laboratories and workshops or from spilled droplets. Various preventive devices and iodated carbon as absorbent filter are recommended to eliminate the danger.—T. ZIENER. *Chemia (Buenos Aires)*, 11 (1940), 208. (F. S. M.)

Methyl Chloride Poisoning—Porphyrinuria in a Case of Industrial. The occurrence of large amounts of porphyrins in excreta of a case of industrial methyl chloride poisoning is described. The effects of methyl chloride poisoning appear to resemble those produced by certain nitro and amino compounds, as well as drugs of the sulfanilamide group which probably act on the liver, interfering with normal breakdown of hemoglobin.—J. N. M. CHALMERS, A. E. GILLAM and J. E. KENCH. *Lancet*, 239 (1940), 806. (W. H. H.)

Occupational Skin Troubles—How Liquids and Creams Prevent. The rise of social legislation which makes occupational skin diseases compensable has stimulated a keen interest in their prevention, including the development of mechano-chemical preventive liquids and creams. Several such preparations are now available and have a proved background of successful use. Naturally there is no specific protective cream, paste or liquid that is equally efficacious in all types of hazards. The problem has resolved itself into a somewhat tailor-made preparation for each class of hazards. Often within a special field individual formulas with wide variations must be created, tested and proved in use. They must not be regarded as cures; their function is purely non-medical protection, and their use is only part of the preventive program.—J. STIFTER. *Occup. Hazards*, 3 (July 1941), 10–13, 25. (F. S. M.)

Picrotoxin in Acute Barbiturate Poisoning. The clinical employment of picrotoxin in the treatment of 120 cases of barbiturate poisoning is here reported. Of these cases, 100 recovered in the course of treatment with picrotoxin, while 20 died from various causes. Of the twenty fatalities, six died acutely (one from right-side heart failure; three from undetermined causes; and two from depression), and fourteen died from complications, chiefly pulmonary. The efficacy of picrotoxin has been generally attested by all those who have had experience with its use in severe barbiturate poisoning.—A. H. MALONEY. *Clin. Med.*, 48 (1941), 34. (W. H. H.)

Pulmonary Embolism—Shelter Deaths From. In autopsies done on cases of sudden death reported to the coroner in various London districts the number of cases of pulmonary embolism rose from 4 in September and October 1939, to 24 in the same two months of 1940. In 21 of this year's cases death took place while the patient was in an air raid shelter or had just left one and the embolism is attributed to an elderly and obese person sitting for long periods in a chair whose edge compresses the veins in the legs. This danger emphasizes the urgent need for bunks in shelters.—K. SIMPSON. *Lancet*, 239 (1940), 744. (W. H. H.)

Santonin Poisoning. The elimination of santonin from the body takes place slowly, and it acts as a cumulative poison. Poisoning may therefore occur not only as the result of wrong dosage but also if santonin has been administered for too long a period. The question of idiosyncracy has also been considered. The case considered suffered from neurosis associated with dyspepsia and may have taken santonin without advice from his doctor, believing he had worms. The authors were not able to obtain any history of yellow vision.—H. A. COOKSON and C. J. H. STOCK. *Lancet*, 239 (1940), 745. (W. H. H.)

Silica and Iron Oxide and Lung Tumors. Dusting with precipitated silica or with brown oxide of iron trebles the incidence of primary lung tumors in mice living 10 months or longer. There is a definite increase in malignancy with iron oxide. The amount of silica used did not cause formation of fibrotic nodules in the lung tissue of the mice, and it is suggested that the fully formed fibrotic nodule of silicosis inhibits malignancy. The tracheo-bronchial lymph nodes of the mice exhibited some degree of fibrotic nodule formation due to silica. The dusting also caused an increase in the number of mice showing hypertrophy of the lymph tissue in the lungs and in the tracheo-bronchial lymph nodes. The connective tissue surrounding these nodes was also increased, as was the incidence of bronchopneumonia. The above results with silica and iron give experimental support to the statistical evidence that there is a relatively high incidence of carcinoma of the lung in metal-grinders, engineers and foundry-workers. Preliminary experiments with a "nickel" dust have also been concluded. It is pointed out that previous negative results in animal experiments with silica and other dusts are probably due to the fact that the animals were not permitted to live to the age for production of lung tumors or the animals employed were not sensitive to the development of lung tumors. Animal experiment has not yet established the cause of lung cancer in the Schneeberg and Joachimsthal miners.—J. A. CAMPBELL. *Brit. Med. J.*, 4156 (1940), 275. (W. H. H.)

Sulfapyridine Sodium—Toxic Effects of Overdose with. Although considerable study of the acute toxicity of sodium sulfapyridine in animals has been made, little evidence concerning the effects of comparable dosage in human beings is available. Some information of this type was obtained through an error in the administration of the drug. In the case reported, a patient suffering from postoperative penumonia received, through error, 30 Gm. of sodium sulfapyridine intravenously during a ten-hour period. This was five times the intended dose. Convulsions, muscular twiching and anuria were not observed, but marked restlessness and irritability, gross hematuria and jaundice were strikingly evident. Sedatives and large amounts of fluid were given promptly. The authors point out that no leucopenia, significant fall in the numbers of granulocytes or drop in hemoglobin occurred. Investigators have observed that the administration of 0.5 Gm. of sodium sulfapyridine per Kg. of body weight in dogs resulted in marked vomiting and severe convulsions.—F. B. CUTTS and R. O. BOWMAN. *New Engl. J. Med.*, 225 (1941), 448; through *Abbott Abstract Service*, (1942), No. 1014. (F. J. S.)

