Reports of A. Ph. A. Committees

THE PROGRESS OF PHARMACY.

Abstracts from the Report on the Progress of Pharmacy for the year 1911, by C. Lewis Diehl, Reporter.

(Sixth Installment.)

Nitrites: New Method of Determination.—E. Rupp and F. Lehmann propose a new method for the determination of nitrites, which is based on the fact that nitrous acid is oxidized quantitatively to nitric acid by bromine according to the equation: $HNO_2 + 2Br. + H_2O = HNO_3 + 2HBr$. The reagents required are a solution of potassium bromate containing 1.6702 gms. per litre, and potassium bromide solution containing 6 gms. per litre. When equal volumes of those solutions are added to the nitrite solution and the whole acidified, the calculated amount of bromine is liberated, and the excess over that required to oxidize the nitrite may be determined by adding potassium iodide and titrating the liberated iodine with standard sodium thiosulphate solution. The result is calculated from the equivalents. Fifty cc. of the above bromate solution are equivalent to 30 cc. of N/10 thiosulphate solution. For the determination of the purity of sodium nitrite, for example, 2.5 gm. of the sample are dissolved in 500 cc. of water, and 10 cc. of this solution are placed in a 250 cc. stoppered bottle. Fifty cc. each of the bromate and bromide solutions are run in, 10 cc. of dilute sulphuric acid are added, and the bottle quickly closed, well shaken, and set aside in the dark. After standing for half an hour, 0.5 gm. of potassium iodide is added, the mixture is well shaken, allowed to stand for two minutes, and then titrated with N/10 sodium thiosulphate solution, using starch as indicator. The number of cc. of thiosulphate solution required is deducted from 30, and the difference multiplied by .00345 gives the amount of sodium nitrite in 0.05 gm. of the sample.—Archv. d. Pharm., 249 (1911), No. 3, 214.

Carbon Dioxide: Solubility in Beer.—It has been stated that carbon dioxide is more soluble in beer than in the corresponding water-alcohol mixture, the increased soluhility being ascribed to the presence of the colloidal substances in beer. It is now known that colloidal solutions do not dissolve gases so well as water, and this is confirmed in the case under consideration by the experiments of A. Findlay and B. Shaw, who find that carbon dioxide is less soluble in beer than in the corresponding dilute alcohol. The erroneous results of previous experimenters are ascribed by the authors to super-saturation.—Pharm. Journ. and Pharmacist, June 24, 1911, 844.

Tellurium: Aleged Complexity.—The anomalous position of tellurium in the periodic table has made this element the subject of more researches than any other during the last twenty years. The high values obtained for the atomic weight have led to the supposition that tellurium contains a second element of high atomic weight, but extensive attempts to separate it into two different elements have been unsuccessful. Some time ago, however, Browning and Flint claimed that they had separated tellurium by fractional decomposition of the tetrachloride with water. The tellurium dioxide obtained in this way was converted into the basic nitrate and the atomic weight determined, after ten such fractionations, was given by Flint as 124.3. A. G. Vernon Harcourt and H. B. Baker have now repeated this work, but have been unable to effect and separation. They suggest that the low figure obtained by Flint is due to the presence of some tellurium trioxide in the dioxide.—Pharm. Journ. and Pharmacist, June 24, 1911, 844.

Solution of Sodium Ethylate, B. P.: Cause and Prevention of Discoloration.—According to the official description, solution of sodium ethylate is a colorless liquid becoming brown by keeping, and, being only employed occasionally, this discoloration usually happens when kept in stock. H. Finnemore attributes this change of color to the action of the alkali on the acetaldehyde, which is always present in small quantity in commercial absolute alcohol, and after trying various methods to get

rid of this impurity, was most successful by boiling the alcohol for one hour with sodium phenylhydrazone, as employed by Hewitt, and then distilling. A distillate free from acetaldeyde is thus secured, but when kept for a long time some of the latter is gradually reformed and the solution of sodium ethylate becomes discolored. In the course of some experiments on another subject the author observed the great depth of color when sodium ethylate solution was used, whereas, when

Solution of Sodium Methylate was employed no discoloration resulted. The use of methyl alcohol is therefore suggested to prepare an equivalent caustic solution, which, in the experience of the author, using Kahlbaum's No. 1 methyl alcohol, showed no trace of discoloration after two years.—Trans. Brit. Pharm. Conf. (Year Book of Pharmacy), 1911, 425.

