

FENNER'S COMPLETE FORMULARY

BEING THE

*Sixth Edition of Fenner's Formulary, greatly enlarged,
revised and entirely re-written.*

CONTAINING

WORKING FORMULAS

FOR ALL

OFFICIAL AND UNOFFICIAL PREPARATIONS GENERALLY USED OR
REQUIRED IN THE PRACTICE OF PHARMACY AND THE BUSI-
NESS OF THE CHEMIST, MANUFACTURING PHARMA-
CIST, MANUFACTURER OF PROPRIETARY MED-
ICINE, PHYSICIAN, PERFUMER, ETC.

A COMPLETE FORMULARY AND HAND-BOOK

*Of Valuable Information for Pharmacists, Manufacturers of
Chemical and Pharmaceutical Preparations, Physicians,
and Students of Pharmacy and Medicine.*

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Sixth Edition.

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PART III.

WORKING FORMULA.

In the formulae which follow we have endeavored to include all preparations generally used or called for that can readily be prepared by druggists. We have made no distinction between officinal and unofficinal formulae, except to note the former when the original text is followed.

For more convenient reference and comparison we have attempted to classify the preparations as nearly as possible under appropriate headings. We have endeavored to make the formulae as plain, explicit and comprehensive as possible, and have avoided as much as possible the use of technical terms and tedious processes. The formulæ are made from actual work in the shop or laboratory, and are therefore **WORKING FORMULA**, which cannot fail to give good results, provided they are carefully followed and good material is used. In submitting them to our friends, it is with the earnest hope that they may contribute something to that store of knowledge which raises the pharmacist above the mere tradesman, and that their use may put many a dollar in the pocket of the druggist, which otherwise would be paid as profit to manufacturers.

ABSTRACTA—ABSTRACTS.

These preparations are properly extracts of vegetable drugs so diluted with Sugar of Milk that they represent the soluble medicinal value of two parts of the drug in one part of the abstract. They were introduced in the 6th Revision of the U. S. Pharmacopoeia, to supply a popular demand for "Powdered Extracts"; but as they are only double the strength of the drug their value for such a purpose is questionable. They have not as yet become popular, and it is doubtful if they are retained in a subsequent revision of the Pharmacopoeia.

The U. S. Pharmacopoeia process for abstracts is in substance as follows:

Exhaust 200 parts of the drug, by percolating with sufficient menstruum, reserving the first 170 parts that pass; evaporate the remaining percolate to 30 parts, adding it to the portion reserved; then add 50 parts Sugar of Milk; allow to evaporate slowly to dryness; powder, and add enough Sugar of Milk to make 100 parts.

The quantitative formulae for the officinal abstracts are as follows:

1. Abstractum Aconiti.
Abstract of Aconite.

Aconite (root),	200 parts.
Tartaric Acid,	2 parts.
Alcohol, Sugar of Milk, each sufficient to make	100 parts.

2. Abstractum Belladonnae.
Abstract of Belladonna.

Belladonna (root),	200 parts.
Alcohol, Sugar of Milk, each sufficient to make	100 parts.

3. Abstractum Conii.
Abstract of Conium.

Conium (fruit),	200 parts.
Diluted Hydrochloric Acid,	6 parts.
Alcohol, Sugar of Milk, each sufficient to make	100 parts.

4. Abstractum Digitalis.
Abstract of Digitalis.

Digitalis (leaves),	200 parts.
Alcohol,	
Sugar of Milk, each sufficient to make	100 parts.

5. Abstractum Hyoscyami.
Abstract of Hyoscyamus.

Hyoscyamus (leaves),	200 parts.
Alcohol,	
Sugar of Milk, each sufficient to make	100 parts.

6. Abstractum Ignatiae.
Abstract of Ignatia.

Ignatia (seed or bean), 200 parts.
Alcohol 8, to Water 1 part,
Sugar of Milk, each sufficient to make 100 parts.

7. Abstractum Jalapae.
Abstract of Jalap.

Jalap (root or tuber), 200 parts.
Alcohol, Sugar of Milk, each sufficient to make 100 parts.

8. Abstractum Nucis Vomicae.
Abstract of Nux Vomica.

Nux Vomica (seed), 200 parts.
Alcohol 8, to Water 1 part,
Sugar of Milk, each sufficient to make 100 parts.

9. Abstractum Podophylli.
Abstract of Podophyllum.

Podophyllum (root), 200 parts.
Alcohol, Sugar of Milk, each sufficient to make 100 parts.

10. Abstractum Senegae.
Abstract of Senega.

Senega (root), 200 parts.
Alcohol, Sugar of Milk, each sufficient to make 100 parts.

11. Abstractum Valerianae.
Abstract of Valerian.

Valerian (root), 200 parts.
Alcohol, Sugar of Milk, each sufficient to make 100 parts.

12. Abstracts, by Water-Bath Percolation.

It is obvious that drugs from which abstracts are to be made may be much more readily and economically exhausted by water-bath percolation than by the cold process—much less menstruum being required to exhaust the drug, and the result much more perfectly representing the active medicinal agents. The following sample formula, which corresponds with the official strength, but differs in manner of making, will serve as a general formula for making abstracts by water-bath percolation.

Abstracts of other drugs may be made in the same general manner, by using the menstruum which is best suited to obtain the medicinal value of the drug without obtaining an unnecessary quantity of worthless extractive matter. The menstruum which is employed for making the Fluid Extract of the drug (see Fluid Extracts) will generally be proper to use for making the abstract.

13. Abstract of Aconite.

Aconite (root), No. 60 powder,	16 ounces.
Tartaric Acid,	75 grains.
Alcohol, Sugar of Milk, in fine powder, each sufficient to make,	8 ounces.

Moisten the drug with 6 ounces of Alcohol, and pack very firmly in the water-bath percolator. Pour upon it 10 ounces of Alcohol and set in a warm place for three days; then heat moderately [to about 60° C. (140° F.)], and after one hour begin to percolate, adding Alcohol to the drug, and continuing the heat until 12 ounces have passed, which reserve. Continue the percolation until the drug is exhausted (or until about 12 ounces more have passed). Evaporate this last percolate by distillation to about 3 ounces, and add to the portion previously reserved. Dissolve the acid in the liquid, add 4 ounces of powdered Sugar of Milk, and set aside in a moderately warm place [not over 50° C. (122° F.)], in an evaporating dish covered with gauze. Let remain until evaporated to dryness, then powder, weigh, and add enough powdered Sugar of Milk to make 8 ounces.

The Alcohol remaining in the drug after percolation may be recovered by distillation.

ACETA—ACETATES—VINEGARS.

Acetates.—Acetates are chemical or pharmaceutical products in which acetic acid is used as a combining factor, or a solvent for medicinal principles. The Acetates may be conveniently classed as follows:

Chemicals, in which Acetic Acid unites with Alkalies, Alkaloids, or metallic bases to form chemical salts ; as Acetate of Potassium, Acetate of Morphine, Acetate of Lead, etc.

Solutions, in which Acetic Acid is combined with some base but not sufficiently concentrated to crystallize, as solution or liquor Acetate of Ammonium, solution Acetate of Iron; or simple solutions of Acetic salts in water or other liquid, as solution Acetate of Morphine, etc.

Tinctures, in which an Acetic solution is diluted with an alcoholic liquid, as tincture Acetate of Iron.

Vinegars, in which the medicinal value of the drug is obtained by Acetic or diluted Acetic Acid as a menstruum. In this class is included the Acetic fluid extracts, and the proper aceta or vinegars which have long been known as pharma-copoeial preparations, and which will now be considered.

The Vinegars which were once quite popular galenicals are now but little used ; they still hold their place, however, in the pharmacopoeias. In the formulae for Vinegars which follow we have found it impracticable to exactly follow the pharmacopoeias, because of the difference in name and acid strength of Dilute Acetic Acid directed by different authorities, and some other peculiarities. We have therefore adopted a general 10 per cent. Standard of the active ingredient, and generally the Diluted Acetic Acid of the U. S. Pharmacopoeia which contains 6 per cent. of real Acetic Acid. We have also added a small percentage of Alcohol in most of them, as is customary in Continental Europe, because we are satisfied that it is an advantage to the preparations. If fluid extracts are used instead of crude drugs this addition will be unnecessary.

14. **Acetum—Vinegar.**

Vinegar was formerly officinal in the U. S. Pharmacopoeia, but is now deleted. It is still retained in the British, German and many other Pharmacopoeias.

It should contain from 5¹/₂ to 6 per cent. of absolute Acetic Acid. When directed to be used, the ordinary commercial Vinegar may generally be employed or Diluted Acetic Acid of the U. S. Pharmacopoeia, which contains about the same percentage of Acid, may be used instead of it.

Acetification.—Acetification is the process by which Saccharine or hydro-alcoholic liquids are converted into vinegar. It consists in the partial dehydration and subsequent oxidation of the liquids by contact with the atmosphere. Domestic vinegar-making is carried on in nearly every household by exposing cider, saccharine or vinous liquids to heat and air. In a large way vinegar is manufactured by running the liquids many times through generators filled with beech-shavings or corn-cobs, and perforated with numerous holes to admit free circulation of air by which the oxidation is rapidly accomplished.

15. **Acetum Aromaticum.**

Aromatic Vinegar.

(Adapted from the German and French Pharmacopoeias.)

Oil of Lavender,	1 part or 5 minims.
Oil of Peppermint,	1 part or 5 minims.
Oil of Rosemary,	1 part or 5 minims.
Oil of Juniper,	1 part or 5 minims.
Oil of Cinnamon,	1 part or 5 minims.
Oil of Lemon,	2 parts or 10 minims.
Oil of Cloves,	2 parts or 10 minims.
Alcohol,	300 parts or 3 ¹ / ₂ fl. ounces.
Diluted Acetic Acid,	450 parts or 5 fl. ounces.
Water,	1,200 parts or 13 ¹ / ₂ fl. ounces.

Dissolve the oils in the Alcohol, add the Acid and Water, and, after standing a few days, with frequent agitation filter through paper.

This is used as an Aromatic toilet preparation and sometimes internally

as a mild Aromatic Acid.

Several proprietary articles similar to this, as Bully's Aromatic Vinegar, etc., etc., have a popular sale as toilet requisites.

16. Acetum Cantharidis.

Vinegar of Cantharides.

(ADAPTED FROM THE BRITISH PHARMACOPOEIA, 1885.) .

Cantharides, bruised,	1 part or 455 grains.
Glacial Acetic Acid,	1 fl. part or 1 fl.ounce.
Acetic Acid, sufficient to make,	10 fl. parts or 10 fl.ounces.

Mix 6¹/₂ fl.ounces of the Acetic Acid with the Glacial Acetic Acid, and the Cantharides in a strong well-stopped quart bottle. Digest the mixture in a water-bath by boiling gently for two hours, then transfer to a glass percolator and percolate, adding enough Acetic Acid through the drug in the percolator to make 10 fl.ounces. It will be observed that this is made with strong Acetic Acid instead of dilute as is usual with the Vinegars. This is a strong vesicant used for blistering. It may be applied with a camel-hair pencil.

17. Acetum Colchici.

Vinegar of Colchicum Seed or Tuber (Root).

Colchicum Seed or Tuber in coarse powder,	729 grains.
Alcohol,	1 ¹ / ₂ fl.ounces.
Diluted Acetic Acid, sufficient to make	16 fl.ounces.

Mix the alcohol with three ounces of the Diluted Acetic Acid, and macerate the powder in the mixture for 24 hours; then transfer to a glass percolator, and percolate, adding, when the liquid has disappeared from the top, diluted Acetic Acid, and continuing the percolation until 16 fl.ounces are obtained.

This preparation is officinal in several of the European Pharmacopoeias. It is preferably made from the tuber (root), and is a very good preparation of Colchicum, but is not much used in this country. It is given for rheumatism and gout, the dose being from 5 to 30 minims.

18. Acetum Digitalis.

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The Southwest School of Botanical Medicine <http://www.swsbm.com>

Vinegar of Digitalis.

Digitalis Leaves, in coarse powder,	729 grains.
Alcohol,	2 fl.ounces.
Diluted Acetic Acid, sufficient to make	16 fl.ounces.

Make in the same manner as Acetum Colchici. A heart stimulant, diuretic and nervine. Dose $1/2$ to 1 fl.drachm, not exceeding 3 fl.drachms per day. This corresponds very nearly to the formula of the German Pharmacopoeia.

19. Acetum Lobeliae.
Vinegar of Lobelia.

Lobelia Herb in coarse powder,	729 grains.
Alcohol,	2 fl.ounces.
Diluted Acetic Acid sufficient to make	2 fl.ounces.

Make in the same manner as Acetum Colchici. An emetic, expectorant, antispasmodic, etc. Dose 5 to 30 minims. This corresponds with the United States Pharmacopoeia, 1880 formula, except in the addition of the alcohol.

20. Acetum Opii, U. S., 1880.
Vinegar of Opium.

Opium in powder,	729 grains.
Nutmeg in powder,	218 grains.
Sugar,	1458 grains.
Diluted Acetic Acid, sufficient to make	16 fl.ounces.

Mix the Opium and Nutmeg and macerate them with 12 fl.ounces of Diluted Acetic Acid for 24 hours, then drain off the liquid, put the drugs in a percolator and percolate with the liquid; dissolve the sugar in the percolate by agitation, and add enough Diluted Acetic Acid through the percolator to make 16 fl.ounces of the mixture.

The addition of $1\frac{1}{2}$ fl.ounces of Alcohol would, in our opinion, be an advantage in this preparation. Used for the same purposes as other preparations of Opium. Dose 5 to 15 minims.

The U. S., 1870, Vinegar of Opium contained 1200 grains of Opium in a pint, and care must be used in dispensing not to mistake one for the other.

The following formula, which is similar to several which are officinal in Europe, is preferable to our own :

21. Acetum Opii Compositum.
Aromatic Vinegar of Opium. British Black Drop.

Opium in powder,	729 grains.
Nutmeg in powder,	218 grains.
Saffron in powder,	73 grains.
Sugar in powder,	1458 fl.ounces.
Alcohol,	2 fl.ounces.
Diluted Acetic Acid, sufficient to make	16 fl.ounces.

Make in the same manner as Acetum Opii. Dose 5 to 15 minims.

22. Acetum Sanguinariae.
Vinegar of Blood Root.

Sanguinaria in powder,	729 grains.
Alcohol,	1 1/2 fl.ounces.
Diluted Acetic Acid sufficient to make	16 fl.ounces.

Make in the same manner as Acetum Colchici. A stimulant to the mucous membrane. Used mainly as an expectorant. Dose 10 to 30 minims.

This corresponds with the 1880 United States Pharmacopoeia, except in the addition of the alcohol. It is officinal only in the United States.

23. Acetum Scillae.
Vinegar of Squill.

Squill, in coarse powder,	729 grains.
Alcohol,	1 1/2 fl.ounces.
Diluted Acetic Acid sufficient to make	16 fl.ounces.

Make in the same manner as Acetum Colchici.

Expectorant and Diuretic. Dose 10 to 60 minims.

This corresponds with the 1880 United States Pharmacopoeia, except in the addition of Alcohol.

The British Pharmacopoeia, 1885, formula nearly corresponds with the U. S. 1870—directing I part of squill in 8, instead of 1 in 10 as above.

ACIDA—ACIDS.

A great variety of widely different chemical substances are classed and included under the general name *Acids*.

In a popular sense acids are substances having a sour taste and capable of turning vegetable blues red; but in chemistry, acids are compound substances having one common and essential property, viz., that of combining with metallic bases, alkalies or alkaloids to form new compounds which are called *salts*. As Hydrogen is a constant element in all acids it is called the *Acid former*, and an acid must be considered a salt whose metal is *hydrogen*, which is displaced in part or wholly when salts are formed with other bases.

24. Acidum Aceticum. *Acetic Acid.*

The U. S. officinal Acetic Acid contains 36 per cent. of real Acetic Acid. The new Br. Ph. (1885) directs an acid containing 33 per cent., while the German Standard directs only 30 per cent. for a corresponding preparation.

Glacial Acetic Acid is practically a pure or 100 per cent. acid, therefore the U. S. officinal Acid may be prepared from it, if desired, by taking

Glacial Acetic Acid,	36 parts, or 4 ¹ / ₂ ounces av.
Distilled Water,	64 parts, or 8 ounces av.

The official Acetic Acids of other pharmacopoeias may be made in the same manner relatively.

reactions which are desired in some of them do not take place when petrolatum is substituted for lard. Lard is still retained as the ointment-base of the pharmacopoeias, but will no doubt be gradually replaced by some more suitable vehicle.

The medicinal preparations in which lard is used will be found under the headings Cerata, Unguenta, etc.

49. Adeps Praeparatus.
Prepared Lard— Washed Lard.

The usual method of washing lard is to spread it on a stone or earthenware slab, and allow a small stream of water to trickle over it, at the same time working it well with a spatula or other convenient mixer. After a thorough washing in this way it is melted and strained.

We suggest the following method, which will be found more convenient and will secure better results:

Melt the lard and pour it into any convenient bottle that will hold three times the quantity desired to be washed. Fill the bottle nearly full of hot water, and while the mixture is cooling agitate it frequently; by this means the lard is granulated or reduced to small fragments. When cool, pour off the water and add fresh cold water to the granulated lard; agitate, pour off the water, add fresh cold water again, and so continue until the lard is thoroughly washed, when it may be melted by water-bath and strained into earthen pots. By adding a fl.drachm of Tincture of Benzoin to each pound of the lard when melted previous to straining it will keep unchanged.

Prepared lard is used for making benzoinated lard, simple cerate, simple ointment and some other cerates and ointments, therefore it may be said to be the base of the officinal ointments and cerates. It is to be regretted, however, that it is so seldom used when directed, the majority of druggists, either through ignorance or neglect, using unwashed lard instead and then wondering why their ointments so soon become rancid. Besides its use in medicinal preparations, washed lard is extensively employed in Continental Europe, for absorbing the odors of flowers. Flower "pomades" are made by spreading layers of flowers on a thin stratum of washed lard, and renewing them as often as the odor of the flowers is well absorbed. From 24 to 30 layers of flowers are thus used

before the washed lard is thoroughly saturated with the perfume. The process is called enfleurage, and the pomades made by the process are known as No. 24 or No. 30 pomades—the numbers indicating the number of times fresh flowers have been supplied to the lard during the process.

50. Adeps Benzoinatus.

Benzoinated Lard— Benzoinated Ointment.

Benzoin, in coarse powder,	2 parts or 140 grains.
Prepared Lard,	100 parts or 1 pound.

Melt the lard by heat not exceeding 140° F., add the benzoin and macerate with frequent stirring for two hours, then strain to remove the particles of benzoin. This will keep unchanged for any length of time, and is therefore mainly used as an ointment base, and for general pharmaceutical purposes when lard is desired. The odorous balsam of the benzoin is dissolved by the lard, and acts as a preservative.

The 1870 U. S. P. directed tincture of benzoin to be used instead of the powder, but it has been found objectionable because of the irritation which is produced when the lard thus prepared is applied.

ALBUMEN.

The most common and familiar form of Albumen is the white of egg (*Albumen Ovi*), which is freshly obtained from hen's eggs, or may be had in the market dried in scales or granulated. Another variety is obtained from blood and other animal fluids, and still another is found in the juices and seeds of plants.

White of Egg is the only form of Albumen used in pharmacy. It is also considerably used in the arts for various purposes, as calico printing, making photographic paper, etc. In pharmaceutical preparations the natural white of egg, which contains about 12¹/₂ per cent. of Albumen, is generally used, but dried-egg albumen is sometimes employed.

The chemical composition of Albumen has not yet been definitely ascertained. It is the Sphinx of the chemist, and its formula is still written with an interrogation point (?). It has been found, however, to

contain Sodium, Sulphur, Nitrogen, Hydrogen and (white of egg) about 85 per cent. of water. Gerhardt has given its approximate formula as



Albumen is but little used in medicinal preparations, but might be more frequently employed with advantage. It forms insoluble compounds with salts of mercury, lead and copper, and some other poisonous substances, and is therefore given in large doses in cases of poisoning by these substances. It forms insoluble compounds with tannin and other vegetable astringents, and may be employed with advantage to detannate preparations which it is desirable to combine with iron, etc., as Elixir of Calisaya, etc. It is a valuable nutritive, and is given combined with iron, soda and glycerin in the form of a syrup. (See Syrup Albuminate of Iron.) Its property of coagulating by heat makes it useful for clarifying liquids, syrups, etc. It is used externally in some toilet preparations and liniments, and in many forms combined with wines, etc., as a nutritive drink for invalids.

The combinations of Albumen with medicines are frequently called *nitrogenized* medicines or *protein* compounds.

Albumenoids are substances resembling Albumen in their general character and composition. *Fibrin* is the chief constituent of muscular tissue and is found in solution in the blood. *Casein* is a constituent of milk, and *Legumin* (called vegetable Casein) of leguminous seeds, beans, peas, almonds, etc.

Albuminates are chemical compounds, either soluble or insoluble, of Albumen with other substances. The compounds and mixtures generally used will be found under the headings Glycerites, Syrups, Solutions, etc.

ALCOHOLES—ALCOHOLS.

