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FLUID EXTRACTS OF THE NEW PHARMACOPOEIA. PART I

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Read at the Pharmaceutical Meeting, January 16th.

In this, perhaps the most important class of officinal preparations, great changes and many additions have been made; therefore a brief review of these changes and additions seems desirable.

In the table herewith presented, the attempt has been made to compare the list of fluid extracts of the new Pharmacopoeia with the list recommended to the Committee on Revision by the Philadelphia College of Pharmacy; in this list the finished preparation represented the drug weight for weight, as it was found to be entirely practicable to make all of the fluid extracts recommended by that method. The difference in strength and necessary dose, from those made by the old method of grain to minim, or by that now officinal of gramme to cubic centimeter, is in most cases quite unimportant, perhaps in no case equaling the variations in quality met with in the drugs from which fluid extracts are made.

The decision of the Committee of Revision to make the finished product represent the drug volume for weight, appears to be an entirely unnecessary exception to the general plan of the Pharmacopoeia; in all other respects, no doubt most of the formulas will prove satisfactory, and with perhaps one exception, the required manipulations are exceedingly simple, and can be readily carried out by any pharmacist.

It will be observed that although the finished product is volume for weight, the menstruums are all prepared with parts by weight.

The Philadelphia College of Pharmacy recommended formulas for seventy-eight fluid extracts, of which number forty-six were those of the old Pharmacopoeia and thirty-two were new; of these all the old except two were retained, and twenty-four of the new ones adopted by the Committee of Revision; they also added eleven more new ones to the list, making the total number of officinal fluid extracts seventy-nine.

List adopted by the Committee of Revision and Publication.	Recommended by the Philadelphia College of Pharmacy.	Fineness of Powder.		Glycerin.		Menstruum.		Parts to Moisten.		Reserve Percolate.		Additions to Menstruum.	
		Com.	P.C.P.	Com.	P.C.P.	Com.	P.C.P.	Com.	P.C.P.	Com.	P.C.P.	Com.	P. C. P.
EXTRACT. FLUID.	EXTRACT. FLUID.												
Aconiti	Aconiti Radicis	60	60			Alcohol.	Alcohol.	40	40	90	90	1 part Tartaric Acid.	
Arnicæ Radicis	Arnicæ Radicis	60	40			A1. W1.	A1. W1.	40	40	90	80		
Aromaticum						Alcohol.		35		85			
Aurantii Amari	Aurantii Amari Corticis	40	40			A2. W1.	Alcohol.	35	35	80	90		
Belladonnæ	Belladonnæ Radicis	60	60			Alcohol.	A2 W1.	35	35	90	85		
Brayeræ	Brayeræ	40	40			Alcohol.	Alcohol.	40	50	90	80		
Buchu	Buchu	60	50			A2. W1.	A2. W1.	30	35	85	80		
Calami	Calami	60	40			Alcohol.	Alcohol.	35	35	90	95		
Calumbæ	Calumbæ	20	30			A1. W1.	A2. W1.	30	30	70	75		
Cannabis Indicæ	Cannabis Indicæ	20	30			Alcohol.	Alcohol.	30	35	90	90		
Capsici		60				Alcohol.		50		90			
Castaneæ	Castaneæ	30	40		20	Water...	A1. W2.	500	50		75	60 and 20 parts Alcohol.	
Chimaphilæ	Chimaphilæ	30	40	10	20	A1. W1.	A1. W2.	40	30	70	80		
Chiratæ	Chirettæ	30	40	10		A1. W1.	A1. W2.	35	40	85	75		
Cimicifugæ	Cimicifugæ	60	50			Alcohol.	Alcohol.	25	35	90	85		
Cinchonæ	Cinchonæ	60	60	25	20	Alcohol.	A3. W1.	35	30	75	80	A3. W1.	
Colchici Radicis	Colchici Radicis	60	50			A2. W1.	A1. W1.	35	35	85	85		
Colchici Seminis	Colchici Seminis	30	60			A2. W1.	A2. W1.	30	30	85	90		
Conii	Conii Fructus	40	40			A1. W1.	A1. W1.	30	30	90	80	3 parts Dil. Hydrochlor. Acid	1 part Hydrochlor. Acid
Cornus	Cornus Floridæ	60	40	20	20	A1. W1.	A1. W1.	30	35	85	75		
Cubebæ	Cubebæ	60	40			Alcohol.	Alcohol.	25	20	90	90		
Cypripedii		60				Alcohol.		35		85			
Digitalis	Digitalis	60	50			A3. W1.	Alcohol.	35	35	85	80		
Dulcamaræ	Dulcamaræ	60	50			A1. W1.	A1. W2.	40	35	80	80		
Ergotæ	Ergotæ	60	40			A3. W4.	A1. W1.	30	30	85	85	6 parts Dil. Hydrochlor. Acid	1 part Acetic Acid.
Erythroxyli	Cocæ	40	40			A1. W1.	A1. W1.	45	40	80	80		
Eucalypti	Eucalypti	40	40			Alcohol.	Alcohol.	35	35	85	85		
Eupatorii	Eupatorii	40	40			A1. W1.	A1. W2.	40	40	80	80		
Frangulæ	Frangulæ	40	40			A1. W2.	A1. W2.	35	40	80	80		
Gelsemii	Gelsemii	60	60			Alcohol.	A1. W1.	30	35	90	85		
Gentianæ	Gentianæ	30	40			A1. W1.	A1. W1.	35	40	80	80		
Geranii	Geranii	30	40	10	10	A1. W1.	A1. W1.	35	35	70	80		
Glycyrrhizæ	Glycyrrhizæ	40	40		20	A1. W1.	A1. W3.	35	35	75	75	6 parts Water of Ammonia.	5 parts Water of Ammonia.
Gossypii Radicis	Gossypii Radicis	30	40	35	20	Alcohol.	Alcohol.	50	40	70	80		
Grindeliæ	Grindeliæ	30	40			A3. W1.	Alcohol.	30	30	85	85		
Guaranæ	Paullineæ	60	60			A3. W1.	A2. W1.	20	30	80	85		
Hamamelidis		40				A1. W2.		35		85			
Hydrastis	Hydrastis	60	40			A3. W1.	A3. W1.	30	30	85	85		
Hyoscyami	Hyoscyami	60	40			A3. W1.	A3. W1.	40	40	90	80		
Ipecacuanhæ	Ipecacuanhæ	80	60			Alcohol.	A3. W1.	35	35		85	Water and Alcohol.	