Methylenedisalicylic Acid: Preparation and Properties.—According to E. Clemmensen and A. H. C. Heitman, methylenedisalicylic acid ($C_{15}H_{12}O_6$) may be prepared by mixing 32 gms. of salicylic acid, 10 gms. of formaldeyde (40 per cent.), and 180 gms. of 50 per cent. sulphuric acid, and gently boiling the mixture for ten hours under a reflux condenser. The product is powdered, washed with cold water, and finally several times with boiling water to remove any uncondensed salicylic acid, collected, and dried. The yield, by this method, is theoretical. The acid is a white powder of strong bitter taste, and melting at 238° with decomposition. It does not appear to be obtainable in good crystalline form. It is readily soluble in ether, acetone, alcohol, ethyl acetate, glacial acetic acid, slightly in hot water, and insoluble in benzene, chloroform, carbon disulphide, and petroleum ether. From solutions in alcohol, acetone, and glacial acetic acid, it is imperfectly precipitated on addition of water. Its aqueous solutions are colored blue by ferric chloride. Heated above the melting point or with caustic alkalies, it is decomposed into hydroxyphenylmethylenesalicylic acid, methylenediphenol, and carbon dioxide. Alkali and alkali earth carbonates are readily decomposed by it, forming soluble salts, none of which has been obtained in distinct crystalline form. They are precipitated from concentrated solutions on addition of alcohol or sodium chloride. The salts of the heavy metals, made by double decomposition of the soluble salts, are obtained as insoluble colored precipitates. Methylenedicalicylic acid, when precipitated from a soluble salt with a mineral acid, separates in gelatinous form, particularly if the solution is warm.—Pharm. Journ. and Pharmacist, June 10, 1911, 773; from Journ. Amer. Chem. Coc., May 15, 1911, 733.

Strychnine Hypophosphite: Properties.—The ordinary books of reference do not describe the hypophosphite of strychnine and D. B. Dott now supplies the following description: It crystallizes with the composition indicated by $B.H_3PO_2.3H_2O$, all the water of crystallization being lost at 100° C. It is one of the most soluble of the strychnine salts, requiring 3.3 parts of water at ordinary temperature for solution.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1910, 422.

Corycavindine: A New Corydalis Alkaloid.—J. Gadamer has isolated from the so-called "amorphous" alkaloids, derived from *Corydalis Cava*, a new crystalline base, which he has named corycavidine, and to which he assigns the formula $C_{22}H_{25}O_5N$. It crysatllizes from a mixture of alcohol and chloroform in colorless, transparent crystals containing about one molecule of chloroform crystallization. Exposed to the air these effloresce and then melt at 212° C. to 213° C., being converted thereby (at 209° C.) into an optically inactive base, melting-point 193° C. to 195° C., probably iso-corycavidine. Corycavidine gives a reddish-yellow solution with strong sulphuric acid, which turns greenish-grey on heating. It gives an olive-green with Froehde's reagent; a dirty reddish-brown with Mandelin's reagent. It forms a crystalline nitrate, and hydrochloride; the aurichloride $C_{22}H_{25}O_5$ $N.HClAuCl_3$, is a red powder, which sinters at 80° C., and decomposes at 170°.—Arch. d. Pharm., 249, 1911, No. 30.