64. **Alcohol.** *Ethyl Alcohol—Ethyl Hydrate*



The present U. S. P. describes Alcohol as "a liquid composed of 91 per cent. by weight (94 per cent. by volume) of Ethyl Alcohol, and 9 per

cent. by weight (6 per cent. by volume) of water, sp. gr. 0.820 at 15.6° C. (60° F1.)" It boils at 78° C. (172.4° F.).

The commercial Alcohol (188° proof), which is furnished by the distillers in this country, corresponds very closely with this description.

The U. S. P. designates it simply by the name "ALCOHOL," while the Br. P. terms it ALCOHOL ETHYLICUM—*Ethylic Alcohol*, which seems the more proper name, as it distinguishes it from other Alcohols. Alcohol is chemically Hydrate of Ethyl.

It is composed of

Carbon,	52.67 parts, by weight.
Hydrogen,	12.90 parts, by weight.
Oxygen,	<u>34.43</u> parts, by weight.
	100.

It is obtained by distillation from fermented grain, fruit or other substances composed largely of starch or sugar. In this country Alcohol is principally made from common whisky, by redistillation. When grain is used for making Alcohol or spirits a portion of it is malted for the purpose of developing the *diastase*. The coarsely-ground unmalted grain is then scalded to soften the starchy matter, the malt is added, which converts the starch, first, into dextrin, and then into saccharine matter. It is then cooled, yeast is added, and the vinous fermentation begins, converting the saccharine matter into Alcohol and liberating carbonic acid gas. When fermentation has proceeded long enough the mash is put into stills, and the Alcohol in a weak form (whisky) is obtained. It is then redistilled to obtain the Alcohol of commerce.

When Alcohol is made from fruit or saccharine matter the process begins with the vinous fermentation. Alcohol is the spirit or "spirits" present in wines, beer, cider and all still malt and distilled liquors; its varying proportion determines the strength of the liquors.

Absolute Alcohol is Alcohol containing not more than one or two per cent. of water. It is made from ordinary Alcohol by agitating with carbonate of potassium and fused chloride of calcium, or with slacked lime (which absorbs the water) and redistilling. Its sp. gr. is 0.794 to 0.800. It is sometimes called Attwood's Patent Alcohol.

Stronger Alcohol.—This was directed in the U. S., 1870, Pharmacopoeia, but was not retained in the later revision. Its sp. gr. was 0.817, and it was stronger than the commercial Alcohol, so it was very properly deleted.

Rectified Spirit—*Spiritus Rectificatus*—Br. P.—"Alcohol, with sixteen per cent. of water, obtained by the distillation of fermented saccharine fluids."

This is the Alcohol chiefly directed to be used in the preparations of the Br. P. It corresponds very nearly with the 1870 U. S. official Alcohol — its sp. gr. is 0.838, while the sp. gr. of the 1870 U. S. Alcohol was 0.835 and contained 15 per cent. of water.

To convert the U. S. 1880 or commercial Alcohol into rectified spirit of the British standard, add I fluidounce of water to 16 fl.ounces of Alcohol. This should be observed when working formulae of the Br. P.

The abbreviation S. V. R., *Spiritus Vini Rectificatus*, so frequently met with in English formulas, refers to rectified spirit, which was formerly called Rectified Spirit of Wine.

Spiritus— *Weingist, P. G.*—The Alcohol of the German Pharmacopoeia contains 85.6 to 87.2 per cent. of absolute Alcohol and has sp. gr. 0.830 to 0.834. It is, therefore, a trifle stronger than rectified spirit.

Cologne Spirit.—In this country this is *deodorized Alcohol*, of the same proof as official Alcohol. In France, Cologne spirit is distilled from grapes, and is of about the same proof as Alcohol. When this is desired it is usually called French Cologne spirit. The high duty prevents its use to any extent in this country.

Pure Spirit is a commercial name for deodorized spirit of about 100° proof, which corresponds very nearly with diluted Alcohol. It is similar to but only about half the alcoholic strength of Cologne spirit, and is largely used by rectifiers of liquors and manufacturers of wines for mixing. It is also called *neutral spirit*.

Spirit of Wine is a commercial name for Alcohol, although it properly applies to the French Cologne spirit. It is frequently called for in old

recipes, and Alcohol should be dispensed.

High Wine is a name used by distillers for low-proof Alcohol. When called for, ordinary Alcohol may be used.

Proof of Alcohol.—In this country liquors which contain one half, or 50 per cent., by measure of absolute Alcohol are called PROOF, or 100°. If they contain more than that they are called above or over proof, and, if less, below proof, the proof being shown by adding to or subtracting from 100; thus, whisky, gin, rum and brandy are generally proof, or 100°. If five over proof, they would be called five above or over proof, or 105°, and, if ten less than proof, ten below proof, or 90°. Commercial Alcohol is 188°, or 88° over proof, or 94 per cent. (the percentage of Alcohol by measure always being one half the proof degrees).

65. Alcohol Dilutum.

Diluted Alcohol, U. S., Spiritus Tenuior or Proof Spirit Br. Spiritus Dilutus, P. G.

The present U. S. P. directs diluted Alcohol to be made by mixing equal weight of official Alcohol and water. It is described as "a liquid composed of 45.5 per cent. by weight (53 per cent. by volume) of Ethyl Alcohol, and 54.5 per cent. by weight (47 per cent. by volume) of water. Sp. gr. 0.928, at 15.6° C. (60° F.)." It is made as follows:

DILUTED ALCOHOL, U. S. 1880.

	BY WEIGHT.	BY MEASURE.
Alcohol, sp. gr. .820,	50 parts or 16 ozs. av.,	17 fl.ozs.
Distilled Water,	50 parts or 16 ozs. av.,	14 fl.ozs.

Mix. Sp. gr. 0.928, percentage of Ethyl Alcohol, by weight 45.5, by volume 53.

The 1870 U. S. diluted Alcohol was made as follows:

DILUTED ALCOHOL, U. S. 1870.

Alcohol, sp. gr. 0.835,	(equal parts)	a pint.
Distilled Water,	(by measure)	a pint.

Mix. Sp. gr. 0.941, percentage of Ethyl Alcohol, by weight 39.3, by

volume 46.6.

It will be observed that the present U. S. diluted Alcohol is considerably stronger than the 1870. While it is desirable to have a preparation of sufficient alcoholic strength for the purpose, yet the 1880 diluted Alcohol seems unnecessarily strong for making most of the preparations in which it is employed, in fact, a much weaker menstruum could be as well used in most of them. Druggists, by the usage of a century, have made diluted Alcohol, by mixing equal measures of commercial Alcohol and water. While this may not be strictly scientific, it is the custom that has prevailed, and we find now, in spite of the directions of the 1880 Pharmacopoeia, that the practice is still continued, and that ninety-nine out of one hundred druggists now mix equal volumes of commercial Alcohol and water to make diluted Alcohol. This seems strong enough for all purposes for which diluted Alcohol is used, and we advise its adoption in all the formulas in this work in which diluted Alcohol is directed, except when specially marked U. S. 1880, or U. S. 1870, etc.

DILUTED ALCOHOL, TO BE USED IN THESE FORMULAS.

Commercial Alcohol,	(equal parts)	a pint.
Water,	(by measure)	a pint,

Mix. It contains about 43 per cent. by weight, or 50 per cent. by volume, of commercial Ethyl Alcohol. Sp. gr. at 72° F., 0.933.

When alcohol and water are mixed, a slight contraction of volume occurs with a rise in temperature. The greatest contraction occurs when 52.6 volumes of alcohol are mixed with 47.4 volumes of water, it being 3.4 per cent. This should be taken into account when making specified quantities of diluted alcohol.

Alcohol in Pharmacy.—Alcohol is used in pharmacy to extract or dissolve the properties of drugs and to preserve their solution. No other solvent of medicinal substances has been found of such universal value and application. A large-share of the liquid preparations that are used in pharmacy contain Alcohol and depend upon its solvent power and preservative virtue for their value. Besides this, it is used in making most of the solid extracts, abstracts, alkaloids, resinoids, and many other solid preparations.

The liquid preparations in which Alcohol is used as the solvent of medicinal principles, or for their preservation, may be classified as follows:

Cordials and Elixirs, which contain aromatic substances, and mild medicines, sweetened and combined with sufficient Alcohol to keep them and hold their properties in solution.

Essences and Flavoring Extracts, which are mostly made from essential oils, or aromatic substances dissolved in Alcohol.

Fluid and Liquid Extracts, which contain a large quantity of medicinal value held in solution by Alcohol or diluted Alcohol.

Liquors of all kinds, which are mainly Alcohol in some form, diluted and flavored with the substances peculiar to the kind.

Spirits, which are solutions of essential oils, aromatic substances, etc., in Alcohol, and among which may be included perfumes.

Solutions, which contain Alcohol, either as a solvent or preservative, as solutions of gums, resins, acids, alkaloids, etc.

Tinctures, which are mainly solutions of the medicinal principles of drugs in Alcohol or diluted Alcohol.

To these may be added the abstracts, solid extracts, alkaloids, and medicinal principles of drugs generally, which are obtained by the aid of Alcohol, and it will be seen that in pharmacy it is the most important of any substance, in fact, entirely indispensable in its practice.

In French pharmacy Alcohol is called *Alcool*, and alcoholic preparations are classified according to the manner of preparing them and the substances used in them.

Alcoolats or Alcoholates are medicated distilled spirits, made by macerating aromatic and other substances with Alcohol, and distilling. We have no official preparations that correspond with them. They will be noticed under the headings DISTILLATES, ESSENCES, SPIRITS, TINCTURES, ETC.

Alcoolateures.—These are tinctures prepared by macerating fresh plants (roots, barks, seeds, leaves, flowers, etc.) in Alcohol. They correspond very nearly to what are known in this country as green plant fluid extracts. They are made by macerating equal parts by weight of the fresh substance, properly cut, bruised or divided, in ninety per cent. Alcohol, for ten days, then pouring off the liquid, pressing the drugs, and filtering the extract thus obtained. As our green plant fluid extracts are so similar, these preparations will not be further noticed.

Alcoolés.—These are simple solutions of medicinal substances in Alcohol. Among them are the mixtures of acids, ammonia, etc., with Alcohol and the solutions of alkaloids and their salts, phosphorus, carbonate of potassium, soap, etc., which are not properly classified under the head of "Tinctures Alcooliques." We have included these under the general heading "Tinctures." Besides the above-mentioned preparations containing Alcohol, are those which are classified the same as in our own works, which will be noticed under their proper headings, as Elixirs, Essences, Extracts, Spirits, Tinctures, etc.

ALKALOIDES — ALKALOIDS.

The name Alkaloids is given to a class of organic bases which (like alkalies) combine with acids to form salts. The Alkaloids and their salts represent the active medicinal properties of most vegetable drugs and form a very important class of chemicals. The manufacture of Alkaloids and their salts is chiefly carried on by manufacturing chemists, and a large amount of capital is thus employed.

Alkaloids may be classed as natural and artificial. The natural Alkaloids are obtained from organic substances (animal or vegetable) in which they exist combined with other substances, and the artificial are produced by the skill of the chemist. The natural Alkaloids all contain nitrogen, with hydrogen as a base, and are probably derivatives of the ammonia type (NH_3). Carbon is present in all, and oxygen in most of them. Alkaloids which contain the four elements C, H, N, O, are called AMIDES. They are generally non-volatile crystallizable solids, representing the active principles of vegetable and animal substances from which they are obtained. Alkaloids which contain only the three elements C, H, N, are called AMINES. They are generally volatile liquids, artificially made by substituting hydrocarbon radicals wholly or

partly for the hydrogen of the typical ammonia base.

Considerable confusion formerly existed because of the lack of uniformity of the termination of the names of Alkaloids— some ending with *ia* and some with *ine*, as morphia, quinine, etc., but in the late revisions of the American and British Pharmacopoeias the terminal letters of the names of the Alkaloids are uniformly *ine*. It should, therefore, be remembered that in older works of pharmacy the names of Alkaloids that terminated in *ia* would now be written *ine*.

As Alkaloids are, so to speak, the concentrated principles of the substances from which they are derived they are very powerful, compared with the crude substances, the dose of many of them being very minute. Their salts, being more soluble, are mainly used in medicine. Several Alkaloids varying in composition and characteristics are sometimes obtained from one plant, but in the main they are true representatives of the drug in properties and actions.

Alkaloids are generally insoluble or but sparingly soluble in water, but are readily dissolved in alcohol, chloroform, and the liquid hydrocarbons. They form salts with acids, generally soluble in water. From aqueous solutions of these salts the Alkaloids are precipitated by alkalis, because of the stronger attraction of their acids for the alkali than the alkaloidal base.

The Alkaloids are mainly used in pharmacy as bases for preparing their salts, and are but little employed in medicine, their soluble salts being used instead. It is therefore unnecessary to give explicit formulae for all of them, but only such as are more frequently employed and general processes which may apply to the remainder.

The following general directions for preparing Alkaloids from crude drugs are therefore given, but it may be stated that they can only be considered general directions, and that some special treatment, requiring experience and chemical knowledge is necessary to successfully obtain and separate the Alkaloids of most substances. They are, therefore, generally supplied by competent manufacturing chemists.

70. General Directions for Preparing Alkaloids.

I. FOR ALKALOIDS SLIGHTLY SOLUBLE IN WATER, OR WHICH EXIST IN THE PLANTS, ETC., IN THE FORM OF ACIDS, OR SOLUBLE SALTS OF ALKALOIDS.

Macerate the drug, in coarse powder, twenty-four hours, in water sufficient to cover it, then pack it moderately in the water-bath percolator, adding water freely, and heat to boiling; then begin to percolate, adding water through the percolator, and continuing the heat and percolation until the drug is exhausted; strain the percolate while hot and slowly add to the liquid water of ammonia or liquor of potassa as long as it continues to precipitate, allow to settle, pour off the liquid, pour the precipitate upon a filter, wash with a little water, press, dissolve in very dilute acetic or hydrochloric acid, precipitate again with ammonia or potassa, pour off, drain, and repeat the operation as many times as may be necessary to purify the Alkaloids. The product is the Alkaloids of the drug, which are partially soluble in water. If necessary, they must be separated by various means, recrystallized and dried. The liquors which are poured off contain a small percentage of the Alkaloids, which may be recovered by evaporating them and treating in the same manner as directed.

II. FOR ALKALOIDS INSOLUBLE IN WATER.

Macerate the drug, in moderately fine powder, for twenty-four hours, with sufficient alcohol to cover it, pack firmly in the water-bath percolator, pour alcohol upon it, heat moderately for an hour and begin to percolate, adding alcohol to the drug and continuing the heat and percolation until its strength is exhausted; distil off most of the alcohol and to the residue add sufficient very dilute acetic or muriatic acid to dissolve the Alkaloids that are in the soft extract; this is best accomplished by washing it with several portions of the dilute acid; filter the acid solution and add to it sufficient water of ammonia or liquor potassa to precipitate the Alkaloids, wash the precipitate on a filter with water, and redissolve and reprecipitate if necessary. The product is the Alkaloids soluble in alcohol that were contained in the drug, and they must be separated if necessary.

Many other processes are employed for obtaining Alkaloids, as boiling the drug with dilute acid, precipitating with an alkali, etc., but the foregoing are sufficient to show the general methods. It may be explained in regard to the foregoing processes that the heat employed

serves to dissolve the alkaloids, the same as the acids which are used in other processes, and the subsequent treatment is less troublesome; for example: Strychnine dissolves in 12 parts of boiling or no parts of cold alcohol; quinine in 2 parts boiling or 6 parts of cold alcohol; caffeine in 10 parts of boiling or 75 parts of cold water; therefore, when drugs are percolated with a boiling or heated menstruum, their alkaloids are as readily dissolved as when acids are used, and their subsequent separation is much more simple.

The following are the more important Alkaloids which have been sufficiently investigated to receive reliable recognition and formulas. Many others, of course, exist, for it may be assumed that every genus of plants has its characteristic basic principle or principles which may be isolated, but only the more important ones have thus far received attention.

Important Alkaloids and their Salts.

Of the Alkaloids known and named by chemists, but few are used in medicine, and most of them are unimportant except as chemical products and curiosities. Of the small number which are used in medicine but few are employed as Alkaloids, but mainly as salts formed by the union of these organic bases with acids.

The Alkaloids are generally used for making the oleates, because they will combine with oleic acid, while their salts will not. Some of them are also employed in delicate preparations, where the acids with which they are combined as salts would be inadmissible.

The following important Alkaloids and their salts are those which are frequently used in medicine:

76. Beberina.

Beberine — (*Beberia*—*Bibiria*.) $C_{36}H_{42}N_2O_6$

This Alkaloid is obtained from nectandra or bebeeru bark, in which it exists combined with nectandrine ($C_{40}H_{46}N_2O_8$) and other Alkaloids. It is identical with *buxine*, from box, and *pelosine* or cissampeline, from pareira.

The Alkaloid is not used in medicine but its sulphate is official in the Br. P., and the Alkaloid may be prepared from it if desired by decomposing its solution in hot water with water of ammonia, and washing and drying the precipitate. From the similarity of names care must be taken not to dispense **beberine** or its salts when **berberine** is ordered, and vice versa.

77. Beberinae Sulphas, Br.

Sulphate of Beberine—(Sulphate of Beberia.)

The following is the formula official in the Br. P.:

Bebeeru Bark, in coarse powder,	1 pound av.
Sulphuric Acid,	1/2 fl.ounce.
Slacked Lime, q. s., or	3/4 ounce av.
Solution of Ammonia, a sufficiency.	
Rectified Spirit,	16 fl.ounces.
Diluted Sulphuric Acid, a sufficiency.	
Water,	154 fl.ounces.
Distilled Water, a sufficiency.	

Add the sulphuric acid to the water, pour upon the bebeeru bark enough of the mixture to moisten it thoroughly; let it macerate for twenty-four hours, place it in a percolator and pass through it the remainder of the acidulated water; concentrate the acid percolate to 20 fl.ounces, cool and add gradually the lime in the form of milk of lime, agitating well, and taking care that the fluid still retains a distinct acid reaction; let it rest for two hours, filter through calico, wash the precipitate with a little cold distilled water, and to the filtrate add solution of ammonia until the fluid has a faint ammoniacal odor; collect the precipitate on a cloth, wash it twice with 10 ounces of cold water, squeeze it gently with the hand and dry it by the heat of a water-bath; pulverize the precipitate and wash with separate portions of the spirit, mix the washings, add 4 ounces of distilled water and distil the greater part of the spirit; to the residue add with agitation diluted sulphuric acid until the fluid has a slight acid reaction; evaporate to dryness, dissolve in distilled water, filter, evaporate to a syrupy consistence, spread on glass plates, and dry by a temperature not exceeding 140° F. (60° C.).

This is used as a substitute for quinine, or, rather, its action is similar to it, but it cannot be considered its equal. The dose is from 1 to 10 grains.

78. Berberina.

Berberine — (*Berberia*.) $C_{20}H_{17}NO_4$.

The Alkaloid Berberine is found in a large number of plants, but is most abundant in hydrastis, columbo, gold-thread and several species of barberry. It may be obtained by several methods; but, perhaps, the simplest and the best is by boiling the coarsely-powdered barks or roots, or, preferably, percolating them in the water-bath percolator with boiling water until they are exhausted. The decoction is then to be evaporated to a soft extract and washed with successive portions of alcohol to dissolve out the Berberine; to the alcoholic washings, mixed and filtered, a little water is then to be added and the alcohol distilled off by means of a water-bath; the remaining liquid is then condensed, allowed to cool, and crystals of Berberine will form; these may be purified by dissolving in hot water and recrystallizing.

Uses.—The Alkaloid is but little used, but its salts are extensively employed in medicine. It is a tonic to the mucous membrane, a bitter stomachic and general alterative, and has properties similar to quinine. The dose is from 1 to 8 grains.

79. Berberinae Hydrochloras.

Hydrochlorate of Berberine.

This salt, which was formerly known as *hydrastin*, is generally prepared from golden seal. A decoction may be made, evaporated and treated with alcohol in the same manner as is directed for making Berberine. A little water, acidulated with hydrochloric acid, is then to be added to the alcoholic solution, the alcohol distilled, and the remaining liquid set aside, in which crystals of Hydrochlorate of Berberine will form; these are to be drained from the mother liquor, dissolved in hot water and purified by recrystallization.

It can also be prepared from the Alkaloid *berberine* by dissolving it in hot water, acidulated with hydrochloric acid, allowing to crystallize, and purifying by recrystallizing from hot water.

This salt gained considerable notoriety as an eclectic remedy under the name of hydrastin, and was afterwards known as muriate of hydrastin; but this salt, which is of a bright yellow color, has been shown to be the Hydrochlorate of Berberine, the salts of hydrastine being white instead.

Uses.—Its uses are similar to the Alkaloid—a tonic to the mucous surfaces, etc. It is much used in atonic dyspepsia and weakness of the digestive tract. Dose, 1 to 4 grains.

80. Berberinae Sulphas.

Sulphate of Berberine.

This is prepared by dissolving Berberine in hot water, acidulated with sulphuric acid, crystallizing, redissolving the crystals in hot water and recrystallizing; or may be made directly from the barks or roots containing Berberine in the same manner as is directed for making Berberine, except that water, acidulated with sulphuric acid, instead of water, must be added to the alcoholic solution before distillation.

Uses.—The uses of this salt are similar to the Alkaloid. It is also used in making elixirs, etc. The dose is from 1 to 4 grains.