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		Com.	P.C.P.	Com.	P.C.P.	Com.	P.C.P.	Com.	P.C.P.	Com.	P.C.P.	Com.	P. C. P.
EXTRACT. FLUID.	EXTRACT. FLUID.												
Iridis		60				A3. W1.		40		90			
Krameriæ	Krameriæ	30	60	20	20	A1. W1.	A1. W1.	40	35	70	75		
Lactucarii		Coarse pieces.				Ether & Water.		100E.				Alcohol and Water.	
Leptandræ	Leptandræ	60	40	15		A1. W1.	A2. W1.	40	35	80	80		
Lobeliæ	Lobeliæ	60	40			A1. W1.	A1. W1.	35	40	85	85		
Lupulini	Lupulinæ					Alcohol.	Alcohol.	20	Pack dry.	70	75		
Matico	Matico	40	50	10	10	A3. W1.	A3. W1.	30	35	85	85		
Mezerei	Mezerei	30	40			Alcohol.	Alcohol.	40	50	90	90		
Nucis Vomicæ		60				A8. W1.		100		90			
Pareiræ	Pareiræ	40	50	20	20	A1. W1.	A1. W1.	40	35	85	80		
Pilocarpi	Pilocarpi	40	40			A1. W1.	A1. W2.	35	40	85	85		
Podophylli	Podophylli	60	40			A3. W1.	Alcohol.	30	30	85	85		
Pruni Virginianæ	Pruni Virginianæ	20	40	16·66	10	A1. W1.	A1. W6.	50 W. & G.	50 W.	80	80	33·33 parts Water.	50 parts Water. 20 parts Sugar.
Quassiæ		60				A1. W1.		40		90			
Rhei	Rhei	30	40			A3. W1.	A3. W1.	40	40	75	75		
Rhois Glabræ	Rhus Glabri	40	40	10	20	A1. W1.	A1. W2.	35	30	80	75		
Rosæ		30		10		A1. W1.		40		75			
Rubi	Rubi	60	40	20	20	A9. W7.	A1. W1.	35	35	70	75		
Rumicis	Rumicis	40	40			A1. W1.	A1. W1.	35	35	80	80		
Sabinæ	Sabinæ	40	40			Alcohol.	Alcohol.	25	35	90	85		
Sanguinariæ	Sanguinariæ	60	40			Alcohol.	A2. W1.	30	35	85	85		1 part Acetic Acid.
Sarsaparillæ Comp.	Sarsaparillæ Comp.	30	30	10	10	A1. W2.	A1. W2.	40	35	80	80		
Sarsaparillæ	Sarsaparillæ	30	30	10	10	A1. W2.	A1. W2.	40	35	80	80		
Scillæ	Scillæ	20	40			Alcohol.	Alcohol.	20	35	75	85		
Scutellariæ	Scutellariæ	40	40			A1. W2.	A1. W1.	35	40	80	80		
Senegæ	Senegæ	40	40			A2. W1.	A1. W1.	45	35	85	80	2 parts Water of Ammonia.	2 parts Water of Ammonia.
Sennæ	Sennæ	30	40			A3. W4.	A1. W1.	40	35	80	80		
Serpentariæ	Serpentariæ	60	40			A3. W1.	A3. W1.	30	35	90	85		
Spigeliæ	Spigeliæ	60	40			A1. W1.	A1. W1.	30	30	85	80		
Stillingiæ	Stillingiæ	40	30			A1. W1.	A3. W1.	30	60	85	85		
Stramonii		40				A3. W1.		20		90			
Taraxaci	Taraxaci	30	40		10	A2. W3.	A2. W3.	30	35	85	80		
Tritici	Tritici	Finely cut.	20			Water...	Water...					20 parts Alcohol.	15 parts Alcohol.
Uvæ Ursi	Uvæ Ursi	30	30	10	20	A1. W1.	A1. W2.	35	35	70	75		
Valerianæ	Valerianæ	60	40			A2. W1.	A2. W1.	30	30	85	80		
Veratri Viridis	Veratri Viridis	60	40			Alcohol.	Alcohol.	30	40	90	85		
Viburni		60				A2. W1.		30		85			
Xanthoxyli	Xanthoxyli	40	40			Alcohol.	A2. W1.	25	35	90	85		
Zingiberis	Zingiberis	40	40			Alcohol.	Alcohol.	25	30	90	95		