Morphine: Quantitative Determination of Small Quantities.—Objections having been raised to the method of Rübsamen for the quantitative estimation of small quantities of morphine, the method has been investigated by R. Gottlieb and O. Steppahn. According to this method the morphine is extracted from solutions of its salts by making just alkaline to phenolphthalein and shaking repeatedly with large volumes of chloroform, afterwards distilling off the chloroform and determining the morphine in the residue by Gordin's method. The authors find that good results can be obtained by proceeding as follows: The solution must be only just al-

kaline to phenolphthalein, and since the alkalinity is diminished by the extraction, more N/10 alkali is to be dropped in as required; instead of shaking with the chloroform, it is better to mix the two liquids in a beacker with a stirrer for ten minutes at a time, adding alkali as required; the chloroform should have been well stirred with pure water first, and about 600 cc. should be used each time for extracting 200 cc. of the aqueous liquid. After the ten minutes stirring, the whole is transferred to a separator, and the chloroform run off, and the operation repeated three or four times. The united chloroform solution is distilled, the last portion evaporated in a dish, and the morphine dried; a known excess of N/10 sulphuric acid is then added, and enough absolute alcohol to take all into solution, and the determination concluded by Gordin's method. A number of control determinations showed that about 90 per cent. of the morphine is obtained.—Apoth. Ztg., XXV (1910), No. 105, 1054; from Arch. f. Exper. Pathol. u. Pharmacol., 64 (1910), 54.

Erythrina Zeyheri: Constituents of the Seeds.—E. Langham has subjected the seeds of *Erythrina Zeyheri,* a leguminous South African plant, to chemical examination. This plant has an average height of 45 cm. The stem, leaves and leaf-stems are covered with prickles, which emerge from the ribs on the stems and the veins on the leaves, and on the stems towards the root, thus affording some protection from being eaten by ruminants. The seeds are covered with scarlet testa, and contain a quantity of a bland, nutty oil, a volatile oil, and an alkaloid. The seeds of *Abrus precatorius,* also of the same order of plants, possess scarlet testa, but with a black spot on one side, and are used for making rosaries and necklaces. The seeds of *Erythrina Zeyheri* are also employed by Kafirs in South Africa for making necklaces. The color of the seed integuments does not yield itself to chloroform. The ripe seed-pods vary in length from 4 to 12 in. (10 to 30 cm.); the average weight of each seed is 20 grains. They yield to ethereal extraction, 28% of fixed oil, and 4% of volatile oil (*Erythrol*), the latter being powerfully irritant and having the pungent odor of horseradish, while the fixed oil is simply an aperient, free from pungency. By alcoholic extraction, an alkaloid (*Erythrine*) is obtained in a yield of .15%. This is insoluble in ether or benzol, and gives a purple precipitate with auric chloride, while when boiled with ammonia or caustic potash its solutions assume a sap-green color. It also gives the characteristic reaction with Thresh's alkaloidal reagent. Touched with nitric acid, erythrine gives a bright color, changing to red; with sulphuric acid it gives a dull red color. When boiled with dilute sulphuric acid it splits off *Erythringen,* and the resulting solution when rendered strongly alkaline with caustic potash and warmed with cupric sulphate, throws downs a crimson-scarlet precipitate.—Chem. and Drug., April 28, 1911, 134.

Siam Benzoin: Botanical Source and Collection.—Haidman Rordorf, having received from Dr. Domeller Nieuwenhuis, who is the Dutch Minister in Siam, authentic leaves, twigs, bark and resin derived from trees growing in the northwestern Province of Kiang Mai, in the district near the source of the Meping river, contributes some interesting information concerning the botanical source and collection of Siam Benzoin. The leaves are described as 11 ins. to 12 ins. long and 4 ins. to 5 ins. broad, leathery, longish-ovate, and acuminate. The margin of the leaf is slightly undulate and entire. The upper surface is of a dark olive-like green color and glabrous. The midrib and lateral veins are of a clear brown color and very prominent. The smaller veins are somewhat prominent also. The under surface is of a paler olive-green color filled with abundant appressed stellate hairs. The whole vegetation is reddish and clearly outlined and covered with stellate hairs. There are five or six lateral veins on each side, nearly at right angles to the midrib, at first curved, and then running along the leaf margin, in which they terminate. The leaf stalks are 1 in. long and colored like the veins, and also covered with stellate hairs. In the axils of the leaves there are small buds and leaflets 1 in. long. Mr. Rordorf lays special stress on the fact that two kinds of buds occur in the leaf axils, that the stellate hairs on the leaves are not the same as those of *Styrax Benzoin,* and that the leaves are entire, whilst those of *S. Benzoin* are serrate-toothed. The author also described the method of collecting the drug by the inhabitants of a small settlement—small long-haired people, who apparently emigrated from China in very early times. They speak an old, forgotten language, and wear different clothes to the natives of Southern Siam. Their method of collecting the benzoin and