81. Caffeina.

Caffeine — Theine — Guaranine. C₈H₁₆O₂,H₂O.

Coffee, tea, some other plants, and guarana contain an identical Alkaloid called *Caffeine*. Coffee contains about 1 per cent., tea 1¹/₂ to 4 per cent., and guarana 4 to 5 per cent. of this Alkaloid. It is prepared from these substances by boiling them in water to make a strong decoction, precipitating the decoction with acetate of lead to remove astringent and other matter, filtering, passing sulphuretted hydrogen gas through the filtrate to remove excess of lead, filtering again, adding water of ammonia, evaporating and recrystallizing. It is seldom made except by manufacturing chemists.

Uses.—Caffeine is used as a nerve stimulant in sick and nervous headache and periodic nervous derangements. The dose is from 1 to 5 grains.

82. Caffeinae Citras, Br.

Citrate of Caffeine. $C_8H_{10}N_4O_2, H_3C_6H_5O_7$.

Caffeine,	1 ounce.
Citric Acid,	1 ounce.
Distilled Water,	2 ounces.

Dissolve the citric acid in the water and stir the Caffeine into the heated solution; evaporate to dryness on a water-bath, constantly stirring towards the end of the operation.

The properties and uses of this preparation are the same as Caffeine. The dose is from 2 to 10 grains. It may be conveniently given in the form of an elixir.

96. Hydrastina.

Hydrastine—(Hydrastia.) $C_{22}H_{23}NO_6$

The white Alkaloid *Hydrastine* is recovered from the mother liquor left after the crystallization of salts of *berberine*, when prepared from *hydrastis*.

It is obtained by diluting the mother liquor with water, evaporating the alcohol, filtering to remove resinous matter, etc., adding ammonia to the filtrate, which precipitates the Alkaloid; dissolving the precipitate in hot alcohol; filtering again through animal charcoal to render colorless; evaporating the alcoholic solution and crystallizing.

Uses.—Hydrastine was formerly a waste product of the manufacture of berberine and its salts (hydrastin), but by the advertising of manufacturers, and being colorless, has come to be used in solution for injections, washes, etc. It is also given internally in doses of $1/16$ to 1 grain as a tonic and alterative.

122. Sanguinarina.

Sanguinarine. C₁₉H₁₇NO₄.

This Alkaloid may be made by exhausting Sanguinaria with alcohol, by means of the water-bath percolator, distilling off most of the alcohol, adding water and solution of soda to precipitate, washing the precipitate with hot alcohol, filtering through animal charcoal, concentrating and crystallizing. It is white, but yields very bright red salts with acids.

Nitrate of Sanguinarine and *Sulphate of Sanguinarine* have been introduced by manufacturing chemists, and are quite favorably received by practitioners.

Uses.—Sanguinarine and its salts are used in bronchitis, pneumonia and laryngitis in doses of $\frac{1}{20}$ to $\frac{1}{10}$ grain.

ALOE—ALOES.

As found in the market Aloes consists of the inspissated juice of the leaves of several varieties of *Aloe* found in Africa.

The U. S. P. recognizes only the variety produced from *Aloe Socotrina*; the Br. P. directs both Barbadoes and Socotrine Aloes, while the G. P. names Cape Aloes, which includes a variety of different species native of the Cape of Good Hope. The various species are all more or less used in pharmacy, the Barbadoes and Socotrine being chiefly employed for man and the Cape Aloes for horses and cattle.

The fleshy leaves of the Aloe are cut off near their base and their juice allowed to drain into troughs or vessels. The collected juice is then evaporated to the consistence of an extract and run into boxes, kegs or gourds, in which shape it is brought to the market.

Aloes is a well-known and much-used purgative, being familiarly known to the household as "Picra." It is the active ingredient in most patent and cathartic pills. In small doses, 1 to 2 grains, it is a tonic, stomachic, and is the chief ingredient of several "bitters" which have been extensively sold. The laxative dose is 2 to 3 grains, and the dose as an active purgative is 10 to 13 grains.

Various preparations of Aloes will be found under their proper

headings, as extracts, pills, powders, tinctures, wines, etc.

131. Aloe Purificata, U. S.

Purified Aloes.

Aloes,	100 parts or 10 ounces av.
Alcohol,	15 parts or 2 fl.ounces.

Heat the Aloes by water-bath until it is completely melted, then add the alcohol and having stirred the mixture thoroughly strain it through a fine sieve which has just been dipped into boiling water. Evaporate the strained mixture by means of a water-bath, constantly stirring until a thread of the mass becomes brittle on cooling.

The object of purifying the Aloes is to remove foreign substances, such as sticks, stones, dirt, and other impurities which, by the carelessness in making it, have been introduced. Its properties and uses are the same as Aloes. It is only official in the U. S.

132. Aloin, Br.

$C_{16}H_{18}O_7$

"A crystalline substance extracted from Aloes by solvents and purified by recrystallization. As obtained from the different varieties of Aloes, the products differ slightly, but their medicinal properties are similar." Br.

Aloin appears to be the active or cathartic principle of Aloes. It is obtained by treating Aloes with acidulated boiling water, which dissolves the Aloin and resinous matter. After standing for some hours to cool the liquid is poured off from the resin and evaporated to the consistence of syrup. When cool, crystals of Aloin form, which may be purified by repeated recrystallization from hot alcohol.

The laxative dose is from $\frac{1}{20}$ to $\frac{1}{4}$ grain; the cathartic dose $\frac{1}{2}$ to 2 grains. It is considerably used, in combination with other medicines, in "little liver pills."

AQUÆ — WATERS.

As applied to pharmacy in this country and Great Britain the term *Aquae* or *Waters* includes only aqueous solutions of aromatic or volatile substances, either with or without the aid of some insoluble medium by which their solution may be facilitated.

These waters are more commonly called "medicated waters," but with one or two exceptions they are hardly entitled to that appellation. They are used in pharmacy for making a few medicinal preparations, and in medicine are prescribed as vehicles or aromatic diluents for more active remedies.

The United States Pharmacopoeia includes in the waters, aqua ammoniae and aqua chlori, which are solutions of gas in water; the British Pharmacopoeia includes these among the solutions, which is, no doubt, the more proper classification. In German pharmacy several preparations are classed among the waters that more properly belong with the solutions; and in French Pharmacy, a large number of preparations are included in the "Eaux" which should be in entirely different departments. Under this heading, therefore, only those solutions of volatile substances which are naturally classed with the waters as understood in this country and Great Britain will be mentioned.

The processes by which they are made are as follows :

208. By Solution.

a. Of those made with cold water, the solutions of gaseous ammonia and chlorine; of chloroform, carbolic acid and creasote; of bitter almond oil, and tar may be mentioned. With the exception of the gaseous solutions, which require special apparatus, the remaining waters are made simply by agitating the substances occasionally for several days with cold water.

b. Hot water dissolves the volatile oils much more readily than cold, and very good waters may be made by thoroughly agitating the volatile oil directed in hot water, allowing to stand for several hours, and filtering. Nearly all the waters in which volatile oils are used can be satisfactorily made in this manner.

209. By Distillation.

a. From fresh or dried aromatic fruit, flowers, leaves, bark, or other parts of plants. The substance is introduced with water into a still, and one half or less of the water (which is charged with the volatile constituents of the substances) is distilled over. Or steam is passed through the substances contained in a still, the vapor condensed, and the liquid separated from oily particles by filtration. Most of the waters of the British Pharmacopoeia are made in this manner.

b. From essential oils of plants, by mixing them with a quantity of sand or some other substance to separate the oily particles, then adding water and distilling over about half the quantity used. The proportion is generally one fl.drachm of essential oil, 4 ounces of sand, and one gallon of water. Distill 4 to 6 pints. This is a very good way to make Distilled Waters. They generally keep better than when made from the fruit, flowers, leaves, etc.

Distillation, whenever it is admissible, is to be recommended above all other processes for the preparation of Waters. The process and apparatus are further described on page 26. When made by distillation, the distilled waters while still warm should be put in small bottles, sealed, and put in a cool place. They will then keep for years.

210. By Filtration or Percolation.

a. The process formerly official for making most of the Waters of the United States Pharmacopoeia, was to rub 30 minims of the essential oil with 60 grains of carbonate of magnesium, then with 2 pints of water, and filter. This was generally a very satisfactory process, but it was thought desirable to change the process in the 1880 revision by substituting cotton as a means of mechanically dividing the oil to aid in its solution. The former process is, however, very generally used in preference to the latter. Other substances besides carbonate of magnesium, as phosphate of calcium, powdered pumice-stone, kaolin, precipitated chalk, etc., are sometimes used, but they have no advantages over it.

b. The 1880 United States Pharmacopoeia directs many of the Waters to be made by adding the essential oil gradually to cotton, picking it thoroughly to pieces to distribute the oil evenly, then packing the cotton

in a conical funnel, and percolating with water until the desired quantity is obtained. The cotton (which is preferably absorbent cotton) is best impregnated with the essential oil by the use of cards such as are employed for carding wool. Thirty minims of the oil with 60 grains of cotton is the proper quantity to make two pints of water.

The following are the Waters generally used and prescribed in this country.

211. Aqua Amygdalae Amarae.

Bitter Almond Water.

Oil of Bitter Almonds,	15 minims.
Distilled Water,	2 pints.

Dissolve the oil in the water by agitation (208 a), and filter through a well-wetted filter.

This is an agreeably flavored vehicle.

The German Pharmacopoeia directs this water to be made from Bitter Almonds 12 parts by first bruising and pressing out as much as possible of the fixed oil, then powdering and mixing with 80 parts of water, and 1 part of alcohol, and allowing to stand 12 hours. Eleven parts are then to be carefully distilled off into a well cooled receiver, containing one part of alcohol. This is then to be assayed to determine the amount of hydrocyanic acid, and the distillate so diluted with a mixture of 1 part of alcohol mixed with 5 parts of water, that 1 part of hydrocyanic acid will be contained in 1,000 parts of the finished liquid.

212. Aqua Anethi, Br.

Dill Water.

Dill Fruit, bruised,	1 pound av.
Water,	20 pounds av.

Distill 10 pounds, (209 a.)

This very much resembles Anise Water. It is seldom used in this country, but is much prescribed in Great Britain.

213. Aqua Anisi, U. S.

Anise Water.

Oil of Anise,	30 minims.
Carbonate of Magnesium or Cotton,	60 grains.
Distilled Water,	2 pints.

Make by rubbing the oil with the magnesium or picking with the cotton, adding the water and filtering or percolating as directed (210 a or b.) It may also be made by mixing 1 fl.drachm of oil with 4 ounces of sand and 8 pints of water, and distilling 4 pints (209 b.)

The British Pharmacopoeia directs :

Anise Fruit, bruised,	1 pound av.
Water,	20 pounds av.

Distill 10 pounds, as directed (209 a.)

Anise Water is used as a vehicle for medicines, especially for children.

214. Aqua Aurantii Florum.

Orange Flower Water.

The United States Pharmacopoeia directs 40 parts of recent Orange Flowers and 200 parts of water to be mixed, and 100 parts to be distilled.

Orange Flower Water is seldom, if ever, made in this country. As imported, it is known as Triple Orange Flower Water. By diluting with two parts of distilled water, ordinary Orange Flower Water is made.

An inferior Orange Flower Water may be made by rubbing 20 minims of Oil of Orange Flowers (Oil of Neroli) with 60 grains carbonate of magnesium, adding 2 pints of water, and filtering.

A better preparation may be made by mixing 30 minims of Oil of Orange Flowers (Neroli) with 4 ounces of sand and 6 pints of water, and distilling 3 pints.

Neither of these, however, represent the true flavor of the water distilled from the flowers.

Orange Flower Water is used in a few medicinal preparations and elixirs, but chiefly in toilet preparations, etc.

215. Aqua Camphorae.

Camphor Water (U. S., 1880).

Camphor,	120 grains.
Alcohol,	1/2 fl.ounce.
Cotton,	1/2 ounce.
Distilled Water,	2 pints.

Dissolve the Camphor in the alcohol; moisten the cotton with the solution; allow the alcohol to evaporate; pack in a percolator, and add water until 2 pints have passed.

The 1870 United States Pharmacopoeia directed 120 grains of Camphor to be rubbed with 40 minims of alcohol, then with 240 grains of carbonate of magnesium, and then percolated with water until 2 pints were obtained.

The British Pharmacopoeia directs 1/2 ounce av. of Camphor to be crushed and enclosed in a muslin bag and kept at the bottom of a bottle containing 10 pounds of distilled water (by means of a glass rod) for at least two days before using, and then pour off the solution as required for use.

Camphor Water is used as a mild antispasmodic, in doses of 1/2 to 1 fl.ounce, and as an addition to many medicines.

217. Aqua Carvi, Br.

Caraway Water.

Caraway Fruit, bruised, 1 pound av.
Water, 20 pounds av.

Distill 10 pounds as directed, (209 a.)

It may also be made by mixing 1 fl.drachm of Oil of Caraway Seed with 4 ounces of sand and 8 pints of water, and distilling 4 pints.

This is official only in the British Pharmacopoeia. It is a pleasantly flavored water like Anise or Dill.

219. Aqua Cinnamomi.

Cinnamon Water (U. S., 1880).

Oil of Cinnamon, 30 minims.
Cotton, 60 grains.
Distilled Water, 2 pints.

Add the oil to the cotton; pick, pack, and percolate with the water, (210 b.)

The 1870 United States Pharmacopoeia directed 30 minims of Cinnamon Oil to be rubbed with 60 grains carbonate of magnesium, and then with 2 pints of distilled water, and filtered. The 1880 preparation is to be preferred.

The British Pharmacopoeia directs 20 ounces av. of Cinnamon Bark, bruised, to be mixed with 20 pounds of water, and 1 gallon to be distilled, (209 a.) It may also be made by mixing 1 fl.drachm of Cinnamon Oil with 4 ounces of sand and 8 pints of water, and distilling 4 pints. This makes a superior Cinnamon Water.

Cinnamon Water is used in making several preparations and is much prescribed as an adjuvant or diluent for other medicines. It may be given as a mild stimulant in doses of 1 fl.ounce.

222. Aqua Foeniculi.

Fennel Water.

Oil of Fennel,	15 minims.
Carbonate of Magnesium or Cotton,	60 grains.
Distilled Water,	2 pints.

Rub the oil with the magnesium, or pick with the cotton; add water, and filter or percolate as directed, (210 *a* or *b*.)

The British and German Pharmacopoeias direct this to be made by distillation, as follows:

Fennel Fruit, bruised,	1 pound av.
Water,	20 pounds av.

Distill 10 pounds.

It may also be made by mixing 1 fl.drachm of Oil of Fennel with 4 ounces of sand and 8 pints of water, and distilling 4 pints.

Fennel Water is used as a pleasant vehicle and diluent, the same as Anise.

223. Aqua Gaultheriae.

Wintergreen Water.

Although this water is not known to be official in any Pharmacopoeia, yet it is used and prescribed by physicians quite generally. It may be made as follows:

Oil of Wintergreen,	30 minims.
Phosphate of Lime, precipitated,	120 grains.
Distilled Water,	2 pints.

Rub the oil with the phosphate of lime, add the water and filter.

It may be made by distillation as follows :

Wintergreen, fresh herb,	20 ounces av.
Water,	2 gallons.

Distill 8 pints.

Or by mixing 1 fl.drachm Oil of Wintergreen with 4 ounces of sand and 1 gallon of water, and distilling 4 pints.

224. Aqua Lauro Cerasi, Br.

Cherry Laurel Water.

Fresh Leaves of Cherry Laurel,	1 pound av.
Water,	3 ¹ / ₂ pints.

Crush the leaves and macerate with water in a warm place for 24 hours, then distill 20 ounces.

The Cherry Laurel is seldom found in this country, and it has been demonstrated, by the late Prof. Proctor, that the leaves of our ordinary wild cherry treated in the same way will produce an identical preparation. It is, therefore, advised to use them in making "Cherry Laurel Water" in this country.

Cherry Laurel Water may also be made by adding 15 drops Oil of Cherry Laurel to 2 pints of distilled water, and agitating until dissolved.

It is very similar to bitter almond water, which may be used for it.

225. Aqua Menthae Piperitae.

Peppermint Water.

Oil of Peppermint,	30 minims.
Carbonate of Magnesium or Cotton,	60 grains.
Distilled Water,	2 pints.

Rub the oil with the magnesium or pick with the cotton; add water, and filter or percolate as directed, (210 a or b.)

The British Pharmacopoeia directs this to be made by mixing 1¹/₂ fl.drachms of Oil of Peppermint with 15 pounds of water, and distilling 10 pounds. The oil should be mixed with 4 ounces of sand as directed, (209 b.)

The German Pharmacopoeia directs it to be made by mixing 1 part of cut Peppermint (herb) with water, and distilling 10 parts.

Peppermint Water is very much used and prescribed in medicine as a vehicle for other medicines, especially in flatulence and other dyspeptic troubles.

226. Aqua Mentha Viridis.

Spearmint Water.

Oil of Spearmint,	30 minims.
Carbonate of Magnesium or Cotton,	60 grains.
Distilled Water,	2 pints.

Make in the same manner as is directed for peppermint water, (225.) Its uses are similar.

228. Aqua Pimentas, Br.

Pimento Water.

Pimento, bruised,	14 ounces av.
Water,	20 pounds av.

Distill 10 pounds.

This may also be prepared by adding 30 minims Oil of Pimento to 60 grains of cotton; picking, packing and percolating with 2 pints of distilled water.

It is not as good prepared with Carb. Magnesium, as the oil has an acid reaction.

229. Aqua Rosae.

Rose Water.

Recent Pale Rose (petals),	2 parts.
Water,	10 parts.
Distill by means of steam,	5 parts.

The same proportions may be used, and the distillation performed by the ordinary still.

The British Pharmacopoeia directs 10 pounds of fresh hundred-leaved rose petals to be mixed with 50 pounds of water, and 10 pounds distilled.

The German Pharmacopoeia directs 4 drops of Oil of Rose to be shaken with 1,000 grammes (about 2 pints) of tepid water for some time, and then filtered.

Rose Water, to be fine, should be redistilled. It cannot be profitably distilled in this country, as our roses lack the fragrance of the European varieties.

Triple Rose Water may be bought of the importing druggists, and reduced with one or two parts of distilled water. It is then much better and cheaper than any of domestic production.

A fair quality of Rose Water may be made by adding 10 drops of Otto (Oil) of Rose to 30 grains of cotton, picking, packing and percolating with 2 pints of hot distilled water.

It may also be made by mixing 20 minims of Otto of Rose with 4 ounces of sand and one gallon of water, and distilling 4 pints.

The imported Rose Water is, however, superior to any home production.

Rose Water is used in several official preparations, and is much prescribed as a solvent for various substances used as lotions, etc.; it is also a favorite article for the toilet, either alone or mixed with other substances.

230. Aqua Sambuci, Br.

Elder Flower Water.

Fresh Elder Flowers,	10 pounds av.
Water,	50 pounds.
Distill 10 pounds.	

This is used as a pleasant flavored water for medicinal lotions, etc.

Other Medicinal Waters.

Besides the foregoing waters, which are mostly official in either the United States, British, or German Pharmacopoeias, others are frequently required, but they are all made in the same general manner as those herein given. Of those made from fruit or seeds, angelica, coriander, juniper, parsley, etc., may be made in the same manner as dill or fennel water; of those made from flowers or herbs, balm, borage, chamomile, hyssop, lavender, lettuce, lily, melilot, myrtle, origanum, peach, pennyroyal, rosemary, sage, thyme, violet, wormwood, etc., may be made in the same manner as cherry laurel or elder flower water; of those made from barks, and other substances, lemon, orange, lime, sassafras, valerian, vanilla, and others, may be made by distillation in the same manner as is directed for making cinnamon water.

BALSAMA — BALSAMS.

Balsams or Balms (Fr. Baumes), as they are known in pharmacy, embrace a variety of natural and prepared substances supposed to possess healing or soothing virtues. As popularly known, they include not only the natural Balsams obtained from balsam-bearing trees, but a variety of preparations ranging in consistence from tinctures to ointments, which have derived the name of "Balsam" from properties claimed for them by their originators. In this article we shall include only the Balsams proper, and those prepared, which have by long usage become most familiar as "Balsams," in a pharmaceutical sense. Other Balsams will be found under other headings, where they more properly belong, as *Friar's Balsam* (see Compound Tincture of Benzoin), *Turlingtons Balsam* (see Proprietary Medicines), *Cough Balsam* (see Standard Remedies), etc.

In French Pharmacy a great number of preparations are classed with Balsams which properly belong elsewhere.

True Natural Balsams.

The True Natural Balsams may be defined as oleo-resinous substances, either semi-liquid, or semi-solid, or solid, obtained from plants, and containing benzoic, cinnamic, or some anal-agous acids.

Only seven substances are thus classed, and some of these are not known commercially as Balsams. They are as follows:

259. Balsam of Calaba— *Tacamahaca*.—This is obtained from the trunk, branches and leaves of *Calophyllum Calaba*, or Santa Maria tree. It is a liquid, at first white, but soon becomes olive-green, and is sometimes called Green Balsam. A similar Balsam is obtained from *chloroxylon verticillatum* of Peru, which is popularly called *Green Balsam* (of Peru). They contain benzoic acid.