"Surgical Glove" Dermatitis. Three cases of skin disease were traced to rubber gloves. Positive results were given by tests with the gloves, but the reactions were delayed for from 48–72 hours. The author considers the dermatitis to be different from that reported here previously, in which depigmentation was seen. When latex gloves were substituted, no more trouble occurred.—J. F. BURGESS. *Can. Med. Assoc. J.*, 45 (1941), 222–223. (F. S. M.)

War Gases and Other Toxic Substances. I. The importance of the following factors in war gases and related materials is reported: stability, density, volatility, heat of vaporization, melting point, ease of atomization, solubility, action on metals, odor, color and toxicity. A list of some gases is given, classified as asphyxiants, vesicants, respiratory irritants, lachrymators and general poisons. The specific use, physical and chemical properties, preparation and physiological action of eleven of the most common war gases are discussed. **II.** The physical and chemical properties and physiological action of some additional war gases are discussed. Preparation of papers and solutions used for the detection of poison gases is discussed and formulas are given. A chart is included which gives the name, formula, physical properties, action, detection and disinfection for each of the gases included in the paper.—LOUIS DISERENS. *Teintex.*, 5 (1940), 2–9, 45–54. (F. S. M.)

THERAPEUTICS

Actinomycosis of the Central Nervous System. Two cases of actinomycosis of the cervico-facial type with spread to the central nervous system are described. Spread had apparently been by direct extension, and in one case there was evidence of direct spread through the bone. If such cases could be recognized early chemotherapy would be worthy of trail.—N. L. ECKHOFF. *Lancet*, 240 (1941), 7. (W. H. H.)

Alcohol Injection for Migrainous Neuralgia. A violent type of migraine, which the author calls migrainous neuralgia, is distinguished from migraine by the absence of premonitory symptoms and the rarity of subsequent nausea or vomiting, and from trigeminal neuralgia by the absence of trigger zones and the longer duration of attacks. Five cases are described which illustrate the characteristic symptoms and treatments the author has employed since 1911—first, local alcohol piqure and infraorbital or supraorbital alcohol injection, giving relief for several months, and later alcohol injection of the gasserian ganglion, giving more lasting and probably permanent cure. Out of 29 cases 19 were completely relieved and 5 others much improved.—W. HARRIS. *Lancet*, 239 (1940), 481. (W. H. H.)

Aloe vera Leaf in the Treatment of Third Degree X-Ray Reactions—Further Observations on the Use of. Various species of *Aloe* have been used for centuries to promote healing of wounds and burns. *Aloe vera* leaf has been used in recent times for third degree X-ray reactions. Experimental work of this sort on white rats has been reported. In the present work rats were given single doses instead of divided ones; ether was used for anesthesia in place of pentobarbital; control areas received no treatment; duration of treatment was from two to four weeks. Treatments were with fresh pulp, with fresh rind, with aqueous extracts of dried rind, with partially decomposed pulp, with an ointment of dried aloe, with scarlet red ointment and with urea ointment. It was found that treatment with pulp of leaf definitely increases rate of healing of experimentally produced reactions. The pulp does not have to be fresh to be effective. All reactions treated were acute and not of chronic type which sometimes appear on human subjects months after original irradiation. One source of error noted was that anterior areas of the rats were more resistant to irradiation than posterior.—THOS. D. ROWE, B. L. LOVELL and LLOYD M. PARKS. *Jour. A. Ph. A.*, 30 (1941), 266. (Z. M. C.)

Atebrine—Tests with, in Leishmaniosis. Tartar emetic was formerly the only treatment for leishmaniosis. Administered intravenously it often produced serious secondary effects such as phlebitis and vomiting. Various of the new chemical therapies have been tried intramuscularly and subcutaneously. Atebrine applied locally by infiltration to the ulcers for seven days has produced cicatrization in 15 days. It has also been used in leishmaniosis of the buccal mucosa.—MAZZA. *Prensa Medica Argentina*, 34 (1940); through *Arq. Biol., Sao Paulo*, 25 (1941), 302. (G. S. G.)

Benzyl Benzoate Treatment of Scabies. The lotion consists of benzyl benzoate, industrial spirit and soft soap in equal parts. The method of application is clearly described. It will be seen that the explained mode of treatment presents many advantages over others in general use at the present time. The patient is ambulant throughout, and is subjected to a minimum of inconvenience and discomfort no matter how severe the infection. The sarcopticidal action of benzyl benzoate is immediate and reliable, and no post-therapeutic irritation of the skin results. Pyodermatitis due to infected scabies can be thoroughly treated and rapidly cured. The whole treatment is completed in thirty minutes, at the small cost of fourpence per head. In the small series of cases described this mode of treatment has proved to be entirely satisfactory and far in advance of the methods the author has previously used. The author has no hesitation in recommending it as safe, reliable and rapid.—R. E. KING. *Brit. Med. J.*, 4166 (1940), 626. (W. H. H.)