preparing it for the market is as follows: On trunks of 20 cms. in diameter pieces of bark of rectangular shape from half to four handsbreath in size are loosened, and the resin runs out on the inner side of the bark ,solidifying there by the heat of the sun. This forms the finest quality. The smaller fragments are formed into lumps by hand. The resin is spread out on a strong mat in a heap, and ginger roots, first hollowed and filled with the marrow of the bones of the pig, are mixed with it, and the mats are tied up at the ends into a bundle. The contents are examined from time to time to see if the fat has been taken up, and if not fresh fat is used. It is said that rancid pork fat will not, like fresh fat, pass through the ginger root. This process takes about one year, its object being to give a fine aroma. When the fat has disappeared from the ginger the drug is ready for export without risk of losing its fine odor through the hot and long journey to Bangkok.—Schweiz. Wschr. f. Chem. u. Tharm., XLVIII (1910), No. 36.

Nigerian Gums: Source and Characters.—According to Dr. J. M. Dalziel, the term "Nigerian Gum" is given to any white or nearly colorless gum collected in the Bornu and Yola provinces, gum culture being unknown in Nigeria, and the desultory collection being done at random. The hashab tree of the Kordofan district, *Acacia Senegal,* is abundant in the Bornu province, where gum is a predominating forest product. In the Yola province a large acacia, probably A. Sieberiana, is pointed out as the source of falli. Murrua (the term given to yellowish or reddish varieties of gum) is with little doubt the product in Yola of *A. Seyal,* though some may be derived from *A. xanthophlaea.* Both falli and marrua are in the form of large tears, lumps, or broken fragments, or, occasionally, pencils. Falli becomes opaque owing to the formation of fine fissures, but marrua usually retains its glassy surface. Most of the gum gathered in the Yola province consists of mumuye, which is in lumps or masses of a dark or smoky appearance, and is derived from one or more species of *Combretum,* usually *C. leonese.* The resident of the Bornu province states that four trees in that country yield gum of marketable value, viz., Kolkol (*Acacia Senegal,* Willd.), karumga (*Acacia Seyal.* DC.), Katalabu (*Acacia Sieberiana.* DC., probably), and gulawai. The identifications were made at Kew. The investigations established the fact that the principal sources of gum in Bornu and Yola are the same species as the important Sudan and Senegal gums. Also that it is not improbable that by educating native collectors much of the variability in quality of Nigerian gum could be avoided. The main results of the investigations are summarized below:

Source of Gum	Moisture Per cent.	Ash Per cent.
Bornu Province,		
Acacia Senegal ...	10.2-11.4	2.8-3.1
Acacia Seyal	11.1-11.4	2.5-2.6
Yola Province,		
Acacia Suma	13.3-13.5	2.0-2.3
Acacia Sieberiana	13	2.6
Sokoto Province,		
Combretum sp....	12.6	2.0

Source of Gum	Matter Insoluble in Water Per cent.	Strength as Measured by Viscosity
Bornu Province,		
Acacia Senegal ...	1.2-1.9	5.3-6.6[1]
Acacia Seyal	0.8-1.4	5.8-6.6[2]
Yola Province,		
Acacia Suma	4.1-4.5	14.1-16.7[3]
Acacia Sieberiana.	0.7	13.3[4]
Sokoto Province,		
Combretum sp....	1.2	7.8[5]

Color of Mucilage—[1]Almost colorless to pale brown. [2]Brown. [3]Colorless to brown. [4]Pale color. [5]Dark brown.

Chem. and Drug., March 11, 1911, 90; from Bull. Imper. Inst., VIII, 1910, No. 4.