260. Balsam of Peru.—A liquid balsam, obtained from *Myroxylon Pereirae*, containing cinnamic and benzoic acids, and some other allied compounds. A solid or semi-solid variety is also imported, but not frequently kept by druggists.

Uses.— Balsam of Peru is used as a stimulant to the mucous membrane, and in stimulating ointments, etc. Also as a preservative for fats.

As found in the market, it is frequently adulterated with or entirely fabricated from other substances.

261. Balsam of Tolu.— A Balsam obtained from *Myroxylon Toluifera*, containing cinnamic and benzoic acids, volatile oils, called *benzyl benzoate*, $C_7H_5(C_7H_7)O_2$, and benzyl cinnamate, $C_9H_7(C_7H_7)O_2$, a terpene named Tolene, $C_{10}H_{16}$, and resins. It is a semi-liquid, as first obtained from the trees, but concretes into a solid resinous mass by standing.

Uses.—It is much used in cough remedies as an agreeable aromatic, and in the form of tincture and syrup is frequently prescribed.

262. Benzoin, or *Benjamin*.—A solid Balsamic resin, obtained from *Styrax Benzoin*, containing benzoic acid, cinnamic acid, a fragrant volatile oil and resins. Vanillin is also found in some varieties.

Uses.— In pharmacy it is used as a preservative for fats and in making several preparations, and in medicine as an aromatic stimulant and expectorant. The dose is 10 to 15 grains.

263. China Varnish Balsam.—An aromatic, varnish-like exudation, obtained from *Augia Sinensis*, containing benzoic acid and other similar compounds. It is used by the Chinese for preparing the varnish or lacquer so celebrated in that country.

264. Styrax or Storax.—A Balsam prepared from the inner bark of *Liquidambar Orientalis*, containing cinnamic and benzoic acids, *Styracin*, *Storecin*, *Ethyl Cinnamate*, *Phenyl-propyl Cinnamate*, *Styrol*, resins, etc.

It is a semi-liquid grayish-green Balsam, used in pharmacy in making compound tincture of benzoin, and as a preservative for fats, etc. Also used in perfumery.

265. Liquidambar, or Sweet Gum.—A balsamic exudation from *Liquidambar Styraciflua*. The constituents and properties of this Balsam seem to be identical with Storax, but it differs from it in being, as found in the market, a resinous gum instead of a liquid.

Other Natural "Balsams."

The following natural exudates are commercially known as Balsams, but pharmaceutically are classed with oleo-resins, turpentine, resins, etc., under which headings they will be more fully noticed.

Balsam Copaiba, Copaiba Balsam or Copaiba.
Balsam of Fir, Canada Balsam or Canada Turpentine.
Gurjun Balsam, or Wood Oil.
Hungarian Balsam.
Japan Varnish Balsam or Japan Lacquer,
Balsam of Mecca or Balm of Gilead.
Balsam Rackasira.
Balsam of Riga or Carpathina Balsam.
Turpentine Balsam, Turpentine Gum, or Gum Thus.

Factitious Balsams.

It is customary with dealers, for some purposes, to supply imitations of several of the more expensive Balsams. The practice is not to be commended, but the formulae for these fabrications may be interesting to our readers.

266. Factitious Canada Balsam.

White Resin,	4 pounds av.
Oil of Turpentine,	1 gallon.
Linseed Oil,	8 fl.ounces.
Oil of Lemon,	30 minims.
Oil of Rosemary,	20 minims.

Dissolve the resin in the oil of turpentine and add the other oils.

267. Factitious Balsam Copaiba.

Benzoin, powdered,	4 ounces av.
White Resin,	3 pounds av.
Canada Balsam,	2 pounds av.
Castor Oil,	1 gallon.
Oil of Juniper,	2 fl.ounces.
Oil of Savin,	1 fl.ounce.
Oil of Orange,	30 minims.
Oil of Lemon,	30 minims.

Melt the resin, add the benzoin and part of the Castor Oil, and mix well together; then add the remainder of the Castor Oil and the Canada Balsam, and when nearly cool the remaining oils. Let settle and strain.

Diluted or Reduced Balsam Copaiba.—Balsam Copaiba is often sold diluted with Castor Oil or Canada Balsam, or other similar substances. Such practice should be discountenanced, but the diluted article is, perhaps, better than the factitious.

268. Factitious Balsam of Mecca or Balm of Gilead.

The true Mecca Balsam or Balm of Gilead is an oleo-resin, obtained from the Balm-of-Gilead tree of the East, but the factitious Balsam is much

more frequently sold and used. It may be made as follows :

Benzoin, coarsely powdered,	4 ounces.
Liquid Storax,	3 ounces.
Balsam Tolu,	2 ounces.
Canada Balsam,	30 ounces.

Mix together in a closed vessel and heat by water-bath with frequent agitation until the substances are well incorporated. When cold pour off the clear portion from the sediment and add 10 minims each oils of Lemon, Cassia, Nutmeg, Rosemary and Vanilla.

269. Factitious Balsam of Peru.

Benzoin, in coarse powder,	12 ounces.
Balsam Tolu,	4 ounces.
Liquid Storax,	1/2 ounce.
Alcohol, a sufficient quantity.	

Mix the Balsams with 2 pints of Alcohol and macerate by the heat of a water-bath until the Balsams are dissolved as much as possible; strain the liquid while hot, and add sufficient Alcohol to the strained liquid to make 2 pints.

Diluted or Reduced Balsam of Peru.—This may be made by taking Balsam of Peru 3 parts. Balsam of Tolu 2 parts, and Alcohol enough to make a liquid of the proper consistence (about 2¹/₂ parts).

270. Factitious Balsam of Tolu.

Balsam of Tolu is frequently adulterated with resin or other similar substance, but is seldom made up entirely from foreign substances. An old formula for making Factitious Balsam of Tolu is as follows:

Orange Shellac and White Sugar equal parts, Alcohol sufficient to soften the Shellac, Tincture of Benzoin, Oil of Cassia, Oil of Nutmeg, and Tincture of Vanilla sufficient to flavor; warm and work them well together.

Balsamic Compounds.

The following compounds are those which may properly be classed as Balsamic compounds pharmaceutically. They do not include the ointments that are popularly known as "Balsams," nor the proprietary preparations called "Balsams," nor such tinctures or other preparations known as "Balsams," that more properly come under other headings.

271. Balsam of Honey.

(Pectoral Balsam.)

Balsam of Tolu,	1 ounce av.
Honey, strained,	2 ¹ / ₂ , ounces av.
Opium, in powder,	60 grains.
Turmeric, in powder,	30 grains.
Alcohol,	9 fl.ounces.
Water,	1 fl.ounce.

Mix, macerate for one week and filter. Used for coughs, hoarseness, etc.
Dose, 20 to 40 drops.

272. Balsam of Guaiacum.

Guaiac Resin,	8 ounces av.
Balsam of Peru,	90 minims.
Alcohol,	9 fl.ounces.
Water,	1 fl.ounce.

Mix, macerate for one week and strain. An old remedy for rheumatism, ague, etc. Dose, 20 to 60 drops.

273. Green Balsam.

(Balsam Viride)

Besides the natural Green Balsams previously mentioned, the following is sometimes used:

Linseed Oil,	12 ounces av.
Gum Elemi,	2 ounces av.

Verdigris, in powder, 3 drachms.

Heat the Oil and the Gum together, add the Verdigris, and after standing a few days pour off the liquid. Used externally as a stimulating application to indolent sores.

277 Balsam of Turpentine.

Common Resin, 1 pound av.
Oil of Turpentine, 1 pint.

Melt the Resin, remove from the fire, and while cooling add the Oil of Turpentine. This is sometimes sold as Peckham's Balsam (see Proprietary Medicines).

278. Universal Balsam or Balm.

Benzoin, in powder, 6 ounces.
Balsam of Tolu, 3 ounces.
Storax, 2 ounces.
Olibanum (Frankincense), 2 ounces.
Myrrh, in powder, 2 ounces.
Socotrine Aloes, in powder, 3 ounces.
Alcohol, 1 gallon.

Mix them well together, and keep in a warm place for several weeks, or heat gently in a closed vessel by a water-bath until the gums are dissolved, then strain or filter.

This is given internally in doses of 20 to 40 drops on sugar, or is used externally for cuts or wounds.

It is similar to compound Tincture of Benzoin.

327. Butyrum.

Butter.

In pharmacy fresh unsalted Butter is frequently used as a base for ointments, and although not official, it may often be advantageously employed. It consists of about 30 per cent. of olein, 68 per cent. of palmitin and stearin, and glycerides of butyric and other fatty acids. The process of making butter from cream by agitation is too well known to require description.

In medicine Butter may be given as a food in place of cod liver oil. Medicines may be combined with it, or it may be made into an emulsion or jelly.

328. Butyrin.— By heating clarified Butter in a porcelain vessel for several days to 66° C., separating the oily portion, mixing it with an equal weight of alcohol and agitating it frequently for 24 hours, then pouring off the oily portion, evaporating it, treating the oily residuum with a little carbonate of magnesium, to remove free acid, separating, heating the remaining fatty matter in alcohol, filtering and evaporating. This is the chief neutral principle of Butter, and corresponds with Olein obtained from some other fats.

329. Butterine.

Artificial Butter — Oleomargarine.

Although the manufacture of Butterine does not come within the province of the pharmacist, yet an outline of the process by which it is made may be of interest. Beef fat or suet is washed, cut up and melted at from 122° to 124° F. The liquid fat is drawn off, allowed to settle, strained or filtered, and kept at a temperature of from 80° to 90° F., until the stearine and palmatine mostly crystallize out. They are then separated from the liquid portion and pressed by hydraulic pressure in a room heated to about the same temperature (80° to 90° F.). The portion that remains liquid at this temperature consists of Oleomargarine. It becomes solid when cool.

To make it into Butterine, it is churned while warm with milk (80 pounds of milk to 500 pounds of oil), and colored the desired shade, then run from the churn into a trough, where it is suddenly chilled by mixing it thoroughly with pounded ice, thereby preventing it from crystallizing. It is then salted and worked like butter, and flavored usually with a little extract of tonka-bean to give it the odor of new-mown hay. Its uses

are similar to butter. (*sounds lovely!* - MM)

354. Carbo Animalis.

Animal Charcoal.

Animal Charcoal is known commercially as ivory-black or bone-black, and is prepared in a large way by first boiling bones in water to free them from fat and adhering particles, and then subjecting them to destructive distillation in iron cylinders, by which process they are deprived of their volatile portions, as ammoniacal liquor, or bone spirit and tar, or bone oil, and become charred, consisting mainly of carbon and calcium salts.

Uses.— Animal charcoal is extensively used for decolorizing substances by filtering them through it, especially for refining sugar, making petrolatum, etc.; also for making blacking for shoes and as a pigment. For pharmaceutical use, purified animal charcoal should be used.

355. Carbo Animalis Purificatus.

Purified Animal Charcoal.

Animal Charcoal,	2 parts or 8 ounces av.
Hydrochloric Acid,	3 parts or 10 fl.ounces.
Water, a sufficient quantity.	

Pour the hydrochloric acid, previously mixed with 4 pints of water, upon the animal charcoal and digest the mixture on a water-bath for 24 hours, occasionally stirring (this is for the purpose of dissolving the calcium salts which are present); then pour off the supernatant liquid and digest the undissolved portion with 4 pints of water for two hours, transfer the mixture to a strainer, and when the liquid portion has run off, wash the residue with water until the washings give no cloud with a solution of nitrate of silver; then dry the product and heat it to dull redness in a covered crucible.

Uses.—Thus treated, the crude bone-black becomes pure carbon, which may be used for delicate chemical or pharmaceutical operations. It is chiefly used for filtering and decolorizing solutions of alkaloids and fine

chemicals.

356. Carbo Ligni.

Charcoal— Wood-Charcoal.

This is prepared for commerce by charcoal-burners, who pile billets of wood in conical form, cover the pile with earth, ignite it from the bottom, and then close it from access of air, leaving the process to go on without consuming the wood, which is by the heat deprived of its oxygen, hydrogen, etc. leaving charcoal or carbon as the result of the operation.

For pharmaceutical use, charcoal prepared from willow is preferred.

Uses.— In pharmacy, powdered charcoal is used for filtering many substances that cannot be made clear by ordinary filtering processes. It is also used in tooth powders. In medicine it is given in doses of one or two drachms as an antiseptic, and absorbent especially in gastric derangements. On account of its absorbent qualities, it should be kept in tight tin cans or bottles.

CERÆ—WAXES.

Wax is a general name for a variety of peculiar, concrete substances resembling beeswax. Although the varieties used are few, they are obtained from the animal, vegetable and mineral kingdoms, and serve important and useful purposes that could not well be supplied by other substances. In the arts beeswax is extensively used for modeling, making molds, electrotyping, etching, etc. In pharmacy it is used for making cerates, ointments, and other similar galenicals. Other varieties of wax are but little used in comparison with beeswax, but some of them are now being employed in place of it for some purposes, as they can be obtained at lower prices.

The following are the varieties of wax known and used in pharmacy, Beeswax only being official:

364. Cera Flava.

Yellow Wax, Beeswax.

This is obtained by melting the honey-cells of the common honey-bee, *Apis Mellifica*, and is purified by straining and agitating with hot water while fluid. It is then poured into pans containing a little hot water, when most of the impurities subside, and may be scraped from the under surface of the cake when cold.

Beeswax is composed of three different substances, namely, *Myricin*, *Ceratic Acid* and *Cerolein*. These substances may be separated by boiling wax in alcohol; the first remains undissolved; the second dissolves but crystallizes out upon cooling; the third remains in solution in the cold alcohol.

Uses.—Yellow Wax is used in the arts for molding, etc., and in pharmacy for making some kinds of cerates and ointments, when the color is not objectionable. It is better in many respects for cerates, etc., than white wax, which is prepared from it.

365. Cera Alba.

White Wax.

White Wax is Beeswax bleached by exposing yellow wax in thin layers to the action of light, air, and moisture. It is prepared in a commercial way by first melting yellow wax and making it into thin sheets, which are spread upon linen cloths stretched upon frames, moistened occasionally and exposed to the air and light until the color is partly discharged. The wax is then gathered, melted, and sheeted as before, and again bleached in the same manner, and the operation is continued until it is considered sufficiently white for the market, when it is melted and run into round or square cakes.

Uses.—White Wax is considerably used in the form of thin sheets for making wax-flowers and other artistic work. It may be sheeted for this purpose by melting on water and plunging a round bottle in the melted mass. When withdrawn a thin coating of wax adheres to the bottle, which, when cut, comes off in sheets. In pharmacy it is used in making the light colored cerates, and to give consistence to some of the white ointments.

Other kinds of Wax.

The following are varieties of wax obtained from natural sources:

366. Bay Wax, Myrtle Wax, or Bayberry Tallow. — This is obtained from the fruit of the Wax Myrtle by boiling it in water, the wax or fat collecting on the surface. It is greenish-yellow, has a balsamic odor, and is harder and more brittle than beeswax. It is sometimes used in ointments, and for making candles, from which the fruit is called Candleberry.

367. Carnauba Wax.— Obtained from the leaves of the Wax Palm by boiling them in water and collecting the wax which rises to the surface. This wax is extensively used for the manufacture of candles, and also for making varnish. It is not used in pharmacy.

368. Japan Wax.— A species of wax or turpentine obtained from *Rhus Succedaneum* of Japan. It is used chiefly for making varnish and candles.

369. Ozokerite or Ceresin — *Mineral Wax, Earth Wax,*— This is a species of wax obtained from mineral deposits in various parts of the country, but chiefly from Austrian-Poland. It is found in the fissures of shale or slate, from which it is obtained by fusion. When refined it so closely resembles yellow beeswax as to be readily sold for it, and it may be used for the same purposes.

370. Paraffin Wax.—The solid, white crystalline hydrocarbon obtained from petroleum by chilling it with ice, pouring off what remains liquid, and subjecting the remaining semi-solid mass to pressure, is called Paraffin or Paraffin Wax. It considerably resembles White Wax, and is sometimes used to adulterate it. It varies considerably in hardness, according as more or less of the soft Paraffines remain combined with it. It is used instead of Beeswax for many purposes, and may be employed in making ointments and cerates, but is not so satisfactory as Beeswax. It is used for making corks impervious to chemicals, for sealing bottles, covering jelly, etc.

The following are preparations made of various substances and known as Waxes:

371. Gilding Wax.—Made of Beeswax 4 ounces, Verdigris 1 ounce, Red

Ochre 1 ounce, powdered Alum 1 ounce, melted and mixed together.

372. Modeling Wax.—Made of Beeswax, Lead Plaster, Olive Oil and Yellow Resin, each equal parts, with whiting sufficient to form a mass.

373. Sealing Wax.—The basis of the best Sealing Wax is made as follows :

Pale Shellac,	8 ounces.
Venice Turpentine,	2 ¹ / ₂ ounces,
Coloring as desired, a sufficiency.	

Melt the Shellac carefully in a bright copper vessel, and add the Venice Turpentine, then stir in the coloring and mould the wax into sticks, which may be stamped or pressed as desired. The best red sealing wax is made by adding 6 ounces of vermilion to the above quantity; a cheaper red wax can be made by using red lead instead. The best black is made by adding 5 ounces of very finely powdered ivory-black to the above quantity. Other colors may be made by adding other pigments.

Cheaper Sealing Wax may be made as follows :

Resin,	1 pound av.
Shellac,	8 ounces,
Venice Turpentine,	6 ounces.
Coloring as desired, a sufficient quantity.	

Melt together and stir in the coloring.

Soft Sealing Wax for official documents and express packages may be made with:

Resin,	8 ounces.
Beeswax,	8 ounces.
Olive Oil,	5 ounces.
Venice Turpentine,	12 ounces.
Coloring as desired, a sufficiency.	

Melt together and stir in the coloring.

Bottle Wax may be made from :

Resin,	12 ounces.
Beeswax,	2 ounces.
Burgundy Pitch,	2 ounces.

Melt together and color red with red lead or Venetian red; black with ivory black; green with verdigris or chrome green; brown with umber, etc.

CERATA—CERATES.

Cerates are preparations composed of wax combined with fatty or resinous substances, and intended to be spread upon lint, linen, or other similar material, to be used externally.

They are of firmer consistence than ointments, and are mostly designed rather to protect the parts to which they are applied, than to be absorbed, as is expected of ointments.

The British and German Pharmacopoeias make no class distinction between Cerates and Ointments, but such a classification seems quite proper when the difference in the uses to which they are applied is considered.

The use of lard in some of the Cerates, which has formerly been common, although still retained in the official formulas, has been mostly superseded by petrolatum, because of its better keeping qualities and general adaptability to the purpose; in the formulas for Cerates which follow, therefore, it will be understood that when "lard or petrolatum" is directed, lard is mentioned, because it is directed in the U. S. P., but petrolatum is preferable.

To secure uniformity of the mass, and prevent granulation of the wax, most of the Cerates are stirred while cooling. This also makes them whiter and lighter as regards their specific gravity, by introducing air.

Paraffin is sometimes used in making Cerates instead of beeswax, but it does not make so satisfactory a preparation.

The following are the Cerates official in the U. S. P.:

374. Ceratum.

Cerate or Simple Cerate.

White Wax,	3 ounces.
Lard (or White Petrolatum),	7 ounces.

Melt them together, and stir the mixture constantly until cool.

Uses.—This is the base known as "Simple Cerate," with which medicinal substances are incorporated when desired to be used in this form. It is also used as a simple dressing for sores, blisters, etc.

375. Ceratum Camphorae.

Camphor Cerate.

Camphor Liniment (1 part Camphor, 4 parts Cotton Seed Oil),	1 ounce.
Olive Oil,	4 ounces.
Cerate,	28 ¹ / ₃ ounces.

Mix the Camphor Liniment and the Olive Oil, and incorporate with the Cerate.

MADE WITH PETROLATUM.

Camphor, in fine powder,	1/4 ounce.
White Wax, or Paraffin,	8 ounces.
Petrolatum,	24 ounces.

Melt the Wax and the Petrolatum, and while cooling, but still liquid, add the Camphor.

Uses.—In Pharmacy, Camphor Cerate is used for making Goulard's Cerate, and is frequently prescribed combined with other substances desired in the form of a cerate.

380. Ceratum Resinae.

Resin Cerate, Basilicon Ointment.

Resin,	7 ounces.
Yellow Wax,	3 ounces.
Lard (or Petrolatum),	10 ounces.

Melt them together at a moderate heat, strain the mixture through muslin, and allow to cool without stirring.

Uses.—This Cerate is used in pharmacy for the preparation of turpentine liniment, and as the base of many compound Cerates which are prescribed by physicians. It is healing and stimulating.

381. Ceratum Resinae Compositum.

Compound Resin Cerate.

Although this Cerate is deleted in the 1880 Pharmacopoeia, it is still frequently prescribed ; the formula is as follows:

Resin,	2 ounces.
Yellow Wax,	2 ounces.
Turpentine (Gum Thus),	1 ounce.
Petrolatum,	3 ounces.

Melt them together, strain, and stir until cool. This differs from the 1870 formula in substituting Petrolatum for Suet and Flaxseed Oil.

Uses.—The uses of this Cerate are similar to simple Resin Cerate, but it is more stimulating.

382. Ceratum Sabinae.

Savine Cerate.