Bismuth Compounds—Treatment of Tonsillitis by Injection of. Any treatment that suggests the possibility of alleviating the discomfort of acute tonsillitis is worthy of consideration, because of the common occurrence of this disease. Seven years ago the authors of the present paper advocated a new treatment for tonsillitis in the form of bismuth injections. From their experience with the use of bismuth in acute tonsillitis they recommended it as a useful treatment and claim that following the injection of bismuth, the pain promptly subsides; the course of the disease is said to be shortened to one or two days as compared to the usual course of six or eight days; streptococcal infections are said to respond much better than staphylococcal infections. The dosage in the cases treated by the authors was graded according to the age of the patient and to the solubility of the bismuth preparation. For a young infant the authors used one to five mg. of a soluble bismuth preparation during a 24-hour period.—A. MONTEIRO and E. SILCOX. *Arch. Otol.*, 34 (1941), 719; through *Abbott Abstract Service*, (1942), No. 1011. (F. J. S.)

Bronzed Diabetes in a Woman. Hemochromatosis or bronzed diabetes is an uncommon disease in men but is extremely rare in women. There is no established explanation of the sex distribution in hemochromatosis, so preponderantly male. From a familial study the author suggested that it might be a sex-linked hereditary disease, transmitted like hemophilia, but there has been no further proof or disproof of this. The case sighted is the oldest female case of hemochromatosis so far recorded.—R. D. LAWRENCE. *Lancet*, 239 (1940), 489. (W. H. H.)

Cadmium Sulfide—Report on the Use of, in the Treatment of Pulmonary Tuberculosis. Previously, cadmium, because of its high weight and low cost, has been used in place of gold for treating this disease. The present report deals with 80 unselected cases. Freshly precipitated CdS was suspended in oil and injected in 0.01-Gm. doses weekly or twice a week. No reactions were evidenced nor did cumulative effect develop. While difficult to judge results, the cadmium treatment gave a higher percentage of totally arrested and considerably improved cases than did gold therapy. Long periods, however, are required to inject enough CdS to cure lesions. Possibly the dose could be increased with advantage.—K. S. RAY, N. N. SEN and H. N. DAS GUPTA. *Indian Med. Gaz.*, 76 (1941), 203–205. (W. T. S.)

Cassia Fistula in the Treatment of Black Water Fever. Black water fever is an acute, febrile, tropical disease of unknown causation, characterized by destruction of r. b. c. Since a fluidextract of the bark of *Cassia beareana* relieves the symptoms, a 60% ethanol extract of the indigenous *C. fistula* (*Leguminosæ*) was made and tried in the disease. Of 33 cases, 4 could not retain drug, 1 died, 26 were cured and 2 did not receive complete treatment. No serious untoward effects were observed. The drug was also extracted with ligroin, ether, absolute alcohol and 90% alcohol and the extract described in each instance. The bark gave 11.4% ash containing iron, calcium, carbonate and silica.—K. VENKATACHALAM and A. N. RATNAGIRISWARAN. *Indian Med. Gaz.*, 76 (1941), 211–212. (W. T. S.)

Chemotherapy in Relation to Dyestuffs and Their Intermediates. A lecture.—W. F. SHORT. *Chemistry and Industry*, 60 (1941), 233. (E. G. V.)

Chemotherapy—Landmarks in. A lecture, tracing the research for synthetic compounds with curative action.—C. H. BROWNING. *Chemistry and Industry*, 60 (1941), 232–233. (E. G. V.)

Chemotherapy of Cerebrospinal Fever. Of 102 cases of cerebrospinal fever in patients under sixteen years of age treated with sulfamides the case-fatality was 12.7%; in 54 under three years the rate was 14.8%, and in 21 under one year it was 19%. Sulfanilamide alone was given to 94 patients, the average daily dosage varying from 2.5 Gm. in infancy to 7 Gm. in older children and the usual period of treatment being ten days. Adequate initial dosage was considered to be of paramount importance. In 3 cases, M. & B. 693 was given alone, and in five cases combined with sulfanilamide. Two cases received serum intrathecally and intramuscularly. Fluids were administered liberally, if necessary parenterally, and an iron mixture was given during convalescence. Complications of sulfanilamide therapy were cyanosis, morbilliform eruptions and sometimes severe anemia.—M. WILLIAMS. *Lancet*, 239 (1940), 642. (W. H. H.)

Clorarsen—Use of, in the Treatment of Syphilis. Clorarsen is 3-amino-4-hydroxyphenyl-dichlorasine hydrochloride, buffered with sodium citrate. The LD_{50} for mice for intraperitoneal injection was 45 mg. per Kg. The compound was studied on 171 patients suffering from syphilis. The authors conclude that clorarsen is a safe and effective drug.—RALPH R. TOMPSETT, WILBUR G. DOWNS, WALSH MCDERMOTT and BRUCE WEBSTER. *J. Pharmacol.*, 73 (1941), 412–419. (H. B. H.)