Bartsia Odontites: Mannitol an Abundant Constituent.—In the course of experiments on the herb of *Bartsia Odontites,* in England a very common wayside plant of the N. C. *Scrophulariaceae,* undertaken to determine a possible toxic constituent, similar in activity to digitalis, H. Finnemore and G. E. Town obtained by continuous extraction with hot alcohol, a concentrated liquid from which a fairly large amount of crystalline matter separated on standing. This, on examination, proved to be mannitol, which was identified both by composition and melting point, and by that of the acetyl derivative. No active constituent was revealed by this investigation. —Trans. Brit. Pharm. Conf. (Year Book of Pharmacy), 1911, 444.

Cimicifuga: Chemical .Examination.—H. Finnemore has made a systematic chemical examination of the rhizome of *Cimincifuga racemosa,* resulting in the isolation and identification of the following constituents: *Isoferulic Acid,* to which he assigns the constitu-

tional formula $C_6H_3O(COOH)(OCH_3)$, and from which he prepared the acetyl derivative, having the composition $C_6H_5(OAc)(COOH)$. The melting point (146°) and other properties of this derivative, agree with those of *Hydroisofcrulic Acid.* A small quantity of *Salicylic Acid.* A trace of substance having the melting point 152° *Palmitic Acid.* A *Phytosterol.* Three crystalline bodies, apparently *Alcohols,* one of which has the empirical formula $C_{14}H_{22}O_4$, the other two being represented by the formula $C_{15}H_{22}O_4$. Tests for *Alkaloids* gave evidence of their presence in very small amount—too small, however, to justify further research.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1910, 435-444.

Podophyllum Emodi: Superiority of the Yield and Activity of the Resin.—Referring to his researches on the resin of *Podophyllum Emodi* communicated in 1892 (see Proceedings, 1903, 630), John C. Umney contributed some further notes at the 1911 Meeting of the British Pharmaceutical Conference, in which he records the results of recent examinations of rhizomes collected, in accordance with his suggestion, under different conditions and at different seasons. The present investigation is more than ever convincing that it is upon natural variations in the resin, most probably at different seasons of the year, that the varying results (recorded by different workers) have been obtained. All workers are agreed that the proportion of resin in the Indian variety (*P. Emodi*) is an average twice that of the American (*P. peltatum*); but in judging of the relative value and composition of the resins obtained by different workers, it is but easy to arrive at conclusions because of differences in process and nomenclature. It would certainly appear, however, that "picropodophyllin" is not an actual constituent of the drug, but is formed by decomposition of "podophyllotoxin," which, together with "podophylloresin," an indefinite amorphous substance, represents the activity of the drug. The distinction of the two varieties of the drug is, however, not confined to the greater yield of resin from the Indian drug, but in that the resin from the present Indian material (collected after fruiting in 1910) contains twice as much podophyllotoxin as the resin from Indian rhizomes examined in 1892, or that obtained from the American (*P. peltatum*)—the actual figures obtained being: Indian, 1892, 25.0%; Indian, after fruiting, 50.3%; *American,* (*P. peltatum*), 22.9%. The difference in the two Indian varieties, the author conjectures is due to the period of collection, the rhizomes of *P. Emodi* collected after flowering being much richer in podophyllotoxin and consequently of greater activity than the rhizome of 1892, the collection period of which is not known.—Trans. Brit. Pharm. Confer. (Year-Book of Pharmacy), 1911, 388-391.

Insect Flowers: Nature of Poisonous Principle.—Referring to the investigation of insect flowers, which he undertook in 1880, in collaboration with Schlagdenhauffen, E. Reed now confirms the original statement that the toxic constituent of the insect flower is an acid, which they had named "pyrethrotoxic acid." To obtain this principle, Dalmatian insect powder is extracted by percolation with petroleum ether. By treating the soft extract left on distilling off the solvent, with a small quantity of alcohol at 60° C., a white powder, melting point 125°C., is separated. This is the magnesium compound of a resin which is named pyrethresin. The resin has an acid reaction. After removing this "pyrethresin" the residue is an oily mass containing an amorphous sugar. The residual oily substance is partly soluble in 3 per cent. potassium hydroxide solution. On treating this alkaline solution with tartaric acid, and shaking out with ether, that solvent, on evaporation, leaves a honey-like mass of pyrethrotoxic acid. Instead of treating the original petroleum ether residue with alcohol, it may be extracted with a 60 per cent. solution of chloral hydrate, and the solution thus obtained is shaken out with petroleum ether.—Pharm. Zentralh. LII (1911), No. 7, 173.