Fluid Extract of Savine,	2 ¹ / ₂ ounces av.
Resin Cerate,	9 ounces av.

Melt the Resin Cerate, add the Fluid Extract of Savine, and heat moderately until the Alcohol has evaporated; then stir constantly until cool.

Uses.—This is a stimulating irritant, sometimes employed instead of Cantharides Cerate. It is but little used in this country.

383. Ceratum Saponis.

Soap Cerate.

Why this Cerate is omitted in the 1880 U. S. Pharmacopoeia is not apparent, as it is prescribed as frequently as many of the Cerates that remain; the formula is therefore given for it as prepared with Petrolatum :

Soap Plaster.	2 ounces.
Yellow Wax,	1 ounce.
Petrolatum,	5 ¹ / ₂ ounces.

Melt the Plaster and Wax together and add the Petrolatum; continue the heat until it is liquefied, then stir the mixture until cool.

Uses.—Soap Cerate is a valuable cleansing application to indolent sores and ulcers.

Other Cerates.

The foregoing official Cerates include nearly all for which there is a demand in this country. Many other preparations that are frequently called Cerates will be found under the heading UNGUENTA. A great many preparations that are simply mixtures of a medicinal substance with Cerate are sometimes prescribed by name, as Opium Cerate, Quinine Cerate, etc.; but it seems unnecessary to give detailed formulas for them.

The following have been popular or well-known Cerates, some of them having been official in European Pharmacopoeias:

386. Cerate Cosmetic, or Cold Cream.

Oil of Sweet Almonds,	8 fl.ounces.
White Wax,	1 ounce av.

Spermaceti,	1 ounce av.
Rose Water,	5 fl.ounces.
Borax, in fine powder,	4 drachms.

Melt the Wax and Spermaceti in the Almond Oil by aid of heat; dissolve the Borax in the Rose Water, and when the melted Wax, etc., is cooling, gradually add the solution of Borax, beating or agitating with a wooden spatula until cold.

This makes a Cold Cream base, to which other ingredients may be added if desired. If other perfuming oils are required, mix them with the mass while agitating and nearly cool; if it is desired to add Glycerin, add it to the solution of Borax in Rose Water. Camphor may be dissolved in the melted mass while warm. Tincture of Benzoin added to the melted mass gives it an agreeable odor, and helps materially to preserve it. 1 ounce is sufficient for the above quantity.

It may be made firmer by using a larger proportion of Wax. Petrolatum may be used instead of Oil of Almonds. Cologne, or bulk perfumes of any kind, may be incorporated, etc.

Uses.— Cold Cream is used to soften the skin, for chap, sun-burn, sores, and all purposes where a soft soothing ointment is desired.

387. Cerate of Galen.

Cerat de Galien, Fr.

Oil of Sweet Almonds,	8 fl.ounces.
White Wax,	2 ounces av.
Rose Water,	6 fl.ounces.

Melt the Wax in the Oil by heat, and while cooling gradually add the Rose Water, beating it in with a wooden spatula.

This Cerate is considerably used in French pharmacy as a cerate or ointment base. It is similar to cold cream or rose-water ointment, and is used for similar purposes.

389. Rose Cerate, or Lip Salve.

Oil of Almonds,	8 fl.ounces.
White Wax,	4 ounces av.
Alkanet Root,	1/2 ounce av.

Digest the Alkanet in the Almond Oil for some days, then filter or strain, add the Wax, melt and perfume while cooling with Otto of Roses, 30 drops, or other suitable perfuming oil a sufficient quantity. This makes a nice lip salve. Other formulas will be found among the Toilet Preparations.

Of other Cerates that are sometimes called for or prescribed, many will be found among the ointments of corresponding names. A few not thus classified are of sufficient importance to deserve mention here.

392. Cacao Cerate.— Butter of Cacao, Oil of Sweet Almonds, and White Wax, each equal parts, melted together. For chaps, etc.

394. Copaiba Cerate.— Add 1 ounce of Balsam Copaiba to 8 ounces of Spermaceti Cerate, previously melted. A stimulating application.

CHARTÆ — PAPERS.

In pharmacy a few medicinally prepared papers for various purposes are known, of which three are official in the U. S. P., and two in the new Br. P. They may readily be prepared by druggists. The following are the official papers:

407. Charta Sinapis.

Mustard Paper.

The following is the U. S. 1880 formula, adapted to water-bath percolation:

Black Mustard, in No. 60 powder,—	
Benzin,—	each a sufficient
Solution of Gutta-Percha,—	quantity.

Pack the Mustard firmly in the water-bath percolator and gradually

pour Benzin upon it; pour hot water in the water-bath surrounding the percolator, and percolate with the Benzin until the percolate ceases to produce a permanent greasy stain upon blotting paper. (This operation is for the purpose of removing the fixed oil from the Mustard.) Remove the powder from the percolator and dry it by exposure to the air. Then mix with it sufficient Solution of Gutta-Percha to give it a semi-liquid consistence, and apply with a brush to one side of heavy, well-sized paper, and allow to dry. Each square inch of the paper should contain about 6 grains of Mustard. The Br. formula is similar to the U. S., 1870.

Mustard in powder,	1 ounce av.
Solution of Gutta-Percha, about,	2 fl.ounces.

Mix the Mustard with the Gutta-Percha solution so as to form a semi-fluid mixture, and having poured this into a shallow-vessel pass strips of cartridge-paper over its surface, so that one side of the paper shall receive a thin coating of the mixture.

Uses.— Mustard Paper is much used as a counter-irritant in neuralgia and many other diseases. Before applying it should first be immersed in warm water for about 15 seconds.

Other Papers.

Besides the foregoing official papers which are employed in medicine, others are known and sometimes used for applications and other purposes. A variety of papers are also made for various purposes, useful in pharmacy as test papers, parchment paper for dialysing, filtering paper, carbon paper for duplicating, etc. The more important papers are as follows:

408. Antiasthmatic Paper.— Unsized gray filtering paper, 6 ounces; nitrate of potassium in fine powder, 3 ounces; belladonna, stramonium, digitalis, lobelia, and water-fennel, all in fine powder, $\frac{1}{4}$ ounce each; myrrh and olibanum in powder, $\frac{1}{2}$ ounce each. Tear up the filtering paper, and soak in water until soft; press out the water and beat the mass into a pulp, with which incorporate the powders; put into suitable moulds and dry. This may be moulded similar to pastils, which see.

411. Copying Paper.—Thin, strong, soft paper is prepared in various

413. Oiled Paper.—This is used in pharmacy for doing up packages of chemicals or other substances which are affected by moisture or air; also for capping bottles, jars, etc. It may be made by brushing sheets of paper of any desired thickness with boiled linseed oil, and drying them on a line. Oiled card board is used in copying-books for copying letters.

414. Parchment Paper,—Used in pharmacy for dialysing and for covering jars, capping bottle tops, etc. It is prepared from strong, white, unsized paper by dipping it for half a minute in strong sulphuric acid, diluted with a quarter of its measure of water, and then, after standing a few moments, into water containing a small quantity of ammonia.

415. Test Papers.—Various kinds of test papers are used in pharmacy — the most used and best known being blue and red litmus paper, for detecting the presence of acids or alkalies.

Blue Litmus Paper is made by dipping strips of filter-paper into an infusion of Litmus, made as follows : Triturate 1 ounce of Litmus in a mortar with 4 ounces of boiling water; pour off the liquid and add more boiling water in two or three portions until half a pint of the solution altogether is obtained. When cold, filter the solution and divide the filtrate into two equal portions; into one of these add with a glass rod a very small quantity of sulphuric acid until it begins to be very slightly red; then mix the two portions again and dip the paper in them as directed.

Blue litmus paper is a delicate test for acids, which turn it red.

Red Litmus Paper.—To the solution of blue litmus prepared as above add sulphuric acid gradually by dipping a glass rod in it and then in the solution of litmus until it has a distinctly red color. Dip strips of filtering paper into this solution and dry.

Red litmus paper is a delicate test for alkalies, which turn it blue.

Tumeric Paper.—This is a yellow paper, sometimes directed to be used as a test for alkalies, which turn it brown. It is also turned brown by boric acid and soluble borates. It is made by boiling 2 ounces of tumeric in one pint of water, and dipping strips of paper in the decoction.

416. Tracing Paper.—For tracing drawings, designs, patterns, etc.,

thin, unsized white paper is made semi-transparent by applying to it with a brush a varnish made with equal parts of Canada Balsam and Oil of Turpentine, and drying by hanging on a line. It may also be made by applying a mixture of equal parts of Cotton Seed Oil and Oil of Turpentine; but the excess of oil must be absorbed by rubbing it over as soon as applied with flour or starch. The latter is more flexible than the former, but not so transparent.

417. Waxed or Paraffin Paper.—This may be made in a small way by dipping sheets of thin paper into a vessel of melted paraffin, and afterwards ironing them over with a hot flat-iron. Commercially, it is made by passing paper through rollers heated by steam and fed with melted paraffin. This paper is useful in pharmacy for covering over ointments, etc., and wrapping around packages of camphor ice, cosmetics, etc., to prevent them greasing the packages in which they are contained. It is much used by grocers to cover packages of lard, butter, or other greasy substances.

Besides the foregoing "papers," which may readily be made by druggists, *Filtering Paper* is an essential in pharmacy. It is made only by manufacturers who make a business of it. The best Swedish filtering paper is made of pure flax fibres, very finely crushed and broken; the white English papers have some cotton mixed with the flax; while the common gray circular papers of French, Dutch, and English manufacture, contain considerable wool, jute, and esparto grass, making them more porous and rapid filters than the other varieties, but not suited for fine chemical work.

427. CHOCOLATA.

Chocolate and Cocoa.

Chocolate is prepared from the roasted seeds of *Theobroma Cacao*, deprived of their husks or "shell." Its manufacture in this country, although confined to only a few establishments, constitutes an important industry.

To prepare Chocolate, the seeds, which are somewhat like small acorns, are roasted, then decorticated, or deprived of their covering or husks. The kernel is then ground in a mill, and made into a paste with heated

metal rollers. It is then run into cakes. Chocolate, as thus prepared, contains considerable fatty matter, known as *Oleum Theobromae*, or Butter of Cacao. By mixing it with warm water, most of the oil rises to the top and is removed. The precipitate is collected, dried, and variously prepared, and is known on the market as COCOA.

Chocolate and Cocoa are extensively used as nutritive drinks, for which they are more esteemed than tea and coffee. In confectionery vast quantities are used, chocolate confectionery being the universal favorite. In pharmacy Chocolate is frequently used in confections, for covering the taste of disagreeable medicines, and sometimes in making simple elixir to which it gives an agreeable flavor. It is extensively used, made into a syrup for the soda fountain.

A variety of proprietary tablets, containing Chocolate as a base, have formerly been put upon the market, but as they are liable to become wormy or spoil, they have mostly been withdrawn.

It is quite a common error to suppose that Chocolate and Cocoa are prepared from the well-known Cocomut, the fruit of *Cocos Nucifera*, instead of the small acorn-like nuts or fruit of *Theobroma Cacao*.

COLORES—COLORS.

In pharmacy a variety of preparations are made for coloring various medicinal and toilet preparations, juices, solutions, syrups, extracts, powders, etc. They are very properly divided into several classes, which will be considered in the order of their importance in pharmacy. Many of the substances from which they are made will be noticed under other headings, as Anilina, Tinctoria, etc.

Coloring Liquids.

These are designed for coloring medicinal preparations, solutions, juices, syrups, extracts, spirits, liquors, cordials, elixirs, and all liquids in which it is necessary to use a harmless coloring ingredient. They must, as a rule, make clear, transparent preparations when combined with aqueous solutions, or with spirits containing 50 per cent. of alcohol.

438. Caramel.

Solution of Caramel, Burnt Sugar Coloring. (Brown.)

Sugar, any convenient quantity.
Water, a sufficient quantity.

Put the Sugar (without water) into an iron kettle of several times the capacity required for it, heat it to 410° to 430° F. as long as it gives off any vapor, and until it is changed to a black, viscid mass, stirring it occasionally during the operation, then cool, and while cooling add hot water in the proportion of one pint for each pound of the sugar used, let stand to dissolve, strain the solution, and concentrate it by evaporation to a syrupy consistence, or until it measures a pint for each pound of sugar used.

As ordinarily made, no precaution is taken to regulate the degree of heat, and for that reason a portion is converted into charcoal, which is insoluble. In small operations this is unimportant, but in manufacturing establishments the heat is regulated by an oil or sand-bath, or other means, to avoid this difficulty.

Uses.—Caramel is extensively used for coloring liquors, bottled beverages, and in soda-water syrups, etc. In pharmacy it is employed for coloring syrups, solutions, elixirs, wines, and other liquids, which are required to have an artificial brown coloring. A reddish-brown is made by mixing caramel with red coloring.

Preparations containing more than 50 per cent. of alcohol precipitate this coloring, and it may be obtained pure in the form of a mass or powder by pouring it into strong alcohol, and afterwards washing the precipitate with alcohol.

439. Carmine Coloring.

Solution of Carmine. (Red.)

Carmine, No. 40, 120 grains.

Carbonate of Potassium (Salts of Tartar),	60 grains.
Glycerin,	2 fl.ounces.
Water of Ammonia,	1/2 fl.ounce.
Water,	5 fl.ounces.

Rub the Carmine with the Salts of Tartar to a fine powder, and then with the Glycerin, Water of Ammonia, and lastly with the Water, added in successive portions to rinse out the mortar. This is a strong red coloring, easily made, and will keep permanently.

Uses.—This solution may be used for coloring all neutral elixirs, solutions, tinctures, syrups, etc., which do not contain a large percentage of alcohol. It is precipitated by acids, and cannot therefore be employed for coloring acid syrups, etc. It makes a fine Red or Carmine Ink, and may be perfumed by diluting with an equal quantity of Orange Flower or Rose Water, and used as "Liquid Rouge." It may be used for giving a "flesh" tint to liquid face cosmetics, and may be mixed with face powders to give them the same.

440. Cochineal Red.

Cochineal,	1 pound av.
Carbonate of Sodium (Sal Soda),	1 ounce av.
Alcohol,	1 pint.
Water, sufficient to make 2 pints.	

Grind the Cochineal to a coarse powder, mix the alcohol with one pint of Water, and dissolve the Sal Soda in the mixture, moisten the powder with the liquid, put in a water-bath percolator, pour upon it the remainder of the liquid, allow to stand 24 hours, heat moderately for one hour, then percolate, adding water to the drug after the liquid has disappeared from the surface, and continuing the percolation until 1³/₄ pints of the percolate have passed, which reserve, continue the percolation with water until a pint more has passed, which evaporate to 4 fl.ounces, and add to the reserved portion.

Uses.—This may be used the same as the Carmine solution for coloring all neutral elixirs, syrups, etc. When added to an acid preparation the color is very much weakened, and a precipitate eventually forms.

441. Cochineal Fruit Red.

Cochineal,	1 pound av.
Cream of Tartar,	2 ounces av.
Alcohol,	1 pint.
Water, sufficient to make 2 pints.	

Make in the same manner as No. 440.

Uses.—This coloring may be used with fruit juices or syrups, wines or other mildly acid preparations, and gives with them a bright red color. It may also be used with neutral liquids.

442. Cudbear Red.

Cudbear,	1 pound av.
Alcohol,	1 pint.
Water, sufficient to make 2 pints.	

Percolate and proceed in the same manner as is directed for making Cochineal Red (440). This is also known as *Tinctura Persionis*.

Uses.— This makes an excellent red coloring, which may be used for all neutral and acid preparations. It is similar to most of the "Fruit Coloring" that is sold by dealers in soda-water supplies. Acids brighten but do not weaken its color; with alkalies it gives a purple color.

443. Grass-Green.

Fresh Lawn Grass,	any convenient quantity.
Alcohol,	a sufficiency.

Cut the grass fine, put it in a wide-mouthed bottle, as compactly as possible, and cover it with alcohol, let stand a few days, with occasional agitation, and pour off the liquid, which will be a dark-green color. The Chlorophyll of the grass is dissolved by the alcohol.

Uses.—This is used for coloring bay rum, and some liquors and cordials. As it is only slightly soluble in water, it is not recommended for aqueous preparations, a solution of sap-green being used for these.

444. Lemon-Yellow.

For coloring Extract of Lemon or other spiritous solutions a natural lemon-yellow, chop the peel of lemons and cover them with alcohol, allow them to stand for a few weeks, then pour off the liquid.

445. Fustic-Yellow.

Ground Fustic Wood,	1 pound.
Diluted Alcohol,	a sufficient quantity.

Pack the Fustic in a percolator, pour sufficient diluted alcohol upon it to cover it, and after standing 24 hours percolate, adding enough diluted alcohol through the percolator to make two pints of the percolate.

Uses.— This may be used for imparting a yellow color to any preparation desired. For coloring Lemon Extract it is perhaps better to put the Fustic in the filter instead of using this.

446. Litmus Blue.

The method of making a solution of Litmus has already been described (415). This solution may be used for coloring neutral preparations, but is changed to red if acid is present.

447. Orange.

For coloring orange flavoring extract made from Oil of Orange or other spiritous solutions a true orange color, chop the peels of oranges and cover them with alcohol, allow them to stand for a few weeks, then pour off the liquid.

Saffron Orange may be made from Saffron in the same manner as 444, and is a fine coloring for many preparations.

Tumeric, with alcoholic solutions, makes a light orange color.

Annatto, or *Arnatto*, makes a reddish orange color in solutions.

448. Butter Color.

Many proprietary preparations have been extensively sold for coloring butter. The first put upon the market were solutions of the coloring principles of annatto or annatto in strong alkali. These had the disadvantages of being unpalatable and coloring the buttermilk, making it unfit for use, but are still used for coloring cheese. For coloring butter, Oil colors which combine with the butter only, and do not color the buttermilk, are now used entirely. The best Butter Color may be made from Annattoine, the coloring principle of Annatto, as follows:

Annattoine,	4 ounces av.
Salad Oil (Purified Cotton Seed Oil)	
sufficient to make	1 gallon.

Rub the Annattoine with a portion (say 1 pint) of the Salad Oil until it is a smooth mixture of uniform consistence. Grind the mixture very fine through a paint mill, or by continued rubbing in a mortar. Add it to the remainder of the Oil, and heat by water-bath, with occasional stirring, for 4 hours or longer; then, when cool, strain or filter through paper.

As thus prepared this is equal to any of the Butter Colors on the market, provided only the right materials be used in making it. The Annattoine must be free from adulteration, and the Salad Oil free from odor.

Colors for Powders, Etc.

For coloring tooth powders and pastes and face powders, Solution of Carmine maybe most advantageously used by first rubbing a portion of the powder thoroughly with it to form a stiff mass, and then incorporating this by rubbing with the remainder of the powder. If powdered carmine is used instead of the solution, great care must be taken to have it finely powdered and thoroughly mixed with the other ingredients.

Other colors for powders are seldom required, but if they are, some harmless drug or pigment may be used, as charcoal or ivory black for black, tumeric for yellozr, red saunders for a cheap red, etc.

Show Bottle Colors.¹

Colors for show bottles, to be satisfactory, must be bright, transparent, and permanent, able to stand the sunlight without precipitation and changes of temperature incident to the climate without freezing in winter or decomposing in summer. To meet all these requirements, solutions of mineral substances, containing a percentage of alcohol or acid sufficient to keep them, are generally best adapted. The aniline colors, although bright and beautiful, usually refract light, and are soon faded or decomposed by the action of sunlight.

The following hints will be serviceable in preparing show-bottle colors:

Use rain water or distilled water for making them, to avoid precipitates.

If in a cold climate use 15 to 25 per cent. of alcohol to avoid freezing; in a warm climate much less, or even none, is required in most of the colors.

Filtering properly is very important; do not be satisfied until your colors are perfectly transparent. They may require to be filtered once or twice a year, but their improved appearance well repays the cost.

Do not make the colors for the large globes too strong or dark; deeper colors can be used in the small globes.

The following colors are readily made, simple and inexpensive, and will be found satisfactory:

449. Amber, Lemon or Orange.

Any shade of yellow that may be desired, from a light amber or lemon to a deep orange, may be made by taking:

Chromic Acid,	5 to 60 grains.
Water,	1 gallon.

¹ Like the striped barber's poll, the tobacconist's wooden Indian or the pawn-brokers balls, pharmacies had brightly colored water in blown glass containers displayed in their windows as a badge of profession. Some pharmacies had extravagant displays, just for the pleasure of genial excess. Some say these various archaic symbols were for the benefit of the illiterate or the immigrant; some say they were American homegrown versions of the European Trade Guild symbols - MM

Dissolve and filter.

Bichromate of Potassium, which is usually used for making an amber color, deposits a coating of insoluble matter on the glass very difficult to remove, and soon renders the color dim. When Chromic Acid is used, this is avoided.

450. Blue.

Sulphate of Copper, Blue Vitriol. 2 pounds av.
Sulphuric Acid, 8 fl.ounces.
Warm Water sufficient to make a gallon.

Dissolve the Blue Vitriol in the Water, add the Acid and filter.

This makes a very Deep Blue; a Medium Blue may be made by diluting one half with water, a Light Blue by diluting with from 4 to 8 parts of water, according to shade desired. A fine Blue may also be made by dissolving Copper in Nitric Acid, and diluting with water.