Colloidal Manganese—Treatment of Arthropathic Psoriasis by. Arthropathies and psoriasis are often closely associated and such a case of psoriasic rheumatism is not doubted. Nine observations were made. Of the therapeutics employed, colloidal manganese was the most active and was particularly efficacious in psoriasis florides.—H. ATTIEL. *These de Montpellier*; through *Presse méd.*, 71–72 (1940), 752. (W. H. H.)

Cryptorchidism—Treatment of. True cryptorchidism, failure of testicles to descend, is differentiated from pseudo-cryptorchidism, which may be a type of hernia, or merely delayed descent. Intervention is necessary after the seventh year and imperative before puberty. Surgical treatment should be instituted in cases of hernia or of malignant degeneration. Delayed descent should be treated by hormone therapy. Anterior pituitary, the gonadotropic hormone and testosterone propionate are usually effective. Occasionally a combination of surgery and hormone therapy is indicated.—ROBERTO A. RUBI. *Rev. Med. Cienc. Afin.*, 2 (1940), 914. (G. S. G.)

Desoxycorticosterone—Subcutaneous Implantation of. The author reports two cases of Addison's disease treated efficaciously with synthetic corticosuprarenal hormone. He found that desoxycorticosterone acetate activity is more rapid and more complete than that of total extracts. Excellent results were obtained with oil solutions of 2 mg. per day or two 100-mg. compresses implanted subcutaneously. He has found the implantations to be steadily absorbed and superior to oil injections both regarding the patient's comfort and desirability of action.—P. P. LAMBERT. *Bull. acad. roy. méd. Belg.*, 5 (1940), 136; through *Presse méd.*, 62–63 (1940), 75. (W. H. H.)

Diarrhea—Treatment of. Intestinal inflammations are causes of diarrhea. There are several forms: Gastroenterocolitic type may be treated first by purgatives such as castor oil or magnesium sulfate, followed by tannin, lemon juice or small doses of wine or brandy. If the specific organism is identified vaccination is occasionally effective. Enteritis affecting the intestine may respond to similar treatment. Colitis may respond to suprarenin first, then soothing substances such as gum arabic, and later small amounts of wine. Bacillary dysentery should receive an antidysenteric serum. Amebic dysentery responds to emetine and arsenicals. Antispasmodics are useful preliminaries in all types of diarrhea. Food should be witheld at first, then rice, farina and other mucilaginous substances may be given and much later, fruits.—VASCO FERROZ COSTA. *Arq. Biol., Sao Paulo*, 25 (1941), 1, 36. (G. S. C.)

Diphenylhydantoin—Treatment of Epilepsy by. 5,5-Diphenylhydantoin has proved efficacious in the treatment (symptomatic) of epilepsy, producing better results than barbiturates, bromides or a ketogenic diet. It reduces the frequency and intensity of attacks. Its action is psychomotor rather than hypnotic, but it has no effect on congenital mental degeneration of epilepsy. Used with luminal it has beneficient results and may gradually obviate the need of the hypnotic. Dosage ranges from 0.2 to 0.6 Gm. per day; 0.3 Gm. in three divided doses is practicable in most cases for adults. Relatively smaller doses are recommended for children. Since it is toxic, it should be used only on prescription of a physician. Toxic effects are ataxia, anorexia, tremor, digestive disturbances and various dermatoses. Suspension of, or diminution of, doses is advisable in such cases.—QUINTINO MINGOJA. *Arquivos inst. biol.*, 24 (Nov. 1940); through *Trib. farm., Parana*, 8 (1940), 263. (G. S. G.)

Drug Prophylaxis and Treatment of Malaria—Recent Researches on. This review of twenty-five papers on the chemotherapy of malaria, appearing between Sept. 1939 and Sept. 1940, constitutes a report to the Sub-Committee on Medical Research of the National Malaria Committee. Representative reports have been chosen from various parts of the world including studies made in the Americas, Asia, Europe and Africa. Only readily available and fairly inexpensive drugs, as quinine, atabrine, plasmochin, quinacrine, acriquine, premaline, prontosil, cilional and proseptasine, are discussed in connection with the problem. Quinine, atabrine and plasmochin continue as the choices for malaria control. The reviewer mentions the number of cases treated or subjects protected, the species of parasite encountered, the dosage employed and the percentage of failures.—HERBERT C. CLARK. *Southern Med. J.*, 34 (1941), 703–708. (W. T. S.)

Drugs Applied in the Treatment of Inflamed and Infected Eyes. Prescriptions of the various drugs employed are given.—ERICH HERMANN. *Deut. Apoth. Ztg.*, 55 (1940), 265–268; through *Chem. Abstr.*, 35 (1941), 4548. (H. M. B.)

Estrin—Therapeutic Compositions Containing, and Suitable for Injection. A homogeneous liquid mixture is formed comprising a difficultly soluble hormone such as estrin together with 3,4-dimethoxybenzyl alcohol and water.—WILHELM WENNER, assignor to HOFFMANN-LAROCHE, INC. U. S. pat. 2,244,277, June 3, 1941. (A. P.-C.)