Indian Hemp: Questionable Value of the Iodine Number.—The recent suggestion by D. Hooper (1908) of a method for the commercial valuation of Indian hemp products based upon the iodine value of the active constituent, cannabinol, has elicited an inquiry into the possible value of the method for the standardization of these preparations in place of the present physiological one, by C. R. Marshall and J. H. Wigner, constituting a therapeutic committee of the British Medical Association. The method, it seemed to them, would be of value for purposes of standardization only if the active principle (or some inert substance which always accompanies it in a fixed ratio and is not easily removable

and pharmacologically inert a relatively low iodine value, or vice versa. If physiologically inert or almost inert substances possessing an iodine number approximating to that of the active principle occur in variable proportions in preparations of Indian hemp, the method is obviously of no value as a means of standardization. Unfortunately this appears to be the case. In order to reduce the sources of error, the authors decided to work with pure or approximately pure principles. They examined: (1) A sample of original cannabinol prepared by Wood, Spivey, and Easterfield in 1897, which had been kept in a sealed tube for eleven years, and which when tested appeared to have lost little, if any, of its pharmacological activity; (2) the same cannabinol after oxidation by a current of dry air, a process which has been shown by one of the authors to diminish its pharmacological activity; (3) various fractions obtained by the distillation of an extract of the same "charas" from which the above cannabinol was prepared.

The following iodine values, as determined by Hübl's method, are typical of those obtained:

FRACTIONS OBTAINED FROM 12-YEAR-OLD "CHARAS."

	Iodine No.
Original cannabinol (strongly active).	189
Original cannabinol (after oxidation)	184
Lower terpene fraction.....	67
Higer terpene fraction.....	180
Residue after distilling off terpene (very slightly active).....	196
Fractions boiling at 280° to 300° C. at 15 Mm. Hg. pressure (very slightly active)	247
Ditto (after oxidation).....	229

The figures show that the very active sample of cannabinol gives a lower iodine number than similar and almost inert samples prepared from old charas; that the oxidation of cannobinol, although diminishing considerably the physiological activity, does not greatly lower the iodine value; and that the iodine number of the higher boiling terpenes, which possess no characteristic cannabis effect ,approximates closely to that of active cannabinol. The determination of the iodine number seems, therefore, to be of no certain value as a means of estimating the pharmacological activity of cannabis preparations, and, consequently, it cannot be used as a substitute for physiological standardization.—Pharm. Journ. and Pharmacist, June 3, 1911, 740.

Extract of Indian Hemp, B. P.: Comparison with the Non-Official Commercial Extracts.—As pointed out by Dr. Hooper (see Proceedings 1895, 573), the official (B. P.) extract of Indian hemp is composed of a mixture of a green resin and brown water-soluble extractive matter. Merson (1904) showed that this brown extract was not readily soluble in alcohol ,and that commercial extracts varied largely in the proportion of this substance they contain. Harold Dean has now made a series of experiments, the results of which are exhibited in three tables: one, based on the examination of various samples of Indian hemp, indicating the proportions in which the two components may be expected in the extract; the other two, showing the results of the examination of commercial samples of the extract. The results obtained fully bear out the numerous criticisms that have been made as to the variability of this extract as supplied by manufacturers. Nevertheless, the non-official extracts are preferred to the official, their predominence being due to the fact that the pharmacopœial preparation is unsatisfactory, being composed of two constituents, the resin and the brown extraction, which show a tendency to separate, and, moreover, is incompletely soluble in alcohol, which makes the preparation of the tincture troublesome and messy. Therefore a demand has arisen for an extract soluble in alcohol, and there is a general idea that the B. P. extracts ought to be soluble in alcohol. Such an extract can be obtained by the simple method of washing away the brown extraction with warm water, after the spirit has been distilled off, there being little doubt that only the resinous portion of the extract contains the active principle. No doubt this is the method by which most of the soluble commercial samples mentioned in the table were obtained, and the author urges that this method be adopted in the B. P.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1911, 402-406.