451. Crimson.

Alkanet Root, 1 pound av.
Oil of Turpentine, 1 gallon.

Percolate the Alkanet Root with the Oil of Turpentine.

This may be made any lighter shade of crimson by diluting with Oil of Turpentine. This will not, of course, mix with other colors.

452. Green.

Add to each gallon of Blue from 10 to 60 grains of Chromic Acid, according to shade of green desired. Any shade of Green from a deep Blue-Green to a rich Olive may be made by varying the quantity of Chromic Acid. For *Medium Green* dilute the Green thus made with an equal quantity of water; for *Light Green* dilute with from 4 to 8 parts of water, according to the shade desired.

453- Red or Scarlet.

Cudbear,	1/2 ounce av.
Nitric Acid,	4 fl.ounces.
Water,	1 gallon.

Mix, allow to stand 24 hours, and filter.

To make Medium Red, dilute with an equal quantity of water; to make Light Red, or Pink, dilute with 4 to 8 parts of water, as required to produce the desired tint.

454. Violet.

Cudbear,	60 grains.
Aqua Ammonia,	4 ounces.
Water enough to make 1 gallon.	

Mix. allow to stand 24 hours and filter. For lighter shades of violet dilute with water.

455. Wine Color.

Caramel Solution,	sufficient.
Water,	7 pints.
Alcohol,	1 pint.

Mix sufficient of the Caramel with the Water and Alcohol to make the desired color, and filter.

A wine color .may also be made by dissolving a few grains of iodine in a pint of alcohol, and adding water sufficient to make a gallon, then a few drops of nitric acid until the right shade is produced.

The foregoing are the principal colors used in show bottles, but as many more as may be desired may be made by combining them. Some of the aniline colors make very fine effects, but are not so permanent as the preceding. If two or three colors are desired in one globe, amber, blue, or green may be used to partly fill the globe, and the crimson poured carefully upon it to fill. The turpentine color will remain permanently at the top.

Many other substances which are naturally colored may be used in

show bottles, as fruit juices mixed with alcohol and water, oils of various kinds, either natural or colored, etc., but the foregoing are the cheapest and best.

Colored Fires.

Although the manufacture of colored fires may not properly be included in the practice of pharmacy, the druggist is frequently called upon to prepare them.

The following formulae are designed for making fires suitable for theatrical illuminations, street parades, etc., which are the kinds usually required to be made by druggists. In the manufacture of fire-works a great variety of colored fires are made, but their formulas are not important to the druggist.

In making colored fires it is necessary to observe some precaution in powdering and mixing the materials. The substances should be separately powdered, then mixed by means of a wooden spatula, and the mixture kept in tin cans away from moisture or heat. The sulphur directed is sometimes omitted from the formula; on account of its disagreeable vapor, but it is not generally objectionable in the quantities used.

456. Blue Fire.

Dark Blue may be made by taking:

Sulphur,	1 ounce.
Burnt Alum,	1 ounce.
Carbonate of Copper,	1 ounce.
Chlorate of Potassium,	4 ounces.
Shellac,	1 ounce.

Powder the drugs fine and mix with the Shellac in moderately coarse powder.

Light Blue may be made by taking :

Sulphur,	1 ounce.
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Burnt Alum,	2 ounces.
Chlorate of Potassium,	4 ounces.
Shellac,	1 ounce.

Mix the same as the preceding.

457. Green Fire.

Dark Green may be made by taking:

Nitrate of Barium,	4 ounces.
Boric Acid,	1 ounce.
Chlorate of Potassium,	3 ounces.
Sulphur,	1 ounce.
Shellac,	2 ounces.

Powder the drugs fine and mix with the Shellac in moderately coarse powder.

Light Green may be made by taking:

Carbonate of Barium.	2 ounces.
Sulphur,	1 ounce.
Chlorate of Potassium,	4 ounces.
Shellac,	2 ounces.

Mix as the preceding.

458. Red Fire.

Dark Red may be made by taking:

Nitrate of Strontium,	6 ounces.
Chlorate of Potassium,	2 ounces.
Sulphur,	1 ounce.
Shellac,	1 ounce.

Powder the drugs fine and mix with the Shellac in moderately coarse powder.

Light Red or *Pink* may be made by using only half the quantity of the

Nitrate of Strontium, or as follows :

Chalk,	2 ounces.
Sulphur,	1 ounce.
Chlorate of Potassium,	3 ounces.
Charcoal,	1/4 ounce.
Nitrate of Potassium,	3 ounces.
Shellac,	1 ounce.

Powder and mix as the preceding.

459. Violet Fire.

Burnt Alum,	1 ounce.
Carbonate of Potassium,	1 ounce.
Sulphur,	1 ounce.
Chlorate of Potassium,	4 ounces.
Shellac,	1 ounce.

Powder the drugs fine and mix with the Shellac in moderately coarse powder.

460. White Fire.

Nitrate of Potassium,	8 ounces.
Charcoal,	1/4 ounce.
Sulphur,	1 ounce.
Shellac,	1 ounce.

Powder and mix as the preceding.

461. Yellow Fire.

Sulphur,	1 ounce.
Dried Carbonate of Sodium,	2 ounces.
Chlorate of Potassium,	5 ounces.
Shellac,	1 ounce.

Powder and mix as the preceding.

The foregoing are all the Colored Fires that are generally required for theatrical illuminations, street parades, etc., but a great variety of other colors may be made by variously combining them, and many shades of color may be made by varying the quantities of the ingredients used.

Liquid Colored Fires or Flames.

These may be made by dissolving certain substances to saturation in Alcohol or other liquids which will dissolve them, and burn with rapidity. They are best ignited in a shallow iron pan, which for safety should be set in a shallow pan of water. Considerable caution is required in burning these liquids, that accidents may be prevented.

The substances used should be finely powdered and triturated with the Alcohol in a mortar.

Blue may be made by dissolving Acetate of Zinc in Alcohol; Green, by dissolving Boric Acid in Alcohol; Red, by dissolving Nitrate of Strontium in Alcohol, or by making a strong Tincture of Lycopodium; Violet, by dissolving Carbonate of Potassium in Alcohol; Yellow, by dissolving Nitrate of Sodium in Alcohol; White, by dissolving Camphor in Alcohol.

Another method of exhibiting Colored Fires, and perhaps the best of all, is to mix the finely powdered substances which produce the colors, as above, with a moderately thick Solution of Shellac in Alcohol. They are thus suspended, and when burned give forth their characteristic color.

CONFECTIONES—CONFECTIONS.

Confections are substances resembling soft, solid extracts, prepared by incorporating medicines with sugar or other saccharine matter and aromatics. They were once very popular, but are now little used. Similar preparations, varying somewhat in consistence and manner of making, were formerly known as Electuaries and Conserves, and as such they are still called for occasionally.

Confections and Conserves.

Of the Confections formerly official but two only were retained in the U. S. 1880 Pharmacopoeia. The 1885 Br. P. retains eight.

Several popular proprietary articles, such as Fruit-Laxatives, etc., are Confections, put up in attractive form.

In French Pharmacy under the name *Conserves* a great variety of fresh leaves and petals of plants are made into mass by beating or pounding with sugar, until they are thoroughly incorporated. The proportion of sugar used varies from double to three times the quantity, by weight, of the fresh leaves. The following formulae are representative of the whole class:

462. Conserve de Cochlearia.

Confection of Scurvy Grass.

Scurvy Grass Leaves, fresh,	1 part.
Sugar,	3 parts.

Beat the two substances in a mortar until they are reduced to a pulpy mass, which should then be passed through a hair-cloth sieve by the aid of a flat-ended wooden spatula.

In French Pharmacy the leaves or flowers of several plants containing considerable water are made into Conserves in the same manner and with the same proportion of sugar as sorrel, fumitory, the cresses, peach and violet flowers, etc., are made into Confections in this manner.

Other Conserves of leaves which contain considerable moisture are made in the same proportion, but those containing less moisture are made as follows :

463. Conserves de Laurier-Cerise.

Confection of Cherry-Laurel Leaves.

Cherry-Laurel Leaves, fresh,	1 part.
Sugar,	2 parts.

Make in the same manner as the preceding.

A great variety of leaves and flowers are made into conserves in this

proportion.

U. S. and Br. Official Confections.

The following are the confections official in the U. S. and Br. Pharmacopoeias;

464. Confectio Opii, Br.

Confection of Opium.

Compound Powder of Opium,	100 grains or 1 part.
Syrup,	300 grains or 3 parts,

Mix. Dose, 5 to 20 grains.

As the compound powder of Opium contains 10 per cent. of opium, this is about the same as the U. S. 1870 preparation, which was made as follows:

Opium, in fine powder,	270 grains.
Aromatic Powder,	6 tr.ounces.
Clarified Honey,	14 tr.ounces.

Mix, etc.

This confection was much used during the past century under the names of *Theriaca*. and *Mithridate*, wonderful virtues being ascribed to it. It is still occasionally called for by those names.

465. Confectio Piperis, Br.

Confection of Pepper.

Black Pepper, in fine powder,	2 ounces or 2 parts.
Caraway Fruit, in fine powder,	3 ounces or 3 parts. .
Clarified Honey,	15 ounces or 15 parts.

Rub them well together in a mortar. Dose, 60 to 120 grains.

466. Confectio Rosae Caninae, Br.

Confection of Hips.

Hips, deprived of their seed-like fruits,	1 part.
Refined Sugar,	2 parts.

Beat the Hips to a pulp in a stone mortar, and rub the pulp through a sieve, then add the sugar and rub them well together.

To American druggists, who are unacquainted with "Hips," it may be explained that it is the oval red fruit of the dog rose or wild brier, common in fields and hedges.

467. Confectio Rosae, U. S.

Confectio Rosa Gallicae, Br.—Confection of Rose.

The U. S. formula is:

Red Rose (the dried petals), in No. 60 powder,	2 ounces.
Sugar,	16 ounces.
Clarified Honey,	3 ounces.
Rose Water,	4 ounces.

Rub the Rose (petals) with the Rose Water, heated to 65° C. (149° F.), then gradually add the Sugar and Honey, and beat the whole together until thoroughly mixed.

The British formula is :

Fresh Red-Rose Petals,	1 part or 1 pound.
Refined Sugar,	3 parts or 3 pounds.

Beat the Petals to a pulp in a stone mortar, add the Sugar, and rub them well together. This is used in making several official pills, and is much prescribed in pill masses, etc.

468. Confectio Scammonii, Br.

Confection of Scammony.

Resin of Scammony, in powder,	6 oz. or 48 parts.
Ginger, in powder,	3 oz. or 24 parts.
Oil of Caraway,	1/4 fl.oz. or 2 fl.parts.
Oil of Cloves,	1/8 fl.oz. or 1 fl.part.
Syrup,	6 fl.oz. or 48 fl.parts.
Clarified Honey,	3 oz. or 24 parts.

Rub the Powders with the Syrup and the Honey into a uniform mass, then add the Oils and mix. Dose, 10 to 30 grains.

469. Confectio Senna.

Confection of Senna,

The U. S. formula is:

Senna, in No. 60 powder,	10 ounces av.
Coriander, in No. 40 powder,	6 ounces av.
Cassia Fistula, bruised,	16 ounces av.
Tamarind,	10 ounces av.
Prune, sliced,	7 ounces av.
Fig bruised,	12 ounces av.
Sugar, in coarse powder,	50 ounces av.
Water, a sufficient quantity,	57 1/2 fl.ounces.

"Place the Cassia Fistula, Tamarind, Prune and Fig in a close vessel with 3 pints of water, and digest for 3 hours by means of a water-bath. Separate the coarser portion with the hand, and rub the pulpy mass first through a coarse hair sieve and then through a fine one, or through a muslin cloth. Mix the residue with the remainder of the water, and having digested the mixture for a short time, treat as before, and add the product to the pulpy liquid first obtained. Then by means of a water-bath dissolve the Sugar in the pulpy liquid and evaporate the whole until it weighs 84 ounces avoirdupois. Lastly, add the Senna and Coriander, and incorporate them thoroughly with the other ingredients while yet warm."

The finished product should weigh 100 ounces av. The Br. formula does not differ materially from this, except that extract of liquorice is added.

Confections similar to this are put up in masses of about a drachm covered with silver leaf, and sold as *Fruit Laxatives* or *Cathartic Lozenges*.

470. Confectio Sulphuris, Br.

Confection of Sulphur.

Sublimed Sulphur,	4 ounces or 4 parts.
Acid Tartrate of Potassium,	1 ounce or 1 part.
Syrup of Orange Peel,	4 fl.ounces or 4 fl.parts.
Tragacanth, in powder,	18 grains or $\frac{1}{24}$ part.

Rub them well together. Dose, 60 to 120 grains.

471. Confectio Terebinthenae, Br.

Confection of Turpentine.

Oil of Turpentine,	1 fl.ounce or 1 fl.part.
Liquorice Root, in powder,	1 ounce or 1 part.
Clarified Honey,	2 ounces or 2 parts.

Rub the Oil of Turpentine with the Liquorice, add the Honey, and mix to a uniform consistence. Dose, 60 to 120 grains.

Other Confections, Conserves and Electuaries.

The foregoing official Confections embrace nearly all for which there is a demand, except those occasionally called for in recipes from old works on medicine and pharmacy.

No class distinction is now made between Confections, Conserves, and Electuaries, but they were formerly classified separately, according to their characteristics. Confections being of firmer consistence, and usually made of dry ingredients mixed with sugar, and made up in the form of an extract. Conserves being of about the same consistence, but prepared from fresh leaves, flowers, fruit, or other vegetable matter mixed with sugar to a stiff pasty mass. Electuaries being of much softer consistence, and prepared generally by mixing powdered substances

with syrup, honey, or other saccharine liquids.

This distinction is now done away with, and all are classed under the head of Confections, but are liable to be called for by old names. The following are the most important:

472. Aromatic Confection.— Aromatic Powder, 4 tr.ounces, mixed with Clarified Honey 4 tr.ounces, or a sufficient quantity to make a mass of the proper consistence. This was formerly official in the U. S. P.

473. Confection of Almonds or Almond Paste.— Sweet Almonds, 8 ounces; White Sugar, 4 ounces; Powdered Acacia, 1 ounce. Blanch the Almonds, and beat them with the other ingredients until all are reduced to a uniform smooth confection.

Milk of Almonds may be prepared from this confection by rubbing a portion of it with water and straining through cloth.

474. Confection of Orange Peel. — Sweet Orange Peel, recently separated from the fruit by grating, 1 tr.ounce; Sugar, 3 tr.ounces. Beat them together into a confection. This was formerly official in the U. S. P.

Confection of Lemon may be made in the same way.

475. Candied Sweet Flag.—Fresh Sweet Flag or Calamus is peeled, cut in pieces or sliced, and simmered with syrup for several hours, then drained and dried. Many other confections of fresh aromatic roots, barks, fruit and flowers, may be prepared in the same manner. Angelica root, ginger root, lemon and orange peel, rose and violet flowers, and some of the aromatic seeds or fruits, as caraway, fennel, etc., are thus prepared.

Most of the other confections, conserves and electuaries are of the past, and so seldom called for that their formulas are omitted.

CORDIALES— CORDIALS.

In pharmacy a few preparations similar to elixirs are prepared and dispensed under the name of Cordials. They have probably derived their name from their similarity to the French Ratafias, Cordials or Liqueurs, which are highly flavored, stimulating beverages, weak in spirit and sweetened. In this class only those cordials which are well known to American pharmacy will be included, the others being mentioned under the heading Liqueurs, Ratafias, etc. Many preparations that are popularly known as Cordials will be found among the Elixirs, Proprietary Remedies, etc.

476. Calisaya Cordial.

Calisaya Bark,	4 ounces av.
Wild Cherry Bark,	4 ounces av.
Orange Peel, fresh,	4 ounces av.
Cinnamon Bark,	2 ounces av.
Anise Seed,	1/2 ounce av.
Angelica Seed or Root,	1 drachm.
Cloves,	1 drachm.
Cardamom Seed,	1 drachm.
Alcohol,	2 pints.
Rose Water,	1 pint.
Sugar,	3 pounds.
Water sufficient to make	1 gallon.

Chop the Orange Peel fine and grind the drugs to a coarse powder, pour the Alcohol upon them and macerate for 48 hours; then pour off the Alcohol, transfer the drugs to a percolator, pour the alcoholic tincture upon them and percolate. When no more percolate will drop add to the drugs in the percolator, first, the Rose Water and then water, continuing the percolation until 6 pints altogether of percolate is obtained. Filter clear, dissolve the sugar in the filtrate, and add enough water passed through the drugs in the percolator to make a gallon of the Cordial. It may be colored red, if desired.

This is considerably used to disguise the taste of quinine, and other disagreeable medicines, and also as a pleasant tonic cordial. Dose half a wine glassful.

477. Curaçao Cordial.

Aromatic Cordial. Elixir Curaçoa.

Bitter Orange Peel. in very coarse powder,	2 ounces av.
Cloves, in fine powder,	80 grains.
Cinnamon in fine powder,	80 grains.
Cochineal in fine powder,	60 grains.
Oil of Sweet Orange,	1 fl.drachm.
Orange Flower Water, triple,	8 fl.ounces.
Holland Gin,	1 pint.
Alcohol,	2 pints.
Sugar,	3 pounds av.
Water sufficient to make	1 gallon.

Pour the Alcohol upon the drugs, add the Oil of Orange, and macerate for 2 days; then add the Gin and 3 pints of Water, macerate for a week, filter and add the Sugar and enough water to make a gallon of the cordial.

Fresh sweet orange peel, half a pound, may be used instead of the bitter orange peel.

Curaçao Cordial may also be made from the oils as follows:

Oil of Sweet Orange,	2 fl.drachms.
Oil of Cloves,	10 minims.
Oil of Cassia,	10 minims.
Oil of Neroli,	15 minims.
Sugar,	3 pounds av.
Alcohol,	2 ¹ / ₂ pints.
Water,	4 pints.

Mix the Oils with the Alcohol, add the Water, and, after macerating a day or two, filter, dissolve the Sugar in the filtrate, and color with Cochineal Coloring.

Curaçao Cordial is used as a pleasant vehicle for the administration of medicines, and as an adjuvant. It is also frequently employed as the base of various elixirs.

478. Gentian Cordial.

Gentian Root,	2 ounces av.
Orange Peel, fresh,	4 ounces av.
Cinnamon Bark,	2 ounces av.
Licorice Root,	2 ounces av.
Wild Cherry Bark,	2 ounces av.
Cardamom Seed,	1/2 ounce av.
Angelica Root or Seed,	1 drachm.
Alcohol,	2 pints.
Water,	5 pints.
Sugar,	2 ¹ / ₂ pounds.

Chop the Orange Peel fine and grind the drugs to a coarse powder; macerate for two days with the Alcohol, and pour off; transfer the drugs to a percolator and percolate with the alcoholic tincture; add the Water in the percolator, and when all the percolate is obtained, dissolve in it the Sugar, and filter.

This is a pleasant appetizing Cordial and tonic. Dose half a wine-glassful.

DECOCTA— DECOCTIONS.

Decoctions which were formerly popular forms of preparing medicines have gradually given place to more scientific preparations, and are now seldom used.

The process of Decoction is to boil the vegetable substances for from 10 to 15 minutes in water in a covered vessel, and then cool and pour off the liquid. It is obvious that the water-bath percolator is the most convenient apparatus to use for this purpose, as there is no danger of burning the drugs or excessively heating the mixture, and when the boiling is completed the liquid may be drawn off by the stop-cock. The following general directions for making Decoctions are therefore given :

496. Decoctions by Water-bath Percolation.

The substance, coarsely comminuted, 1 ounce av.
Water enough to make 10 fl.ounces.

Having adjusted the perforated diaphragm or strainer in the bottom of a small-sized water-bath percolator, put the substance in the percolator and pour the water upon it. Cover the percolator closely with the cover, and, having filled the vessel surrounding the percolator with water, heat to boiling. Boil for 15 minutes and draw off the liquid by mean of the stop-cock, adding enough water through the. percolator to make 10 fl.ounces of the product when cool.

The U. S. official directions for making Decoctions are to take of

The substance, coarsely comminuted, 1 part.
Water sufficient to make 10 parts.

Put the substance into a suitable vessel provided with a cover, pour upon it 10 parts of cold water, cover and boil for 15 minutes, then strain and add water enough to make the product 10 parts.

Only two decoctions are now official in the U. S. P. They are as follows:

497. Decoctum Cetrariae.

Decoction of Cetraria.

Cetraria (Iceland Moss), 364 grains.
Water enough to make a pint.

Cover the Cetraria with cold water for half an hour, express and throw away the liquid. Then boil the drug with a pint of water for half an hour, strain and add enough cold water through the strainer to make a pint of the finished product.

498. Decoctum Sarsaparillae Compositum.

Compound Decoction of Sarsaparilla.

Sarsaparilla, crushed, 729 grains.

Sassafras, in coarse powder,	156 grains.
Guaiacum Wood, rasped,	156 grains.
Liquorice Root, crushed,	156 grains.
Mezereum, crushed,	78 grains.
Water enough to make	a pint.

Boil the Sarsaparilla and Guaiacum Wood for half an hour with a pint of water; then add the Sassafras, Liquorice and Mezereum, cover the vessel well and macerate, with gentle heat for two hours; then strain and add enough water through the strainer to make a pint of the finished product.