The ten rejected were: Ext. Anthemidis fl., ext. Asari fl., ext. Aurantii Dulcis Corticis fl., ext. Erigerontis Canadensis fl., ext. Helianthemi fl., ext. Juniperi fl., ext. Lappae fl., ext. Spigeliae et Sennae fl., ext. Sumbul fl., and ext. Thujae fl.

The eleven added are; Ext. Aromaticum fl., ext. Capsici fl., ext. Cypripedii fl., ext. Hamamelidis fl., ext. Iridis fl., ext. Lactucarii fl., ext. Nucis Vomicae fl., ext. Quassiae fl., ext. Rosae fl., ext. Stramonii fl., ext. Viburni fl.

It may be said of several of these eleven, that they are of no more value than some of the ten which were stricken off; it is particularly unfortunate that fluid extract of spigelia and senna was dropped from the list, as it is much used, and an excellent formula was given for its preparation; a satisfactory preparation cannot be made by mixing the respective fluid extracts, even if both have been prepared with the same strength of menstruum.

In the preparation of the fluid extracts, the mode of procedure recommended by the Philadelphia College of Pharmacy has been generally adopted, with some unimportant changes.

The method briefly is as follows: One hundred grammes of the powdered drug are moistened with a specified quantity of the menstruum, usually about thirty-five grammes, the moistened powder is then packed in a cylindrical percolator, and enough of the menstruum added to saturate it and leave a stratum above; when the percolate is about to drop, the lower orifice is closed, the percolator closely covered, and the contents allowed to macerate for forty-eight hours. The percolation is then allowed to proceed, gradually adding more menstruum,, until the drug is exhausted. A specified quantity of the first percolate, usually about eighty cubic centimeters, is reserved, and the remainder evaporated to a soft extract; this is to be dissolved in the reserved portion, and enough of the original menstruum added to make the fluid extract measure one hundred cubic centimeters.

The direction to dissolve the soft extract in the reserved percolate is an important improvement, as it will in most cases be found to dissolve much more completely in this than it will in the menstruum with which the drug was exhausted.

The table furnishes the following information: As to fineness of powders, in twenty-four cases the Committee agrees with the Philadelphia College, in twenty-three cases finer powder is directed, and in nineteen cases coarser.

In regard to the use of glycerin, the Committee has directed it in seventeen eases, and the Philadelphia College recommended it in seventeen also, though not all the same ones; in eight cases the same quantity was recommended by both; in three cases the Committee ordered the larger, and in three the smaller quantity.

Alcoholic strength of menstruum: In thirty-eight cases the same strength is directed by both; in twenty-one cases the Committee directed a stronger, and in ten cases a weaker menstruum.

Quantity of menstruum to moisten the powder previous to packing: In twenty-seven

cases both agree; in fifteen cases the Committee direct more, and in twenty-three less.

Reserved percolates: In twenty-nine cases both agree; in twenty-one cases the Committee reserves more, and in sixteen cases less than the Philadelphia College recommended.

Taking up the fluid extracts in their regular order, the first on the list is:

EXTRACTUM ACONITI FLUIDUM.—*Fluid Extract of Aconite*.—This appears now first under the name of fluid extract, but it differs from the liniment of aconite of the Pharmacopoeia of 1870, only in the absence of one-eighth of its volume of glycerin; it is made from aconite root, which is now the only officinal part of the plant. The menstruum used is alcohol, the addition of one per cent. of tartaric acid seems to be unnecessary, as if good root be employed there can be no doubt of the sufficient activity of the product.

EXTRACTUM ARNICAE RADICIS FLUIDUM.—*Fluid Extract of Arnica Root*.—This is also a new preparation, and one likely to prove useful; the menstruum directed is diluted alcohol, which is now conceded to best extract both arnica root and flowers. The necessity for the introduction of a tincture of arnica root, also, is not apparent; it might be supposed that the tincture of the flowers and the fluid extract of the root would sufficiently represent even so valuable an article as arnica.