Estrogens—Effects of, on Lactation. Besides their well-known inhibitory action on lactation, estrogens are capable, under suitable conditions, of a galactopoietic effect which chiefly manifests itself as an increase in the concentration of both fatty and non-fatty solids in the milk (enrichment effect). The threshold for the enrichment effect is lower than for inhibition; in general, small doses cause enrichment while large doses elicit inhibition. The two effects seem to be more readily separable with

natural estrogens than with diethylstilbestrol. The induction of copious and prolonged lactation in virgin goats by inunction of the udder with estrogenic ointment is explicable in the light of this conception. It is concluded that estrogenic hormones and certain other substances possess the power of stimulating not only mammary development but also lactation when administered in small doses, and of inhibiting both in large doses.—S. J. FOLLEY. *Lancet*, 240 (1941), 40. (W. H. H.)

Gold for Rheumatoid Arthritis. A series of ninety typical cases of rheumatoid arthritis were divided into three equal groups. One group was used as a control, while the other two were treated with large and small doses of gold, respectively. Pain, limitation of movement, periarticular swelling, blood sedimentation rate, and radiographic signs have been studied in each group. From the data obtained from these three groups at the end of nine months' treatment statistical evidence of the value of aurothioglucose (solganal B) in the treatment of rheumatoid arthritis is produced. Suggestions are brought forward as to a method of reducing the frequency of toxic effects resulting from the gold compound.—P. ELLMAN, J. S. LAWRENCE and G. P. THOROLD. *Brit. Med. J.*, 4157 (1940), 314. (W. H. H.)

Gonorrhea Treatment—Recent Advances in. Our experience is that the sulfonamides are very successful when and where the gonococcus is accessible (that is, extracellular), but they are not so successful when it is intracellular—as, for example, in chronic female gonorrhea. As quite a proportion of gonococci are intracellular it is obvious that in men irrigation, with its aspirating effect on the infected urethral glands, cannot be discarded.—D. J. MACKINNON. *Brit. Med. J.*, 4161 (1940), 448. (W. H. H.)

Heparin in Subacute Bacterial Endocarditis. Heparin proved to be a powerful anticoagulant. It exhibited its action in a concentration of 350 mg. per liter, whereas a concentration of 250 mg. per liter remained without effect. The combined treatment with heparin and sulfapyridine was only of very transient value. This does not, however, disprove the theoretical value of its application, considering the few occasions it has been used.—G. C. DOCKERAY and E. KAWERAU. *Brit. Med. J.*, 4168 (1940), 703. (W. H. H.)

Histamine Diphosphate—Treatment of Meniere's Syndrome with. During experiments with histamine diphosphate given intravenously in dilute solution by the drip method, it was found that one patient with severe Meniere's disease was completely relieved after receiving 1.9 mg. in 250 cc. of normal saline. This patient had previously been confined to bed for three weeks with a severe attack of the disease. Accordingly, histamine diphosphate was administered to a series of other patients demonstrating the same syndrome. Up to July 1940, 49 cases had been treated at the Mayo Clinic in this manner, and all experienced some degree of relief from the vertigo, nausea and vomiting. After the acute attack has been terminated, the author feels that further attacks can be prevented in many instances by treatments consisting of 0.1 to 0.2 mg. of histamine diphosphate 2 to 4 times weekly. Histamine being a powerful drug, special precautions and methods are necessary in giving it.—B. T. HORTON. *Surgery, Gynecology and Obstetrics*, 72 (1941); through *Abbott Abstract Service*, (1941), No. 958. (F. J. S.)

Hormones and Their Application to Pharmacy. This is a comprehensive report of a conference on hormones, their history and their development, their chemistry and their synthesis, the preparation of natural products and their therapeutic functions. There are occasional difficulties in distinguishing true hormone effect on the metabolism from other regulatory principles elaborated by the body. Among such might be mentioned adenylic acid and acetylcholine. Hormones from the gonads may have a wider influence on the metabolism than the obvious one of reproduction.—O. FIGUEIRAS. *Rev. quím. farm.*, 5 (1940), 63. (G. S. G.)

Insulin for Pulmonary Tuberculosis. The relation between variation in body weight and progress in cases of pulmonary tuberculosis is discussed. The technique of administering insulin with a high carbohydrate diet is fully described. Analysis of the results of this regime is found to compare favorably with controls regarding (*a*) increase of body weight and (*b*) improvement in the sedimentin index.—G. DAY. *Brit. Med. J.*, 4159 (1940), 376. (W. H. H.)

Insulin—Intravenous, in the Treatment of Schizophrenia. To induce coma the same amount of insulin is required by the intravenous as by the intramuscular route. Coma is produced more quickly by giving insulin intravenously than intramuscularly. One patient who was coma resistant to intravenous insulin, even when 600 units were given at one time remained resistant. The possibility of economizing in insulin and glucose in carrying out insulin treatment of schizophrenia is discussed.—M. JONES. *Lancet*, 239 (1940), 361. (W. H. H.)