Tincture of Opium, B. P.: Loss of Morphine in Its Preparation.—From time to time statements have been made to the effect that in the conversion of opium into extract or tincture a loss of alkaloidal results, or to put the matter with strict accuracy, that the quantity of morphine shown by the official assay of a sample of opium is always greater than the finished product, even when the utmost

care has been taken to secure the perfect exhaustion of the drug. E. H. Farr and R. Wright, with the view of testing the accuracy of these statements, have now made experiments on the preparation of the Tincture, which they describe in detail, with results that go to prove that when the official methods are followed throughout there is always a loss of morphine. In seven samples of opium worked upon this varied between the limits of 0.8 per cent. and 9.0 per cent. of the whole, with an average for the whole series, as shown in the tabulated statements of the results obtained. In the light of these results it is evident that, notwithstanding the amount of careful thought and experimental work which has been devoted to the subject of opium assay, there is still room for a thorough and systematic review of the whole subject. The loss appears to the authors to be probably due to occlusion of the alkaloid, rendering the complete extraction by water or alcohol a matter of practical impossibility, or to some other factor or factors which have hitherto escaped recognition.—Trans. Brit. Pharm. Conf. (Year-Book of Pharmacy), 1911, 392-399.

Aromatic Fluid-Extract of Cascara Sagrada: New Formula and Process.—Introducing the subject of an improved formula for making an aromatic fluid extract of cascara sagrada, R. C. Cowley observes that the physiological activity of glucoside containing drugs does not depend always on the glucosides and that this possibly explains the increased activity of cascara sagrada by aging the bark. From the experience of others, and more particularly from that recorded by White and Robinson in 1902 (see Proceedings 1903, 801), the author assumed the presence of a fermentable glucoside in cascara sagrada, and that the activity of this drug is at least in part due to the products of its decomposition. He had, moreover, found by digesting the powdered bark with water and a small proportion of emulsion that the percolate required a much larger proportion of ammonia for neutralization than when the drug was exhausted by water alone; and, furthermore, that when alkalinity was maintained during evaporation, the extract was free from the bitterness of cascara sagrada, and it still maintained its activity. He therefore conceived the idea of effecting the hydrolysis of the glucosides of the bark by preliminary treatment with acid and water, the experiment resulting in the adoption of the following method for preparing an aromatic fluid extract:

Cascara Sagrada (No. 20 powder)	20 oz.	100.00
Diluted Sulphuric Acid	1 fl. oz.	5.00
Alcohol (90 per cent.)	4 fl. oz.	20.00
Oil of Coriander	20 minims	0.21
Oil of Orange	20 minims	0.21
Spirit of Chloroform	80 minims	0.84
Gluside (soluble)	13 grains	0.15
Liquid Extract of Licorice	4 fl. oz.	20.00

Solution of Ammonia.
Distilled Water, of each a sufficient quantity.

Boil the cascara sagrada with 7½ pints (750) of distilled water and the diluted sulphuric acid for two hours; allow the mixture to stand for twenty-four hours, then pack in a percolator and percolate with distilled water until the cascara bark is exhausted. Neutralize the percolate with solution of ammonia, and evaporate on a water bath to 12 fluid ounces (60), maintaining slight alkalinity throughout the operation by the further addition of solution of ammonia from time to time. Dissolve the oils and gluside in the alcohol, and the spirit of chloroform and the liquid extract of licorice. Mix this with the concentrated solution of cascara bark, and, if necessary, make up to 20 fluid ounces (100) with distilled water. The product is very elegant and possesses undoubted activity.—Chem. and Drug., July 22, 1911, 46.