EXTRACTUM AROMATICUM FLUIDUM.—*Aromatic Fluid Extract*.—This also makes its first appearance in the present Pharmacopoeia; it was not on the list recommended by the Philadelphia College of Pharmacy, but is one of the eleven added by the Committee of Revision; it is made from the officinal aromatic powder with alcohol as the menstruum, and will no doubt retain its properties longer than the powder does, but the necessity for its introduction is not very apparent.

EXTRACTUM AURANTII AMARI FLUIDUM.—*Fluid Extract of Bitter Orange Peel*.—This is also a newly-introduced fluid extract; it was recommended by the Philadelphia College of Pharmacy, with alcohol of the specific gravity .822 as the menstruum; the Committee of Revision have directed a menstruum composed of two parts of alcohol and one part of water, instead; without having had an opportunity of testing it. I am inclined to think favorably of the weaker menstruum. This fluid extract is to be made from the orange-peel in ribbons or quarters, with the epidermis of a dark brownish-green color, such as is known in commerce as Curacoa orange-peel; it yields a preparation very much superior to that made from the ordinary bitter orange-peel.

The Philadelphia College of Pharmacy also recommended a *fluid extract of sweet orange-peel*, made from the recently dried yellow portion of the peel of sweet oranges, Using alcohol as the menstruum; the Committee of Revision, perhaps unwisely, rejected this and directed a tincture containing twenty parts of the peel in one hundred, alsousing alcohol as the menstruum.

EXTRACTUM BELLADONNAE FLUIDUM.—*Fluid Extract of Belladonna*.—This was officinal in the Pharmacopoeia of 1870, under the name of fluid extract of belladonna root, and was so recommended by the Philadelphia College for the present Pharmacopoeia; as the belladonna leaves are still officinal, and the tincture and alcoholic extract are directed to be made from them, it would certainly have been more definite to have retained the former title. The menstruum directed in the Pharmacopoeia of 1870, was alcohol s. g. .835 twelve fluidounces, glycerin three fluidounces, water one fluidounce, finishing the percolation with diluted alcohol s. g. .941. The menstruum directed in the present Pharmacopoeia is alcohol, that recommended by the Philadelphia College of Pharmacy was alcohol three parts, water one part. Without doubting the superiority of the product of the officinal process, it may be stated that the opinion of several previous investigators has been in favor of a weaker menstruum.

EXTRACTUM BRAYERAE FLUIDUM.—*Fluid Extract of Brayera*.—The desirability of a permanent liquid preparation of koosso has long been manifest. For this newly introduced fluid extract, alcohol is directed as the menstruum; various weaker alcohols were tried alone and with glycerin, but they all precipitated badly, even the sides of the bottles being covered with waxy resinous matter. The menstruum adopted furnishes a good preparation with comparatively a slight deposit; this menstruum also appears to best dissolve the active principle of koosso.

EXTRACTUM BUCHU FLUIDUM.—*Fluid Extract of Buchu*.—The menstruum for this popular and efficient fluid extract has been very much changed from that directed in the Pharmacopoeia of 1870, alcohol s. g. .835 being then employed, and some prominent pharmacists, recommending that of s. g. .817 as being even better for its preparation. In the present Pharmacopoeia, a menstruum composed of alcohol two parts and water one part, is directed to be used. This menstruum, furnishes a fluid extract very much superior to that made with alcohol alone. That it completely exhausts the buchu was proved by the following experiment: After making the fluid extract the residue was dried, and then it retained only the slightest odor of buchu; it was then percolated with alcohol s. g. .822, yielding a light green percolate without perceptible taste or odor of buchu,; this percolate when evaporated left a very small quantity of tasteless, brownish-green extract.

A sample of fluid extract made from the long leaf, had the specific gravity of .988, one from the short leaf .997, and from equal parts of the long and short leaf .994. These samples three years after being made are still almost free of precipitate, and otherwise in good condition.

EXTRACTUM CALAMI FLUIDUM.—*Fluid Extract of Calamus*.—In this newly-introduced preparation, alcohol is employed as the menstruum. The well known properties of calamus are here presented in a concentrated, elegant, and permanent form, which should induce its employment in place of other more expensive aromatics of foreign origin.

EXTRACTUM CALUMBAE FLUIDUM.—*Fluid Extract of Calumba*.—The menstruum directed for this preparation in the Pharmacopoeia of 1870, was alcohol

fourteen fluidounces, and glycerin two fluidounces, finishing the percolation with a mixture of two volumes of alcohol and one volume of water. The present Pharmacopoeia directs diluted alcohol to be employed; the Philadelphia College of Pharmacy recommended two parts of alcohol and one part of water as the menstruum which possesses the advantage of percolating freely and of yielding a fluid extract from which only a slight precipitate separates. As the Committee of Revision have directed three parts of alcohol and two parts of water as the menstruum for the tincture of calumba, it is difficult to understand why a weaker menstruum should be employed for the fluid extract.