Insulin Treatment of Schizophrenia in Wartime. A method of carrying out the insulin treatment of schizophrenia has been described which does not necessitate the use of large quantities of sugar. The substitution of intravenous for the ordinary intramuscular method in general use has been shown to effect an average saving of 46.6% of insulin.—J. S. MCGREGOR and R. A. SANDISON. *Brit. Med. J.*, 4157 (1940), 310. (W. H. H.)

Iodine Compounds—Therapeutic. An iodo protein product is formed by treating iodine in an acid and iodine solvent with an alkali caseinate or the like.—CHARLES W. SCHAFFER and REINHARD BEUTNER. U. S. pat. 2,245,610, June 17, 1941. (A. P.-C.)

Iron Salts in Treatment of Rhus Dermatitis—Tattoo Type Blemishes Following Use of. White first used iron salts in this connection in 1873, and McNair in 1917 found a rational explanation of the apparently good effect of iron salts in the treatment and prevention of poison ivy dermatitis. Pusy, however, in 1930 was the first to record a case of brown stains in the skin from wet dressings of a solution of ferrous sulfate—the stains remaining on the patient's skin for years. It is stated also that the use of iron salts has been popularized for the layman in other than academic medical publications, *i. e.*, in *Hygeia*, 1932. In *Supplement 161, United States Public Health Reports*, 1940, the use of iron salts was also recommended, but it also stated that several cases of persistent discoloration had been reported. Weiss, *et al*, report and discuss in this paper a case of disfiguring pigmentation of the skin following the use of a solution of ferrous sulfate in the treatment of *dermatitis venenata* due to *Rhus toxicodendron*. Iron and copper were deposited in the upper portion of the cutis, chiefly in chromatophores. This was proved by histochemical, spectrographic and micro-incineration methods. The writers point out that, as in one other case recorded in the literature, lead acetate had not been mentioned, and it is suggested that such pigmentation may occur without the use of lead acetate. Weiss, *et al.*, call attention to the importance and significance of spectrographic and micro-incineration methods of investigation in cases of metallic pigmentation. They stress that the salts of iron should

not be used in the treatment of *dermatitis venenata* in view of the facts that the disease is self-limited, that relief may be obtained by other means and that the use of iron salts may be followed by very disfiguring and more or less permanent pigmentation of the skin. Several references are given, and four figures illustrate tattoo type of blemishes, etc., in the case reported.—R. S. WEISS, A. H. CONRAD and A. H. CONRAD, JR. *Arch. Dermatol. Syphilol.*, xliii, No. 4, April 1941; through *J. Trop. Med. Hyg.*, 44 (1941), 92. (W. T. S.)

Magnesium Bromide and Iodide in the Treatment of Arterial Hypertension. The authors report the results obtained by them using the combination of magnesium bromide and iodide in cases of hypertension and they found by graphical observation that the magnesium treatment slightly increased the pressure at first but stabilized it in an appreciable manner. The authors insist upon this stabilization with magnesium salts to slightly affect the tonicity, with the possibility of continuing the treatment for a long time with these salts—magnesium bromide and iodide—without having fear of intolerance accidents or general trouble from magnesium iodide which is seen in cases such as sclerosis and renal conditions when potassium iodide is employed.—F. RAMOND and GUISERNE. *Soc. Med. des Hopitaux*, Oct. 11, 1940; through *Presse méd.*, 80–81 (1940), 832. (W. H. H.)

Magnesium Sulfate with Ephedrine—Therapeutic Application of. This is a discussion with case histories of the clinical use of magnesium sulfate with ephedrine in cases of asthma, serum reactions and various pruritic dermatoses, in both adults and children. Magnesium sulfate acts as an antispasmodic, sedative, desensitizing agent, hypnotic and antiemetic. It is particularly useful parenterally in the spasmodic coughs of infancy. Ephedrine as an antiallergic and bronchodilator was added in cases affecting the respiratory mechanism. It was used principally in adults with chronic asthma. The combined therapy was applied to the various dermatoses either intramuscularly or intravenously. Some of these cases were adrenaline-resistant, but responded promptly to ephedrine. However nephritis, cystitis and meningitis are contraindications. Simultaneous use of calcium salts diminishes the effectiveness of magnesium on the respiratory tract. The dosage recommended is: ephedrine hydrochloride 5 cg., magnesium sulfate 1.25 Gm., made up to 5 cc. with distilled water, and add 2 cg. *p*-aminobenzoyldiethyl-amino-ethanol, for adults. For children: to 3 cc. of the 25% magnesium sulfate solution add 1.5 cg. ephedrine hydrochloride and 1 cc. of the analgesic.—ALFREDO VIDAL FREYRE. *Rev. Med. Cienc. Afin.*, 2 (1940), 938. (G. S. G.)

Malta Fever—Progress in Treatment of. The occurrence of undulant fever from cow's milk has stimulated further study of malta fever. Vaccine is given in the form of a broth impregnated with *Brucella*, by intramuscular injection. Individual sensitivities to injections must be determined, since there is generally a local reaction and increased temperature. Antisera have been used also, from inoculated cats, in addition to horses, when there is sensitivity to horse serum. Sulfanilamide has proved useful but requires massive doses. Arsenicals, especially sulfarsenol have been efficacious, but vaccination is more successful and practical.—E. B. *Reforma Medica*, 26 (1941), 162. (G. S. G.)