The same directions should be followed when made by water-bath percolation.

Of the 13 Decoctions official in the 1885 Br. P., nearly all are simple decoctions, which may be included in the general directions for making Decoctions; the following require special mention :

499. *Decoctum Aloes Compositum.*

Compound Decoction of Aloes,

Soctarine Aloes,	1/2 ounce av.
Myrrh,	1/4 ounce av.
Saffron,	1/4 ounce av.
Carbonate of Potassium,	1/4 ounce av.
Extract of Liquorice,	2 ounces av.
Compound Tincture of Cardamoms,	15 fl.ounces, Imp.
Distilled Water sufficient to make	50 fl.ounces, Imp.

Boil the extracts, etc., in a pint (20 ounces) of water for 5 minutes, add the Saffron, cool, add the Tincture of Cardamoms, macerate for 2 hours, then strain through flannel, adding water through the strainer to make the required measure.

500. *Decoctum Cinchonas.*

Decoction of Cinchona.

Red Cinchona Bark in No. 20 powder, 1¹/₄ ounce av.
Distilled Water, 20 fl.ounces.

Boil for 10 minutes in a covered vessel, strain the decoction, when cold, and pour as much distilled water over the contents of the strainer as will make the strained product measure 20 ounces.

Decoction of Pareira and of Oak Bark are made in the same proportion and manner by the Br. P.

501. Decoctum Granati Radicis.

Decoction of Pomegranate Root.

Pomegranate Root Bark, sliced, 2 ounces av.
Distilled Water, 40 fl.ounces, Imp.

Boil down to 20 fl.ounces and strain, making the strained product up to 20 fl.ounces if necessary by adding water through the strainer.

The remaining official British Decoctions are all made in the same manner as 500. Decoctions of Logwood, Broom, Dandelion, and Iceland Moss, are made, 1 ounce of the drug to 20 of water; of Barley and Poppy, 2 ounces to 20 of water; of Sarsaparilla, 2¹/₄ ounces to make 20 fl.ounces of the decoction, The Compound Decoction of Sarsaparilla does not differ materially from the U. S. All other Decoctions may be made by the general official formula, or by water-bath percolation, as heretofore described, in the proportion of one part of the drug to make 10 parts of decoction.

507. ELATERIUM.

This is obtained from the very nearly ripe squirting cucumber fruit by cutting the fruit lengthwise and lightly pressing out the juice, then straining through a hair-cloth sieve and setting aside to deposit. The supernatant liquid is then poured off, the sediment poured on a linen filter and dried by gentle heat on porous tiles. It requires about 40 pounds of the fruit to yield half an ounce of Elaterium; it is therefore expensive and liable to adulteration.

Uses.— Elaterium is used as a purgative or hydrogogue cathartic, especially in dropsical conditions. It is generally given in the form of pills or powders, but its solution in alcohol is more effective. The dose is from $\frac{1}{16}$ to $\frac{1}{20}$ grain, repeated if necessary.

Elaterin— $C_{20}H_{28}O_5$ —is a neutral principle extracted from Elaterium by treating it with alcohol, evaporating the alcoholic tincture to the consistence of a thin oil, and pouring it while warm into a weak boiling solution of potassa. The Elaterin crystallizes, leaving the green resin in solution. The dose of Elaterin is $\frac{1}{16}$ of a grain. It is official in the U. S. P.

ELIXIRIA — ELIXIRS.

The class of preparations known in pharmacy as *Elixirs*, includes a great variety of medicines widely dissimilar in character. The first Elixirs were acid preparations prepared by alchemists and the early pharmacists. They were supposed to possess wonderful virtues. "Elixir Album" and "Elixir Rubrum" were the products of wonderful manipulations, and were said to transmute the baser metals into pure silver and gold, and cure "most diseases in man's body." Later on, Paracelsus originated the "Elixir Proprietatis," or "Elixir of Long Life"; and still later the earlier pharmacists gave us "Elixir Paregoricum," "Elixir Salutis," "Elixir Stomachicum," "Elixir Vitriol," "Elixir Halleri," and a score of others, from which have descended some of our most popular tinctures and other similar preparations.

American Pharmacy has adopted the name "Elixir" for a class of flavored, sweetened, weakly alcoholic preparations, in which medicinal substances are exhibited in pleasant, palatable form, and which are designed to mitigate the aversion to medicines so common to invalids and delicate people. Since Elixirs have assumed this form and mission their popularity has greatly increased, and, from two or three proprietary Elixirs that were known thirty years ago, the number has grown to hundreds, and they have come to take the place, to a great extent, of tinctures and other preparations that were formerly popular forms of medicine. The number of Elixirs has increased so rapidly, and their combinations are so varied, that it is almost impossible for the druggist to keep a stock of all of them sufficient to meet the demands of

his business. The formula; for Elixirs which follow are therefore arranged so that by keeping a few of the leading bases on hand, their combinations can be readily made by adding various solutions, etc., and thus save the trouble and expense of keeping so large a variety of Elixirs on hand as would be required to supply the demands of the business.

508. Elixir Flavoring.

In former editions of FENNER'S FORMULARY this was called, simply, "Flavoring," but we have now adopted the above title as being more expressive.

Oil of Sweet Orange, fresh,	4 fl.ounces.
Oil of Caraway Seed,	2 fl.drachms.
Oil of Coriander Seed,	2 fl.drachms.
Oil of Cassia,	2 fl.drachms.
Oil of Anise, or Oil of Nutmeg,	1 fl.drachm.
Alcohol,	15 fl.ounces.

Mix. This is a strong Flavoring, of which one ounce is sufficient for a gallon of Elixir. Many Elixir Flavoring formulas have been proposed and published, but no other has been found equal in all respects to the foregoing, provided only that good materials are used in making it. Oil of Orange, it is well known, deteriorates by age and exposure, becoming terebinthine in odor, therefore it is necessary that only sweet fresh Orange Oil be used, for upon that depends the flavor of the Elixir. Oil of Caraway *Seed*, not Oil of Caraway *Chaff*, should be used. Deodorized Alcohol, or Cologne Spirit, should be employed in making the Flavoring as well as in making all the Elixirs.

When dissolved in the alcohol the flavoring will keep for any length of time; it is therefore best to get the oils as fresh as possible, and make them up, while fresh, in the flavoring.

Many formulas have been published for making Elixir Flavoring from the substances, instead of their oils: as fresh Orange Peel, Caraway Seed, Cassia Bark, etc.; but their flavor when thus prepared is uncertain, and besides the substances themselves contain astringent principles, which make inky mixtures when combined with salts of iron in solution, and are otherwise objectionable for the purpose. We

therefore advise only the Flavoring made from the Oils, and from long experience choose the formula given (508) in preference to any other.

The New-York and Brooklyn Formulary publishes a formula quite similar, under the title,

509. Spiritus Aurantii Compositus.

Compound Spirit of Orange.

Oil of Bitter Orange,	4 fl.ounces.
Oil of Lemon,	1 fl.ounce.
Oil of Coriander,	160 minims.
Oil of Star Anise,	40 minims.
Deodorized Alcohol, enough to make	20 fl.ounces.

Mix them. This may be used, if preferred, in the same proportion and manner as is directed in these formulas for Elixir Flavoring (508).

One objection to this is, that it is much more difficult to obtain a fresh fine Oil of Bitter Orange than of the Sweet Orange, although when fresh it is to be preferred to it.

510. Soluble Flavoring.

FOR ELIXIRS, ETC.

In former editions of FENNER'S FORMULARY this has been called "Prepared Flavoring"; but we have now adopted the above title as being more expressive.

The foregoing Flavoring (508) will not mix with the Elixir base without making a cloudy or milky mixture, and Elixir made with it has to be filtered through Carbonate of Magnesium or some other alkaline or absorbent material to make a clear solution.

It is frequently desirable to have an Elixir Flavoring that will make a clear solution when added to an elixir base, percolate or syrup, and the following is designed for that purpose:

Elixir Flavoring (508),	16 fl.ounces.
Carbonate of Magnesium,	4 ounces av.
Alcohol,	3 ¹ / ₂ pints.
Water,	4 pints.

Mix the Flavoring with the Alcohol. Rub the Carbonate of Magnesium through a wire sieve to a powder, and mix with the water; then gradually add the mixture of Magnesium and water to the solution of flavoring, and after standing a day or two (or longer), with occasional agitation, pour off the clear liquid, pour the precipitate into a paper filter, and filter the poured-off liquid through the precipitate until perfectly clear.

One ounce of the Soluble Flavoring added to a pint of any elixir or syrup base gives the required flavoring.

This is added to elixirs requiring percolation, after the percolation is completed, and to syrups, solutions, etc. It may also be added to any elixir in which a stronger flavor may be desired, and is useful for flavoring many medicinal preparations.

511. Elixir Percolating Menstruum.

In former editions of P'ENNER'S FORMULARY this was called "Percolating Menstruum,"

Alcohol,	38 fl.ounces.
Water,	72 fl.ounces.

Mix them. The proportion of Alcohol and Water used is the same as is in the *Elixir*, and after the other ingredients, as Sugar and Soluble Flavoring, are added, it is the same as the Elixir.

This Elixir Percolating Menstruum is used as a percolate whenever it is necessary to obtain the strength of drugs by percolation in making elixirs. The sense of this will be apparent when it is considered that the sugar contained in the elixir would be a hindrance to percolation, and that the flavoring ingredients used would lose much of their strength during the process and exposure of percolation. In making an elixir, therefore, requiring percolation, the drugs are first percolated with the percolating menstruum, the percolate filtered if necessary, and then the

sugar dissolved in the filtrate, and the soluble flavoring added, which completes the elixir.

512. Elixirs Requiring Percolation.

When it is required to make an Elixir in which the strength of the drugs is obtained by percolation, the process of water-bath percolation is recommended, but ordinary percolation may be employed instead, if more expedient. The following is the process:

The drug or drugs, as stated in the formula.
Elixir Percolating Menstruum, sufficient.

Moisten the drugs with the Elixir Percolating Menstruum, and after standing a few hours in a covered vessel transfer them to the water-bath percolator, pack moderately, pour enough of the percolating menstruum upon them to cover them well, and set in a warm place for 24 hours ; then heat moderately, and after one hour begin to percolate, adding the percolating menstruum to the drugs in the percolator, and continuing the percolation until 13 fl. ounces of percolate is obtained for each pint (16 fl.ounces) of the finished Elixir required. This is then to be filtered if necessary, and to complete the Elixir take for each pint:

The Percolate, as above,	13 fl.ounces.
Sugar,	5 ounces av.
Soluble Flavoring (510),	1 fl.ounce.

Mix them and dissolve the sugar by agitation. Should it be required to remove the tannin, or otherwise treat or manipulate the percolate for any purpose, it should be done before the sugar and flavoring are added.

If small quantities only of Elixirs are required to be made, when the quantity of drug's used would be quite small, they may best be made by macerating the drugs with elixir, instead of by percolation, or, perhaps, better yet, by using fluid extracts of the drugs instead of the drugs themselves. The following is the method of procedure when fluid extracts are used :

513. Elixirs made with Fluid Extracts.

If it is desired to use Fluid Extracts of the drugs, instead of the drugs themselves, as directed in the formula, take of

Fluid Extracts of the drugs, the same fluid measure as is directed of weight.

Elixir sufficient to make the required measure, as is stated in the formula.

Mix and filter. Carbonate of Magnesium is frequently added to make them filter clear.

The Elixir in this case is used instead of the Elixir Percolating Menstruum, Soluble Flavoring and Sugar. With Fluid Extracts, which precipitate badly when added to the Elixir, it is best to mix them with the Percolating Menstruum and filter, then add the flavoring and sugar, the same as is directed in the formula.

514. Elixirs with Salts in Solution.

Some of the more soluble salts dissolve readily in the Elixirs, and others require to be dissolved separately before adding to them. Among the Solutions will be found formulae for making solutions convenient for combining with Elixirs, etc. They are referred to in the formulae in which they can be advantageously used.

515. Detannating Elixirs.

It is necessary in making some Elixirs and other preparations from substances containing tannin or astringent principles, to remove these principles in order that the preparations may be combined with salts of iron or other substances which would be otherwise precipitated. This may be accomplished by adding to the Elixirs any substance which will combine with the astringent principles and form precipitates which may be removed by filtration. Albumen, gelatin, and freshly precipitated ferric hydrate are the best adapted for that purpose, as they readily form precipitates with vegetable astringents. We have generally chosen albumen (white of egg) as being most convenient for the purpose, and have so directed in most of the formulas; but it is sometimes more expedient to use ferric hydrate, especially in preparations containing a

large amount of astringent. To detannate with this it is necessary to make a freshly precipitated ferric hydrate as is directed and mix more or less of it, as may be required, with the Elixir or other preparation to be detannated, and after standing a day or two with occasional agitation, filtering through calico. The filtered liquid is then to be tested with tincture of iron, and if tannin still remains in solution (as is shown by an inky color when it is added), more of the ferric hydrate must be added and the Elixir treated as before. This process is tedious, but thorough, and is preferred by some to any other, but in our experience albumen is sufficient for most purposes and is much to be preferred in the way of convenience.

516. Elixir.

Simple Elixir.

The simple base which is used for making Elixirs, the same as water is used for dissolving salts, or diluted alcohol for making tinctures, is variously called Elixir, Simple Elixir, Aromatic Elixir, Cordial Elixir, Curaçoa Cordial Elixir Adjuvans, etc. This base will be designated in the formula; which follow simply as ELIXIR.

In making Elixir, only the best material should be used, the Elixir Flavoring must be good, deodorized Alcohol or Cologne Spirit should be used; granulated Sugar is the best and most convenient, as it may readily be poured into a bottle. The following is the formula:

Elixir Flavoring (508),	1 fl.ounce.
Deodorized Alcohol (Cologne Spirit),	38 fl.ounces.
Water,	4 $\frac{1}{2}$ pints, or 72 fl.ounces.
Sugar,	2 $\frac{1}{2}$ pounds, or 40 ounces av.
Carbonate of Magnesium,	$\frac{1}{2}$ ounce av.

Mix 2 ounces of the Alcohol with the Elixir Flavoring. Rub the Magnesium Carbonate through a wire sieve to reduce it to a powder, then transfer it to a mortar that will hold at least two pints, add the mixture of Flavoring and Alcohol, and rub them well together. Mix the remaining 36 ounces of Alcohol with the Water, triturate two pints of the mixture with the contents of the mortar, and filter the mixture into the remaining mixture of Alcohol and Water, then dissolve the Sugar in

the filtrate by agitation, and filter the whole Elixir through the same filter to make it bright and clear. If it is desired to increase the strength of flavor of the Elixir, a larger quantity of the Elixir Flavoring and a corresponding quantity of Carbonate of Magnesium may be used.

In making larger quantities of Elixir, as, say, 5 gallons or more, it is more conveniently made by adding the Elixir Flavoring to the entire quantity of Alcohol used; then, having mixed the powdered Carbonate Magnesium with the entire quantity of Water, gradually add the latter to the former with agitation, and let them remain for several days, with frequent agitation, before filtering; the liquid may then be filtered off and the Sugar dissolved in the filtrate. In this way any quantity of the Elixir may be made with but little trouble.

The Elixir as thus prepared is used as a solvent for various salts, and a vehicle for various solutions and other forms of medicine. It may also be used to percolate, but when percolation is required it is best accomplished as directed (512).

Many Elixir formulas have been proposed and published, but in an extensive experience in making Elixirs the writer has found no other equal in all respects and for all purposes to the foregoing.

519 Elixir Adjuvans.

Many Elixirs are known by this name. Simple Elixir is usually dispensed when Elixir Adjuvans is prescribed, unless some other preparation is known to be intended. In some localities an Adjuvant Elixir is much employed as a vehicle for Quinine, for this purpose the following is considerably used;

Orange Peel, fresh, cut fine,	8 ounces av.
Coriander Seed, crushed,	2 ounces av.
Caraway Seed, crushed,	1 ounce av.
Cardamom Seed, crushed,	8 ounces av.
Wild Cherry Bark, crushed,	8 ounces av.
Liquorice Root, crushed,	8 ounces av.
Sugar,	32 ounces av.
Alcohol,	2 pints.
Water, sufficient to make	1 gallon.

Mix the drugs and pour the Alcohol upon them, allow to stand for 24 hours, then add 2 pints of Water, macerate for 24 hours longer, then transfer to a percolator, add two pints of Water to the drugs and percolate, adding Water through the percolator until 7 pints of tincture are obtained ; filter and dissolve the Sugar in the filtrate. This may be made more rapidly by water-bath percolation.

A similar preparation is put up by some manufacturers under the names *Elixir Liquorice Compound*, *Elixir Wild Cherry Compound*, *Quinine Elixir*, etc.

It is chiefly used as an addition to other preparations, or a vehicle for bitter medicines. Owing to the Tannin contained in the Wild Cherry it renders Quinine insoluble, thus masking its bitter taste.

520. Elixir Anise.

Anise Seed Cordial.

This may be made by percolation or maceration.

Anise Seed, in fine powder,	1 ounce.
Elixir, sufficient to make	1 pint.

Percolate or macerate and filter.

Or from the Oils, as directed in the New-York and Brooklyn Formulary:

Oil of Anise, Saxony,	25 minims.
Oil of Fennel Seed (" Sweet "),	5 minims.
Oil of Bitter Almonds,	1 drop.
Deodorized Alcohol,	4 fl.ounces.
Syrup,	10 fl.ounces.
Water,	2 fl.ounces.
Phosphate of Calcium,	120 grains.

Mix the Oils with the Deodorized Alcohol, add the Syrup and Water, and set aside for 12 hours; then mix with the Phosphate of Calcium and filter clear.

This Elixir is used as an aromatic vehicle, or addition to medicines,

especially for children.

523. Elixir Aromatic.

Several Elixirs are known by the name of Aromatic Elixir; in fact, it is a general name for Elixirs as a class, some manufacturers calling their Elixirs Aromatic Elixirs; but the name is applied in pharmacy generally to the Simple or Aromatic Elixir prepared from substances, instead of from their oils. The following formula may be used:

Orange Peel, fresh, cut fine,	4 ounces av.
Lemon Peel, fresh, cut fine,	1 ounce av.
Coriander Seed, in fine powder,	1 ounce av.
Caraway Seed, in fine powder,	1 ounce av.
Anise Seed, in fine powder,	1 ounce av.
Cinnamon Bark (Saigon), in fine powder,	1 ounce av.
Sugar,	2 ¹ / ₂ pounds av.
Alcohol,	2 ¹ / ₂ pints.
Water, sufficient to make	1 gallon.

Macerate the drugs for 48 hours with the Alcohol, then add 4 pints of Water, and continue the maceration for 48 hours longer, pour off the liquid, transfer the drugs to a percolator, and percolate with the poured-off tincture until it has all passed, then add Water through the percolator to make the measure 6¹/₂ pints; filter clear through a little Carbonate of Magnesium, and dissolve the Sugar in the filtrate, adding Water if necessary to make a gallon.

This Elixir is used the same as Simple Elixir as a base for other Elixirs, and a vehicle for medicines, etc., but it is inadmissible for making Elixirs containing iron, bismuth, and other salts which are changed or precipitated by astringent principles.

527. Elixir Asafetida.

Tincture of Asafetida,	2 fl.ounces.
Spirit of Peppermint,	1/2 fl.ounce.
Carbonate of Magnesium,	1/2 ounce av.
Sugar,	5 ounces av.

Alcohol,	4 fl.ounces.
Water,	8 fl.ounces.
Soluble Elixir Flavoring,	1 fl.ounce.

Rub the Magnesium Carbonate to a fine powder in a mortar, mix the Tincture, Spirit and Alcohol, and rub with the Magnesium Carbonate, then add the Water, filter, dissolve the Sugar in the filtrate, and add the Soluble Flavoring.

This Elixir is of the same strength as Syrup Asafetida, and is as agreeable a form to exhibit this disagreeable drug as can be devised, except in pills. A fl. drachm contains about 2 grains Asafetida. It is given to children and adults in doses of 1 or 2 teaspoonfuls.

529. Elixir Beef.

Liebig's Extract of Meat,	1 ounce av.
Citric Acid,	5 grains.
Elixir, sufficient to make	1 pint.

Rub the Extract with the Elixir in a mortar, add the Citric Acid, and after standing for some time filter.

As each ounce of Liebig's Extract of Meat represents the soluble constituents of 32 ounces of fresh beef, a tablespoonful ($\frac{1}{2}$ fl.ounce) of the Elixir represents one ounce of fresh beef. The dose is from a dessert to a tablespoonful or more. Many manufacturers make the preparations of Beef with only $\frac{1}{2}$ ounce of Beef Extract in a pint.

530. Elixir Beef and Iron.

Citrate of Iron and Ammonium,	64 grains.
Elixir Beef (529),	1 pint.

Dissolve the Iron by rubbing with separate portions of the Elixir, and filter if necessary; or add to the Elixir an equivalent quantity of Solution Citrate of Iron and Ammonium. Half a fl. ounce (a tablespoonful) of this Elixir represents one ounce of fresh beef and two grains of Soluble Citrate of Iron. The dose is from a dessert to a tablespoonful or more. This Elixir is preferable in many respects to Wine

of Beef and Iron, for the reason that it is much more uniform, and will not precipitate as the wine is liable to do.