EXTRACTUM CANNABIS INDICAE FLUIDUM.—*Fluid Extract of Indian Cannabis*.—This is first made officinal in the present Pharmacopoeia, the menstruum directed is alcohol. There is also an officinal tincture of Indian cannabis, not made as formerly from the extract, but from the herb. It does seem that this drug would be sufficiently represented in the liquid form by the fluid extract.

EXTRACTUM CAPSICI FLUIDUM.—*Fluid Extract of Capsicum*.—This is also a new preparation. With the oleoresin and tincture already officinal, the need for a fluid extract of capsicum seems extremely limited. This preparation was not recommended by the Philadelphia College of Pharmacy, but is one of the eleven introduced by the Committee of Revision; the menstruum directed for its preparation is alcohol, which will no doubt furnish a product fully representing the drug, and possessing much warmth of character.

EXTRACTUM CASTANEAE FLUIDUM.—*Fluid Extract of Castanea*.—This is also one of the newly-introduced fluid extracts; in the preparation of this fluid extract the Committee of Revision direct five hundred cubic centimeters of boiling water to be added to one hundred grammes of chestnut leaves, in number thirty powder; after two hours maceration the liquid is to be expressed, the residue transferred to a percolator, and water added until the powder is exhausted. The united liquids are to be evaporated to two hundred cubic centimeters, and after cooling, sixty cubic centimeters of alcohol are added; after the insoluble matter has subsided, the clear portion is to be decanted and the remainder filtered, the united liquids are to be evaporated to eighty cubic centimeters, allowed to cool, and then enough alcohol is added to make the fluid extract measure one hundred cubic centimeters. The formula recommended by the Philadelphia College of Pharmacy avoids the treatment with hot water, the repeated evaporations of the entire quantity and also the total loss of sixty per cent. of alcohol involved in the officinal formula. The menstruum recommended in this formula was composed of alcohol one part, and water two parts; to eighty parts of this mixture twenty parts of glycerin were added, and after this was used, the percolation was finished with the alcohol and water, the first seventy-five parts of percolate being reserved and the remainder evaporated to a soft extract, dissolved in the reserved portion, and the quantity made up to one hundred parts with some of the menstruum.

This formula has been made up a number of times without any special difficulty, the product being an elegant fluid extract, depositing only a slight precipitate, and no doubt possessing whatever medicinal properties the chestnut leaves may contain.

EXTRACTUM CHIMAPHILAE FLUIDUM.—*Fluid Extract of Chimaphila*.—This is one of' the preparations of the Pharmacopoeia of 1870, the menstruum there directed being alcohol eight fluid ounces, glycerin three fluidounces, and water five fluidounces, finishing the percolation with diluted alcohol. In the present Pharmacopoeia, diluted alcohol is directed, with ten per cent. of glycerin in the first one hundred parts of menstruum; the Philadelphia College of Pharmacy recommended one part of alcohol and two parts of water for the menstruum, with twenty per cent. of glycerin in the first one hundred parts. This weaker menstruum thoroughly exhausts the pipsissewa, but when kept long a considerable precipitate is formed, therefore the officinal menstruum is probably the best, ten per cent. of glycerin would also seem to be sufficient for this fluid extract.

EXTRACTUM CHIRATE FLUIDUM.—*Fluid Extract of Chirata*.—This is one of the newly-introduced fluid extracts, and one that surely there was no pressing demand for; chirata had its day, years ago, and is not likely to gain even a temporary revival in the near future. The menstruum directed for the preparation of the fluid extract is diluted alcohol with ten per cent. of glycerin in the first One hundred parts, the Philadelphia College of Pharmacy recommended one part of alcohol and two parts of water, as the menstruum without glycerin; the fluid extract prepared after this formula precipitated considerably, but not as much as some samples prepared with more alcoholic menstruums; the glycerin in. the officinal formula will probably prevent precipitation to some extent.

EXTRACTUM CIMICIFUGAE FLUIDUM.—*Fluid Extract of Cimicifuga*.—The Pharmacopoeia of 1870, the present Pharmacopoeia, and the Philadelphia College of Pharmacy, all recommend alcohol of .817 to .822 specific gravity, as the menstruum for this preparation; this unanimity of opinion is fully warranted by the product; a sample of the fluid extract prepared over three years ago is quite free of sediment, and as bright and clear as when first made.

EXTRACTUM CINCHONAE FLUIDUM.—*Fluid Extract of Cinchona*.—For this preparation the Pharmacopoeia of 1870 directed as the menstruum, alcohol eight fluidounces, glycerin three fluidounces, and water five fluid ounces, finishing the percolation with diluted alcohol. The present Pharmacopoeia directs, the use of twenty-five parts of glycerin and seventy-five parts of alcohol, and then finishes the percolation with a sufficient quantity of a mixture of three parts of alcohol and one part of water. The Philadelphia College of Pharmacy recommended a menstruum composed of three parts of alcohol and one part of water, with twenty per cent. of glycerin in the first one hundred parts. This furnishes a fluid extract which has kept several years with only a very slight precipitation, the officinal menstruum is so nearly identical that its product would, no doubt, keep as well.