Nicotinic Avitaminosis—Study of. The authors report a typical case of nicotinic avitaminosis. The patient presented two symptoms—mental troubles and stomatitis. The mental condition was that of melancholia with intent on suicide. A solution of nicotinamide was employed which contained 6.2 mg. per liter. The treatment consisted of injections of the solution and the ingestion of nicotinic acid. The symptoms disappeared in less than three days. The rapidity of the mental transformation was impressionable. The fuso-spiral infection of the mouth which was present quickly disappeared without local treatment.—M. VILLARET, L. JUSTIN-BESANCON and J. M. INBONA. *Soc. Med des. Hopitaux*, Sept. 27, 1940; through *Presse mêd.*, 75–76 (1940), 786. (W. H. H.)

Oxygen Therapy—Beneficial Effect of, in Shock. In shock, a fall in blood pressure which causes a decrease in the volume and rate of blood flow through the capillaries produces stagnant anoxia. Consequently, alterations in the depth and rate of respiration may be produced which cause anoxemia. The authors report the results of experiments on the use of oxygen in ten nembutalized dogs in traumatic shock as compared to a control group of ten dogs under the same conditions who did not receive oxygen. Blood samples were drawn at intervals in the two groups and analyzed for oxygen content and saturation. Oxygen therapy significantly increased the oxygen in the arterial and venous blood. While the fluid loss into the traumatized leg was the same in the control and treated dogs, the average life of the treated dogs showed a 70.3% increase. The authors conclude that the inhalation of a high concentration of oxygen is a rational therapeutic measure.—J. G. SCHENDORF and T. ORR. *Surgery, Gynecology and Obstetrics*, 73 (1941), 79; through *Abbott Abstract Service*, (1942), No. 1003. (F. J. S.)

Pellagra—A Case of. The authors report a case of pellagra and submit the following treatment. Regular daily bowel movements. Sufficient fruit juice daily. Nicotinic acid 2-cc. ampuls equivalent to 50 mg.; 10 injections in all given intramuscularly. A month after the last injection 25 mg. per day orally for 10 days. Three tablets of brewer's yeast and 10 drops of iron solution daily after each meal. A series of 10 ampuls of Betaxine P together with 10 injections of calcium gluconate were given to alleviate troubles of sensibility.—M. R. CASTEX, L. E. COMPONOVO and J. M. BORDA. *Prensa Medica Argentina*, 27 (1940), 333; through *Presse méd.*, 62–63 (1940), 74. (W. H. H.)

Pharmacodynamic Agents—Transpulmonary Penetration of. The authors showed that it is possible to create solutions of medicaments, which when inhaled, not only possess a local modification of the bronchioles but produce a general effect when absorbed into the arterial blood. By this method one may administer caffeine, histamine, adrenaline and other products and it may be shown that they act upon the organism. By this method it would assure in the blood and cells a definite given concentration of active product and would permit consideration of treatment of mist therapeutics of strychnine and barbiturates.—L. DAUTREBANDE, E. PHILIPPOT, F. NOGAREDE and R. CHARLIER. *Acad. de Med.*, June 11, 1940; through *Presse méd.*, 60–61 (1940), 655. (W. H. H.)

Pituitary Gland Product—Therapeutic. Posterior lobe of the pituitary gland is extracted with an aqueous extraction solution to remove physiologically active components that stimulate the uterine muscles and increase the blood pressure and that are soluble in dilute acid and dilute aqueous alkaline solutions. The residue is then extracted with an acid-alcohol extraction liquid to obtain an acid-alcohol liquid extract of different physiologically active substances substantially insoluble in the aqueous extraction liquid.—EDGAR A. FERGUSON, JR. U. S. pat. 2,240,212, April 29, 1941. (A. P.-C.)

Plasma and Serum—Treatment of Burn Shock with. Clinical, hematological and biochemical ob-

servations have been made on eight patients with burns and scalds, of whom seven were treated with plasma or serum. In patients before treatment the main findings were: (*a*) Increasing shock, with the classical symptomatology. (*b*) Progressive hemoconcentration. (*c*) A fall in the plasma volume, and therefore in the total amount of plasma protein, although the protein concentration was often quite high. Evidence was obtained that amounts of plasma protein equivalent to a quarter of the total plasma protein might be lost in a few hours. (*d*) Plasma chloride was high and bicarbonate low, while blood urea was normal. (*e*) Serum sodium was low and there was a slight rise in serum potassium. Great clinical improvement followed infusion of dilute plasma and was accompanied by a rise in plasma volume in those cases in which serial observations of blood volume were possible. The results with four times normal serum were much less favorable; one of the three patients treated with concentrated serum died, and the other two required an infusion of dilute plasma later. A scheme is put forward for calculating the approximate dosage of plasma required, using the observed hemoglobin figure as a basis.—D. A. K. BLACK. *Brit. Med. J.*, 4168 (1940), 693. (W. H. H.)