Disinfectants: Bacteriological Testing and Standardization.—At the forty-seventh Annual Meeting of the British Pharmaceutical Conference (1910), several interesting papers were read and discussed at length on the bacteriological testing and standardization of disinfectants. Prof. Sims Woodhead read a paper by Dr. Constant Power and himself on the "bacteriological standardization of disinfectants," in which the authors fall back on a comparative valuation of disinfectants, taking phenol as their standard, and using a modification of the Rideal-Walker drop method, as giving promise in theory of the most precise results, they discuss the following factors: Organisms to be acted upon; number of micro-organisms and amount of organic matter to be added; strength and number of dilutions ;time during which the disinfectant is allowed to act; temperature.

Prof. R. Tanner Hewlett read a paper on the *"Woodhead-Power method of testing disinfectants"* (above outlined), in which he questions the necessity of "seeding" the subcultures with more than a standard loopful. He thinks that the use of *Bacillus coli* instead of *B. typhous* is probably a desirable change, although this depends on further investigation.

C. T. Kingsett read a paper by R. C. Woodcock and himself on the subject of *"Bacteriological testing of certain disinfectants and the results as affected by varying conditions,"* dealing mainly with commercial disinfectants of the coal-tar order, classifying them into "Emulsified Disinfectants" and "Homogeneous Disinfectants." The normal Rideal-Walker co-efficients in respect of *Bacillus typhosus* were first determined, then the normal co-efficients with regard to other germs, the influences of higher temperature as affecting the *B. typhosus* co-efficient, and an extension of time, simply or coupled with a higher temperature. The results are tabulated for purposes of ready comparison, and they appear to show that while the R.-W. test may very well serve to determine the relative germicidal values of similarly prepared preparations of a coal-tar nature, it is not applicable for ascertaining the real or relative values of other disinfectants of a different chemical nature.—Trans. Br. Pharm. Conf. (Year-Book of Pharmacy), 1910, 329-362.

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK.

(Continued from page 506)

The present installment consists of formulas which the writer has collected from various sources. A great many of these preparations are frequently prescribed, but the average pharmacist can not readily find the formulas.

Special attention is called to the apparent inconsistence in the proportion of salicylic and boric acid in Thiersch's Solution No. 45, and Thiersch's Powder No. 46 as per formulas quoted from the Hospital Formulary of the Department of Public Charities, N. Y. City.

Greater uniformity is undoubtedly very desirable.

Comments and criticisms are invited.

Respectfully submitted,

OTTO RAUBENHEIMER, Chairman.

<>

Abbreviations can be found iu May JOURNAL, p. 504.

Formulas No. 1 to 32, see February JOURNAL, p. 169 to 173.

Formulas No. 23 to 30, see April JOURNAL, p. 366 to 368.

Formulas No. 31 to 41, see May JOURNAL, p. 505 to 506.

<>

No. 42.

UNGUENTUM IODI DENIGRESCENS.

Stainless Iodine Ointment.

Iodine	5 gm.
Petrolatum	95 gm.
To make	100 gm.

Melt the Petrolatum and gradually add the Iodine in fine powder with constant stirring. Continue heating until the combination is completed and then stir until cool. This ointment has the great advantage of being absorbed when rubbed on the skin without causing a stain.

<>

Can. Form.

No. 43.

UNGUENTUM ICHTHOLOLIS, 10 PER CENT.

Ichthyol Ointment 10%.

Ichthyol	10 gm.
Hydrous Wool-fat	45 gm.
Yellow Petrolatum	45 gm.
To make	100 gm.

Melt the Hydrous Wool-fat and the Yellow Petrolatum (which mixture is official in the new German Pharmacopœia as *Unguentum Molle,* Formula No. 7), and when cool incorporate the Ichthyol, which chemically is ammonium ichthyol sulphonate.

NOTE: This ointment will darken very considerably by age and the attention of physician and patient should be called to this.

<>

No. 44.

UNGUENTUM IODI LUGOL.

Lugol's Iodine Ointment.

Pommade iodurée (Lugol).

	No. 1	No. 2	No. 3
Potassium Iodide.	1.2 gm.	8.0 gm.	10.0 gm.
Iodine	0.6 gm.	1.0 gm.	1.2 gm.
Lard	60.0 gm.	60.0 gm.	60.0 gm.

Dissolve the Potassium Iodide in a little water or glycerine, add the Iodine and triturate until dissolved and incorporate the Lard. —Dorv.