EXTRACTUM COLCHICI RADICIS FLUIDUM.—*Fluid Extract of Colchicum Root*.—As the menstruum for this preparation, the Pharm acopoeia of 1870, directed alcohol twelve fluidounces, glycerin three fluidounces, and water one fluidounce, finishing the percolation with diluted alcohol. The present Pharmacopoeia directs two parts of alcohol and one part of water, the Philadelphia College of Pharmacy recommended diluted alcohol. A sample of the fluid extract prepared over three years ago with diluted alcohol, is at the present time of a deep red color, perfectly

transparent, and contains only the slight deposit that was formed soon after it was made. There seems to be no necessity for the use of the stronger officinal menstruum.

EXTRACTUM COLCHICI SEMINIS FLUIDUM.—*Fluid Extract of Colchicum Seed.*—The menstruum directed for this preparation in the Pharmacopoeia of 1870, was alcohol twelve fluidounces, glycerin three fluidounces, and water one fluidounce, finishing the percolation with diluted alcohol. The present Pharmacopoeia directs two parts of alcohol and one part of water; the Philadelphia College of Pharmacy recommended the same strength. A sample of fluid extract prepared with this menstruum over three years ago remains perfectly clear and entirely without deposit, a very few small globules, probably of oil, are noticed on the top, this would most likely be prevented by the use of diluted alcohol as the menstruum, and this, according to careful experiments reported in the AMER. JOUR. PHARMACY, Jan., 1881, p. 6, is strong enough for the extraction of the whole of the alkaloid.

EXTRACTUM CONII FLUIDUM.—*Fluid Extract of Conium*.—For this fluid extract the Pharmacopoeia of 1870 directed the following menstruum: Alcohol eight fluidounces, glycerin three fluidounces, and water five fluidounces, finishing the percolation with diluted alcohol, and adding to the dilute percolate previous to evaporation, one fluidounce of glycerin and one hundred and eighty grains of muriatic acid. The present Pharmacopoeia directs diluted alcohol to be used as the menstruum, and adds three per cent. of diluted hydrochloric acid to the weak percolate previous to evaporating it. The Philadelphia College of Pharmacy also recommended diluted alcohol as the menstruum, and one per cent. of hydrochloric acid. A specimen of the fluid extract made over three years is not now quite clear, but has only slightly precipitated.

EXTRACTUM CORNUS FLUIDUM.—*Fluid Extract of Cornus*.—Owing to the dropping from the Pharmacopoeia of two other species of cornus and of conium leaves, the names of this and the preceeding fluid extract have been shortened. The menstruum for this preparation, directed by the Pharmacopoeia of 1870, was alcohol eight fluidounces, glycerin three fluidounces, and water five fluidounces, finishing the percolation with diluted alcohol. The present Pharmacopoeia directs diluted alcohol with twenty per cent. of glycerin in the first one hundred parts of menstruum. This is as recommended by the Philadelphia College of Pharmacy, and the resulting fluid extract keeps remarkably well, with only a slight precipitate, such as is formed in most fluid extracts soon after they are made.

EXTRACTUM CUBEBAE FLUIDUM.—*Fluid Extract of Cubeb*.—There appears to be no difference of opinion in regard to the proper menstruum for this preparation, the stronger alcohol directed by the former and the alcohol of the present Pharmacopoeia, being almost identical in strength. This fluid extract will keep indefinitely, and as it is not unpleasant to the taste, it is surprising that it is not more used in place of powdered fruit.

GLEANINGS IN MATERIA MEDICA.

BY THE EDITOR.

Chemistry of the Nymphaceae. By W. Grüning.—Nuphartannic acid $C_{56}H_{56}O_{37}$, which is present in the seed of *Nuphar luteum*, in considerable proportion, is a light yellow mass, easily rubbed into powder, precipitates ferric salts blue-black, and shows the general reactions of tannins; it is associated with nuphar-phlobaphene, $C_{56}H_{50}O_{35}$.

The rhizome of *Nymphaea alba* contains tanno-nymphaein, $C_{56}H_{52}O_{36}$, and nymphaeophlobaphene, $C_{56}H_{48}O_{36}$. The tannin proper, nymphaea-tannic acid, $C_{56}H_{58}O_{38}$, forms a brown-red transparent mass, which readily yields a pale yellow powder, and has the general reactions of the tannins; when heated in a sealed tube, placed in the water-bath, in the presence of dilate sulphuric acid, it is split into ellagic acid, gallic acid, and two substances, one of which is easily oxydized in the air to phlobaphene, while the other yields two bodies resembling viridinic acid. The nuphar tannin is split into an acid resembling ellagic acid; a compound precipitating gelatin and precipitated by alcohol; gallic acid and a substance changing by oxidation to a compound resembling viridinic acid.—*Chem. Ztg.* 1822, No. 67, from *Arch. d. Phar.* [3], xvij, p. 736.