Pregnandiol Excretion—Diagnostic Value of. Pregnandiol is a product of corpus luteum and placental metabolism. Its excretion in the urine is relatively easily measured in any biochemical laboratory. An attempt has been made to assess the diagnostic value of pregnandiol excretion in abnormal pregnancy. Its complete absence is nearly always evidence of serious abnormality, suggesting in early pregnancy the imminence of abortion and in late pregnancy the death of the fetus. The significance of a low pregnandiol excretion still remains uncertain. A normal pregnandiol excretion is not evidence that abortion will not occur or that the fetus is still alive. Both chronic nephritis and toxemia of pregnancy may interfere with pregnandiol excretion. Deviations from the normal excretion in these conditions do not necessarily mean that the gestation is abnormal. Pregnandiol excretion seems assured of a place as a diagnostic aid in obstetric disorders.—C. L. COPE. *Brit. Med. J.*, 4164 (1940), 545. (W. H. H.)

Progesterone—Effect of, on Menses. Clinically it is of the utmost importance to understand the balance between the estrogens and progesterone, for grave ovarian damage may be inflicted by the use of erroneous combinations of the hormones. In the human female there are three varying effects of progesterone: lengthening of the cycle; the production of intracyclic hemorrhage without postponing the appearance of normal menstrual bleeding, and the shortening of the cycle by the precipitation of premature bleeding; and the initiation of a completely new cycle. The dosage necessary to cause premature bleeding is 20 to 30 mg., the effects wearing off in 60 to 96 hours. In most cases, the drug inhibits the ovarian rhythm completely and, after the period of progesterone effectiveness, the released ovaries, without being preceded by hemorrhagic discharge from the uterus, initiate a new cycle. The onset of bleeding when it occurs after withdrawal of the progesterone is twice as rapid as after estrogen withdrawal.—J. GILLMAN. *Clin. Endocrinology*, 1 (1941), 331; through *Abbott Abstract Service*, (1941), No. 992. (F. J. S.)

Progesterone—Use of, in Nervous Tension States. Intramuscular injections of progesterone gave relief of symptoms in the majority of 38 cases involving nervous tension in women.—LAMAN A. GRAY. *Southern Med. J.*, 34 (1941), 1004–1006. (W. T. S.)

Riboflavin—Use of, in the Treatment of Ritter's Disease. Ritter's disease is a rare and serious cutaneous disease of early infancy associated with epidermolysis. The disease is sometimes called dermatitis exfoliativa infantum. In most cases the course of the malady is rapid and there is almost total exfoliation in from one to two days. The cause is still obscure although many authors have classified it as a pyogenic infection due to staphylococcus. A severe case is reported in the present paper in which vitamin therapy, preëminately riboflavin, gave an astonishingly rapid cure. The results obtained suggest that the condition may be primarily an avitaminosis, due mainly to a deficiency of the riboflavin portion of the vitamin B complex, associated with a secondary staphylococcus infection. A mixture of 50% cod liver oil in petrolatum and paraffin was applied to the skin for protection and aid in the healing process.—J. SCHWARTZMAN, D. DRAGUTSKY and G. ROOK. *Am. J. Dis. Child.*, 62 (1941), 352; through *Abbott Abstract Service*, (1941), No. 981. (F. J. S.)

Sulfamide Therapy—Results of, in Fifteen Cases of Cerebrospinal Meningitis. The author reported the results he obtained in the treatment of 15 cases of cerebrospinal meningitis. These varied in gravity, being presented in the form of isolated cases each separate from the other. The treatment consisted of the oral administration of 693, in a daily dose of 5 grams the first day and progressive diminution the following days. Where a more rapid diffusion than that by the digestive tract is desired the intrarachidic route of injection is employed. However this technique was employed only in very severe cases and later was used simultaneously with the oral. It was found that an 0.8% solution of 1162 F was preferable, excluding all stronger solutions. The results have been extremely favorable with very rapid recovery. In all cases the meningococci disappeared from the cephalo-rachidic fluid after 24 or less hours of treatment. After five days the fluid did not contain lymphocytes. Intolerance cases have been few and these not grave (eruption on the 9th day; discreet anemia); nitrogen content considerably raised but this did not interrupt the medication.—R. WORMS. *Soc. Med. des Hopitaux*, May 31, 1940; through *Presse méd.*, 51–52 (1940), 577. (W. H. H.)

Sulfamides and Altitude. All the authors who have used sulfamides have encountered cyanosis due to the formation, in the blood, of methemoglobin; and are forced to interrupt the treatment and combat it with injections of small doses of methylene blue. The frequency of this phenomena is augmented by the usage of laxatives with a sulfate base. F. P. Mackie reported that he had the occasion to observe a pilot of the Imperial Airways who suffered anoxemia at an altitude of 4000 meters and upon investigation it was found that this pilot had taken a large dose of sulfanilamide for a septic condition. Since this incidence it has been found that the maximal limit before symptoms of anoxemia appear is 1500 meters.—P. E. MORHARDT. *Presse méd.*, 51–52 (1940), 581. (W. H. H.)