The Tambor.—Some twenty years ago, Dr. Dorat, Of Sonsonate, sent to the late Daniel Hanbury, dried specimens of this tree, accompanied with the following note: "The fruit, about the size of a pear, contains three beans, jet black, which, by pressure, yield a very fine oil in large quantity, rather pleasant to the taste, and resembling castor oil in its purgative effect, with the advantage that it does not gripe. The leaf is large and is used here for packing cheese, on account of its strength. Flowers in December, fruit ripe in February or March. The seeds are covered with an exceedingly hard, black, thin epidermis, with a white soft pulp containing the oil, which, besides its purgative quality, burns well. Seed vessels grow in large bunches." W. B. Hemsley, A.L.S., now describes this plant as a new species, under the name of

Omphalea oleifera, Hemsley.—Leaves large (specimen five inches in diameter), petiolate, papyraceous, somewhat stellately puberulate, with deciduous hairs, suborbicular, deeply ordate; flowers monoecious; the panicles terminal, broad, paniculate, puberulate; bracts small, petiolate, narrow, about an inch long, veined, puberulate; sepals 4, decussate, orbicular, ciliolate; anthers 2; ovary glabrous; fruit three seeded; seeds black.

The same author describes also a plant collected by Sutton Hayes, at Acajutla near Sonsonate, as follows:

Omphalea cardiophylla, Hemsley.—Leaves long-petiolate, papyraceous, very smooth, suborbicular, deeply cordate at the base, acuminate, obtuse (about a foot in diameter), undulate; petiole with 2 glands above, fleshy; staminate flowers in narrow terminal panicles, a foot or more in length; bracts oblanceolate, about 2 inches long, short-petiolate; sepals 4, orbicular, ciliolate; anthers 2, sometimes 3.—*Phar. Jour. and Trans.*, 1882, Oct. 14, p. 301.

Starch in Belladonna root is, according to H. Werner, always present in autumn, when at and after the ripening Of the fruit starch is produced and deposited in the root, to be used in the succeeding spring for nourishing the plant. To obtain the root, rich in starch, it should not be collected until the flowers have begun to fade.—*Archiv d. Pharm*.

Agaricus ruber, Pers., contains, according to T. L. Phipson, a rosered coloring matter, ruberin, which appears bright blue by transmitted light; being soluble in water, it is washed out of the head of the fungus by a heavy fall of rain. Ether extracts from the fungus a yellowish-white alkaloid agarythrine, which has a bitter, afterwards burning, taste somewhat like aconitine; its chloride is soluble, but the sulphate insoluble in water, the latter dissolving in alcohol; it dissolves in nitric acid with a red color, and is colored red by chlorinated lime and afterwards bleached. On agitating the solution of the alkaloid with ether, it is oxidized by the air to a red coloring matter, which is probably the cause of the red color of the surface of the fungus.—*Chem. News*, 1882, p. 199.

A Fatal Dose of Extract of Male Fern is reported on in the "Ceylon Observer." The prescription was dispensed as follows:

℞	Extr. æth. Filic. Mar. . .	1½ oz.
	Pulv. Kamalæ . . .	3 dms.
	Mucil. Acac., Syrup. simpl. .	aa q. s.
	Aquæ Cinnam. . . .	ad 4 oz.

M. S. Half to be taken at bed-time and half at 2 A. M.

The dispenser left out powdered pomegranate root, 3 drams, signifying that be done so to the prescriber. After taking the first dose, the patient was so distressed, that be sent to the prescriber to know whether he should take the remainder, and received an answer in the affirmative. He did so and the tape worm was expelled, but the patient became worse with vomiting and purging, and died in a few hours.

The prescription as actually dispensed closely resembles one attributed in Naphey's "Medical Therapeutics" (6th edit. p. 331) to the late Dr. William Brinton, who, it is there said, "believes this superior to all other combinations for the ejection of taeniae." The dose is precisely the same in both cases, but in the book it is possibly a misprint for 1½ drachms.—*Phar. Jour. and Trans.*, 1882, Oct. 1.4, p. 312.

The poison of the stinging nettle is usually stated to be formic acid. But Alfred W. Bennett is inclined to believe that the irritant fluid always has an alkaline reaction.—*Phar. Jour. and Trans.*, 1882, Oct. 14, p. 320.

Honey.—Eugene Dietrich has repeatedly observed that good American honey may be more easily obtained than German honey of good quality, the latter, on keeping, becoming acid by fermentation, at the same time acquiring an unpleasant taste, and when clarified, of a dark color and a caramel-like taste; but fresh German honey yields, on clarification, an excellent product. The cause for the better keeping qualities of American honey has not been ascertained.—*Rundschau*, 1882, p. 662.

The Volatile Oil of Sandal-wood, obtained by distilling the wood with water, is described by P. Chapoteaut as a somewhat thick liquid of sp. gr. 0.945 at 15ºC, and boiling between 300º and 340ºC. It consists almost entirely of two oxygenated bodies, the more abundant of which is $C_{15}H_{24}O$ (boiling point 300º), and the other $C_{15}H_{26}O$ (boiling point 310º). When treated with phosphoric anhydride, the oil yields two hydrocarbons, $C_{15}H_{22}$ (boiling point 248º) and $C_{15}H_{24}$ (boiling point 260º). Oil of cedar, when purified from oxygen compounds has the composition and boiling point of the former, and is probably identical with it, while the latter is either isomeric or identical with oil of copaiba. The two constituents of oil of sandal-wood are, probably, the one an alcohol and the other an aldehyde. By heating in sealed tubes at 310ºC., and subsequent treatment with phosphoric anhydride, a cymene, boiling at 175º to 180º C., is obtained.—*Jour. Chem. Soc.*, 1883, p. 76, *Bull. Soc. Chem*. [2], 37, p. 303.

PRACTICAL NOTES FROM VARIOUS SOURCES

BY THE EDITOR

Skim-milk as Food.—Ritthausen regards skim-milk as a valuable food for man and beast, 2.8 liters of it containing as much nitrogenous matter as a pound of meat, and it is much cheaper. J. Stohmann has calculated that 1 liter skim-milk corresponds in nutritive value to 160 grams of boneless meat.

J. Koenig shows that skim-milk is by far the cheapest and most nutritious food for adults, and that the proportion of the cost of 1,000 nutritive units is 41.7 for skim-milk, 71.4 for pork, 81.7 for butter, and 201.2 for eggs.—*Jour. Chem. Soc.*, 1883, p. 102.; from *Bied. Centr.*, 1882, p. 641, 693.

Alteration of Preserved Milk.—Several years ago Naegeli observed that preserved milk, which has not been heated to a sufficiently high temperature, or not long enough, gradually acquires an intensely bitter taste, the casein at the same time being peptonized,; he ascribed the change to the influence of schizomycetes (“Naegeli, Theorie der Gährung, p. 89”) Recently Meissl examined a milk (“Berichte, 1882, p. 1259”), which had been preserved by beating, and keeping it in well sealed bottles. After one year it had acquired a bitterish taste; the fat was somewhat rancid and bleached, the milk-sugar unaltered 4 to 5 per cent., albumen and casein were mostly peptonized, and minute quantities of leucin, tyrosin, and ammonia were found, together with traces of acids, the nature of which was not established; organized ferments could not be observed, and the changes were ascribed to the long continued mutual action of the constituents upon one another.

C. Loew (“Berichte, 1882, p. 1482”) states, that milk which has been heated for some time to 120ºC. will keep for a number of years. But he examined a milk which had been kept for 8 years after having been heated to 101ºC. for 40 minutes, and which was brownish, of a faint acid reaction, nearly inodorous, but intensely bitter. The milksugar had been completely transformed into lactose and glucose, and the casein and albumin into peptone, so that potassium ferrocyanide and acetic acid produced not even a turbidity, while tannin, alcohol, mercuric nitrate, and phosphotungstic acid

gave bulky precipitates. A portion of the peptone had been converted into leucin, tyrosin, and ammonia, while a granular deposit, which was insoluble in boiling water and alcohol, appeared to be an anhydride of tyrosin.

Perfumery.—A. Vomácka recommends the following preparations as being of excellent quality; the alcohol used should be distilled from wine, except where otherwise directed.

Eau de Brettfeld, digest for 3 days orris root, 230 grams, in spirit of wine 2,000 grams, and add a tincture prepared from spirit of wine 300 grams, oil of lemon 70 drops, Turkey oil of rose 60 drops, oil of neroli bigarade 70 drops, and musk 0.15 gram.

Eau de Cologne.—Dissolve oil of orange and oil of lemon, each 15 grams, oil of bergamot 6 grams in rectified spirit of wine 3,000 grams. Also dissolve oil of neroli petals 1 gram, oil of neroli bigarade 1.5 gram in rectified spirit of rye 1,000 grams. After 5 or 10 days, mix the two solutions. The fragrance improves by age; but a more delicate odor is produced by distilling the mixture. To the distillate, oil of rosemary 2 grams is added.

Extrait d'Heliotrope.—Dissolve heliotropin 1 gram, in rectified spirit of wine 100 grams; the addition of ambergris 0.1 gram renders the perfume more permanent.

Sachet d'Heliotrope.—Dissolve heliotropin 1 gram, in spirit of wine 25 grams, and incorporate the solution with granulated orris root 200 grains; after partial drying in the air, put into suitable bags. Black silk absorbs the odor best and retains it longest; next follow in the order given blue, red, green, and yellow silk.—Rundschau, 1882, p. 651; from *Casopis cesk. lék*.