533. Elixir Berberine.

Berberine Sulphate, or Hydrochlorate,	64 grains.
Alcohol,	2 fl.ounces.
Elixir,	14 fl.ounces.

Dissolve the Berberine salt first in the Alcohol by gentle heat of water-bath, then add the Elixir.

A fl.drachm contains $\frac{1}{2}$ grain of the salt. The dose is from 1 to 2 teaspoonfuls.

The Berberine salts were formerly known by the name of Hydrastin, as Muriate of Hydrastin, etc.

534. Elixir Berberine and Iron.

Pyrophosphate of Iron,	64 grains.
Hot Water,	1 fl.ounce.
Elixir Berberine,	15 fl. ounces.

Dissolve the Iron in the Hot Water and add the Elixir to the solution.

A fl.drachm contains about $\frac{1}{2}$ grain each of Iron and Berberine. Dose, 1 to 2 teaspoonfuls.

540. Elixir Bitter.
Elixir Amarum.

The German Pharmacopoeia of 1872 gives the following formula for this Elixir:

Extract of Buckbean,	2 parts.
Extract of Orange Peel,	2 parts.
Diluted Alcohol (G. P.),	16 parts.
Peppermint Water,	16 parts.
Spirit of Ether (Hoffman's Anodyne),	1 part.

Dissolve the Extracts in the Diluted Alcohol and Peppermint Water, previously mixed, and add the Spirit of Ether. The dose is a teaspoonful or more.

This is not properly an Elixir, as understood in American Pharmacy. The formula is different in the G. P. 1883.

541. Elixir Blackberry.

Blackberry Root, in coarse powder,	2 ounces av.
Elixir Percolating Menstruum,	1 pint.
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl.ounce.

Make by percolation as directed, 512. This may also be made by mixing—

Fluid Extract of Blackberry,	2 fl.ounces.
Elixir,	14 fl.ounces.
And filtering.	

A fl.drachm contains 7 grains of Blackberry Root. The dose is from 1 to 2 teaspoonfuls.

542. Elixir Black Cohosh or Cimicifuga.

Black Cohosh, in coarse powder,	2 ounces av.
Elixir Percolating Menstruum,	1 pint,
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl.ounce.

Make by percolation as directed, 512.

It may also be made by mixing—

Fluid Extract Black Cohosh,	2 fl.ounces.
Elixir,	12 fl.ounces.
Alcohol,	2 fl.ounces.

And after standing a few days, filtering through Carbonate of

Magnesium.

A fl.drachm contains 7 grains of Black Cohosh. The dose is from 1 to 2 teaspoonfuls.

543. Elixir Black Cohosh Compound.

Black Cohosh, in coarse powder,	1 ounce av.
Colchicum Root, in coarse powder,	1 ounce av.
Iodide of Potassium,	256 grains.
Percolating Menstruum,	1 pint.
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl.ounce.

Make by percolation as directed, 512, and dissolve the Iodide in the percolate.

This may also be made by mixing 1 ounce each of Fl. Extracts of Black Cohosh and Colchicum with 14 ounces of Elixir, and dissolving the Iodide in the Elixir.

A fl.drachm contains 3¹/₂ grains each of Black Cohosh and Colchicum, and 2 grains of Iodide of Potassium. The dose is a teaspoonful or more for rheumatism and neuralgia.

554. Elixir Buchu.

Buchu Leaves, in coarse powder,	4 ounces av.
Elixir Percolating Menstruum, q. s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl.ounce.

Make by percolation as directed, 512.

This Elixir may be made from Fluid Extract Buchu as follows:

Fluid Extract Buchu,	4 fl.ounces.
Carbonate of Magnesium,	2 drachms.
Elixir,	12 fl.ounces.

Rub the Fluid Extract with the Carbonate of Magnesium in a mortar, add the Elixir, and filter, adding enough Elixir through the filter to make a pint.

A fl.drachm represents 14 grains Buchu. The dose is a teaspoonful to a tablespoonful.

The New-York and Brooklyn Formulary directs Elixir Buchu to be prepared from

Fluid Extract Buchu,	2 fl.ounces;
Fluid Extract Triticum,	1 fl.ounce
Tincture of Vanilla,	1 fl.drachm
Syrup of Coffee,	6 fl.ounces
Carbonate of Magnesium,	120 grains, with
simple Elixir enough to make a pint.	

555. Elixir Buchu Compound.

Elixir Buchu and Pareira Brava.

Buchu, in coarse powder,	2 ounces av.
Pareira Brava, in coarse powder,	1 ounce av.
Stone Root, in coarse powder,	1 ounce av.
Elixir Percolating Menstruum, q.s,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl.ounce.

Make by percolation, as directed, 512.

This Elixir may be made by mixing the Fluid Extracts of the drugs with Elixir, as directed, 513.

A fl.drachm represents 7 grains Buchu, 3¹/₂ grains, each, Pareira Brava and Stone Root. The dose is from a teaspoonful to a tablespoonful.

Several other preparations are furnished under the name of Elixir Buchu Compound.

556. Elixir Buchu, Juniper and Acetate of Potassium.

Diuretic Elixir.

Buchu, in coarse powder,	2 ounces av.
Juniper Berries, crushed,	1 ounce av.
Acetate of Potassium,	640 grains.
Elixir Percolating Menstruum, q. s.,	about 18 fl.ounces.
Soluble Flavoring,	1 fl.ounce.
Sugar,	5 ounces av.

Make by percolation, as directed, 512.

This may also be made with Fluid Extracts of Buchu and Juniper mixed with Elixir, filtered through Carbonate of Magnesium and the Acetate of Potassium dissolved in the filtrate.

A fl.drachm contains 7 grains Buchu, 3¹/₂ grains Juniper, and 5 grains Acetate of Potassium. The dose is from a teaspoonful to a tablespoonful.

557. Elixir Calisaya or Cinchona.

Elixirs of Calisaya or Cinchona and their compounds have been the best known and most popular of any ever brought to the notice of the public. Some manufacturers have introduced them as Elixir "Calisaya," while others have adopted the name "Cinchona," but the former is probably the most popular name.

The Simple Elixir of Calisaya or Cinchona is much prescribed as a tonic, and is used as the base of Compound Elixirs of Calisaya or Cinchona. It may be made either from the bark or the alkaloidal salts.

When made from the bark the Elixir must be "detannated" for combining with salts of iron; but when made from the alkaloidal salts this is avoided, and the Elixir designed to be combined with iron is now generally made from the salts. The following are the formulas for making Elixir Calisaya:

MADE FROM THE BARK, DETANNATED.

Calisaya Bark, true,	8 ounces av.
Orange Peel, fresh,	8 ounces av.
Cinnamon Bark, "Saigon,"	1 1/2 ounces av.
Coriander Seed,	1 1/2 ounces av.
Red Rose Leaves,	1 1/2 ounces av.
Nutmeg,	1/2 ounce av.
Star Anise,	1/2 ounce av.
Sugar,	2 1/2 pounds av.
Alcohol, deodorized,	38 fl.ounces.
Water, sufficient to make	1 gallon.

Grind the Calisaya Bark, Cinnamon, Coriander, Nutmeg and Anise to a No. 50 powder, and having mixed a pint of Alcohol with half pint of Water, moisten the powder with half a pint of the mixture, and macerate in a warm place for one day, then transfer to the water-bath percolator, pack firmly, pour upon it the remainder of the menstruum, and set in a warm place for one day. Then heat very moderately, and, after one hour, begin to percolate, adding water to the drugs after the liquid has disappeared from the surface, and continuing the heat and percolation until 4 pints have passed. To this add the whites of 4 eggs, previously beaten with a portion of the percolate, and allow to stand for one day; then filter through a muslin strainer. Chop the Orange Peel fine, reduce the Red Rose leaves to a coarse powder, and having mixed them together, put them in a close vessel with the remainder (22 fl.ounces) of the Alcohol. Macerate in a warm place, with occasional agitation, for two days, then pour off the liquid and reserve. Transfer the drugs (Orange and Rose) to a conical percolator, and percolate first with the detannated Calisaya percolate, and then with water until 5 pints have passed; add this to the reserved portion, dissolve the sugar in the liquid, add enough water to make 1 gallon, and, after standing a few days, filter through a double filter paper.

Although this is a little more trouble to make than many of the Elixirs, it leaves nothing to be desired for those who wish a first-class Elixir Calisaya made from the bark.

This Elixir may be colored if desired with Cochineal coloring and

Caramel. When dispensed as Elixir Calisaya it is generally colored, but left plain for making compounds. This Elixir may be made from the Fluid Extract of Calisaya Bark by mixing 1 fl.ounce with a pint of Elixir, adding the white of one egg, and after standing 24 hours, filtering.

A fl.drachm represents about 4 grains of Calisaya, with aromatics. The dose is from a teaspoonful to a tablespoonful.

592. Elixir Capsicum.

Capsicum, in fine powder,	256 grains.
Elixir,	1 pint.

Macerate the Capsicum for 5 days in the Elixir, and filter. A fl.drachm represents 2 grains of Capsicum.

593. Elixir Cascara Sagrada.

Cascara Cordial.

Cascara Sagrada Bark,	16 ounces av.
Liquorice Root,	6 ounces av.
Sweet Flag Root (Calamus),	2 ounces av.
Cardamom Seed,	1 ounce av.
Elixir Percolating Menstruum, q.s.,	about 7 pints.
Sugar,	2 ¹ / ₂ pounds av.
Soluble Flavoring,	8 fl.ounces.

Reduce the drugs to a coarse powder, and make an elixir by percolation, as directed (512).

The dose is from a dessertspoonful to a tablespoonful, or more.

As Cascara Sagrada is very bitter, Buckthorn Bark is frequently substituted for it in making this elixir, although it is not so valuable a remedy. See the Standard Remedies, Buckthorn Cordial.

594. Elixir Cathartic.

Many preparations are sold and prescribed under the above title, and as the name does not indicate any particular composition, the formulas for two of the most popular Cathartic Elixirs are given in this connection. Several others which have become popular as proprietary preparations will be found in that department, or among the Standard Remedies; and still others which are frequently called for as Cathartic Elixirs under other headings, as Elixir Laxative, Elixir Mandrake Compound, Elixir Senna Compound, the Elixirs of Rhubarb, etc., etc.

Senna,	2 ounces av.
Liquorice Root,	1 ounce av.
Epsom Salt,	1 ounce av
Ginger,	48 grains.
Coriander,	80 grains.
Jalap,	160 grains.
Scammony,	160 grains.
Elixir Percolating Menstruum, q. s., or 1 pint.	
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl. ounce.

Reduce the drugs to a coarse powder, and make an elixir by percolation, as directed (512), then dissolve the Epsom Salt in the product.

The dose is a dessert to a tablespoonful.

595. Cathartic or Laxative Elixir.

Senna, in coarse powder,	2 ounces av.
Butternut Bark, in coarse powder,	1 ounce av.
Mandrake Root, in coarse power,	1/2 ounce av.
Sweet Flag Root, in coarse powder,	1/2 ounce av.
Rochelle Salts,	2 ounces av.
Bicarbonate of Sodium,	60 grains.
Elixir Percolating Menstruum, q. s.,	or 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), and dissolve the salts in the

Elixir. The dose is a dessertspoonful to a tablespoonful, or more.

596. Elixir Celery Compound.

Celery seed, in fine powder,	1 ounce av.
Coca leaves, in coarse powder,	1 ounce av.
Black Haw Bark, in coarse powder,	1 ounce av.
Elixir Percolating -Menstruum, q. s.,	or 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512).

A fl.drachm represents about 10 grains of the drugs. The dose is 1 to 2 teaspoonfuls.

This is similar to a popular proprietary preparation known as "*Celerina*"

615. Elixir Coffee.

Roasted Java Coffee,	4 ounces av.
Elixir Percolating Menstruum, q. s., or	1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512).

A fl.drachm represents about 15 grains of Coffee.

The dose is a teaspoonful to a tablespoonful or more.

This Elixir is used mainly to mask the taste of disagreeable medicines, and may be combined to advantage with many bitter salts, fluid extracts, etc.

616. Elixir Colombo.

Colombo, in coarse powder,	2 ounces av.
Elixir Percolating Menstruum, q. s., or	1 pint.
Sugar,	5 ounces av.
Soluble Flavoring,	1 fl. ounce.

Make by percolation as directed (512), or it maybe made by rubbing 2 ounces of Fluid Extract of Colombo with 2 drachms Carbonate of Magnesium and 1 pint of Elixir, and filtering.

A fl.drachm represents 7 grains Colombo.

The dose is a teaspoonful or more.

619. Elixir Corydalis.²

Corydalis, in coarse powder,	2 ounces av.
Elixir Percolating Menstruum, q. s., or	1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). It may also be made by mixing 2 ounces of the Fluid Extract of Corydalis with 14 ounces of Elixir.

A fl.drachm represents about 7¹/₂ grains of the drug.

The dose is a tcaspoonful or more.

620. Elixir Corydalis Compound.

Corydalis,	
Yellow Dock,	
Tag Alder,	
Figwort,	.
Mandrake,.....	of each 1 ounce av
Elixir Percolating Menstruum, q. s., or	20 fl.ounces.
Sugar, .	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512).

The dose is a teaspoonful or more as an alterative and diuretic.

2 the alterative Turkey Corn - now called *Dicentra canadensis* and/or *D. cucullaria*
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623. Elixir Damiana.

Damiana Leaves,	1280 grains.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or it may be made by mixing $2\frac{5}{8}$ fl.ounces of Fl. Ext. Damiana with $13\frac{3}{8}$ fl.ounces of Elixir, and filtering.

A fl.drachm represents 10 grains Damiana. The dose is from 1 to 4 teaspoonfuls as a diuretic and aphrodisiac.

624. Elixir Damiana Compound.

Fluid Extract of Buchu,	1 fl.ounce.
Fluid Extract of Nux Vomica,	2 fl.drachms.
Fluid Extract of Cubebs,	2 fl.drachms.
Fluid Extract of Damiana,	1 fl.ounce.
Carbonate of Magnesium,	60 grains.
Elixir,	14 fl.ounces.

Mix the Fluid Extracts and rub with the Carbonate of Magnesium; then add the Elixir and filter. The dose is a teaspoonful or two, as a diuretic, etc.

625. Elixir Dandelion.

Elixir of Taraxacum.

Fluid Extract of Dandelion,	$2\frac{5}{8}$ fl.ounces.
Elixir,	$13\frac{3}{8}$ fl.ounces.

Mix them. A fl. drachm represents 10 grains Dandelion Root. The dose is from a teaspoonful to a tablespoonful or more, as a laxative and tonic.

626. Elixir Dandelion Compound.

Elixir Taraxacum Compound.

Dandelion Root in coarse powder,	16 ounces av.
Liquorice Root,	8 ounces av.
Gentian Root,	2 ounce av.
Wild Cherry Bark,	2 ounces av.
Bitter Orange Peel,	2 ounces av.
Canada Snake Root,	1/2 ounce av.
Cloves in fine powder,	1/4 ounce av.
Cinnamon, in fine powder,	1 ounce av.
Coriander, in fine powder,	1 ounce av.
Cardamom, in fine powder,	1/4 ounce av.
Elixir Percolating Menstruum, q. s.,	about 1 gallon.
Sugar,	2 1/2 pounds.

To make 1 gallon of the Elixir. Make by percolation as directed (512).

This Elixir is variously prepared by different authorities, but amounts to about the same as made by any of the standard formulas. It is used chiefly as a vehicle for unpleasant medicines, and to mask the taste of Quinine. It is also given as a mild tonic and laxative in doses of a dessertspoonful or more. It has been a very popular Elixir. The New-York and Brooklyn Formulary makes Elixir Taraxacum Compound very sweet with syrup.

631. Elixir Eucalyptus.

Eucalyptus Leaves, in coarse powder,	1280 grains.
Alcohol,	2 fl.ounces.
Elixir Percolating Menstruum, q. s.,	about 14 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). Or it may be made by mixing 2⁵/₈ fl.ounces of Fluid Extract Eucalyptus with 2 fl.ounces of Alcohol and 11³/₈ fl.ounces of Elixir.

A fl.drachm represents 10 grains Eucalyptus. The dose is a teaspoonful or more, as an aromatic stimulant.

632. Elixir Eucalyptus Compound.

Eucalyptus Leaves, in coarse powder,	2 ounces av.
Liquorice Root, in coarse powder,	1 ounce av.
Wild Cherry Bark, in coarse powder,	1 ounce av.
Elixir Percolating Menstruum, q. s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). It may also be made from the Fluid Extracts of Eucalyptus 2 ounces, Liquorice and Wild Cherry each 1 ounce, mixed with 12 ounces of Elixir, and filtered through a little carbonate of magnesium.

This Elixir is used mainly as a vehicle for Quinine and other bitter medicines. Its astringent properties render the Quinine insoluble, and therefore tasteless.

633. Elixir Euonymus.

Elixir of Wahoo.

Fluid Extract Wahoo,	2 fl.ounces.
Fluid Extract of Liquorice,	1/2 fl.ounce.
Elixir,	13 1/2 fl.ounces.

Mix, and, after standing, filter.

This may also be made by percolating 2 ounces av. of Wahoo and 1/2 ounce of Liquorice root in coarse powder with Elixir Percolating Menstruum 1 pint, and adding Sugar 5 ounces av., and soluble Flavoring 1 fl.ounce, as directed (512).

A fl.drachm represents about 7 grains of Wahoo. The dose is a teaspoonful or more as a bitter tonic and laxative.

The New-York and Brooklyn Formulary directs Fluid Extract Euonymus 2 1/2 fl.ounces, Syrup of Coffee 2 fl.ounces, Water 2 fl.ounces, Compound Elixir of Taraxacum q. s. to make 16 fl.ounces.

634. Elixir Frangula (or Buckthorn).

The New-York and Brooklyn Formulary gives the following formula under this title. It should not be mistaken for the proprietary preparation known as Buckthorn Cordial, which will be found among the Standard Remedies:

Fluid Extract of Frangula (Buckthorn),	4 fl.ounces.
Compound Elixir of Taraxacum,	4 fl.ounces.
Simple Elixir,	8 fl.ounce.

Mix them.

A fl.drachm represents 15 grains Frangula. The dose is a dessertspoonful or more.

635. Elixir Gelsemium.

Elixir Yellow Jasmine.

Fluid Extract Gelsemium,	640 minims.
Alcohol,	2 fl.ounces.
Elixir, sufficient to make	1 pint.

Mix, and, after standing, filter.

A fl.drachm represents 5 grains Gelsemium. The dose is from $\frac{1}{2}$ to a teaspoonful.

636. Elixir Gentian.

Gentian Root, in coarse powder,	2 $\frac{1}{2}$ ounces av.
Bitter Orange Peel, in coarse powder,	1 $\frac{1}{2}$ ounces av.
Coriander Seed, in fine powder,	1 ounce av.
Cardamom Seed, in fine powder,	1 ounce av.
Elixir Percolating Menstruum, q. s.,	about 7 $\frac{1}{2}$ pints.
Sugar,	2 $\frac{1}{2}$ poundsav.
Soluble Elixir Flavoring,	8 fl.ounces.

To make 1 gallon of Elixir.

Make by percolation as directed (512). Add the whites of 2 eggs, shake, allow to stand two or three days, and filter clear.

This is the same strength as the old official Compound Infusion of Gentian. The whites of eggs are added for the purpose of removing any astringent principles, so that the Elixir may be mixed with solutions of Iron. It is the base of all the Gentian Elixirs, which may be made from it by adding various salts, solutions, etc.

The dose of the Simple Elixir of Gentian as a stomachic is a teaspoonful to a tablespoonful.

The New-York and Brooklyn Formulary directs :

Extract of Gentian,	70 grains.
Aromatic Spirit,	3 fl.drachms.
Tincture of Vanilla,	3 fl.drachms.
Syrup,	1 fl.ounce.
Simple Elixir,	16 fl.ounces,

Dissolve the Extract in the Syrup by trituration. Add the Vanilla and Elixir.

638. Elixir Gentian and Citrate of Iron.

Ferrated Elixir of Gentian.

Citrate of Iron and Ammonium,	128 grains.
Elixir Gentian,	1 pint.

Dissolve the Iron salt by rubbing with separate portions of the Elixir, and filter.

A fl.drachm contains 1 grain of Citrate of Iron combined with Elixir Gentian. The dose is a teaspoonful or two.

651. Elixir Ginger.

Soluble Extract of Ginger,	2 fl.ounces.
Elixir,	14 fl.ounces.

Mix them.

A fl.drachm represents about 4 grains of Ginger. The dose is a teaspoonful or more.

652. Elixir Grindelia Robusta.

Fluid Extract Grindelia Robusta,	2 ⁵ / ₈ fl.ounces.
Alcohol,	2 fl.ounces.
Elixir, sufficient to make	1 pint.
Carbonate of Magnesium,	2 drachms.

Rub the Carbonate of Magnesium to a fine powder, and then with the fluid extract and alcohol; then gradually add Elixir and, after standing a day or two, filter.

A fl.drachm represents 10 grains of Grindelia. The dose is a teaspoonful to a dessertspoonful.

The New-York and Brooklyn Formulary directs only 1 ounce of the fluid extract in a pint.

653. Elixir Guarana.

Fluid Extract of Guarana,	2 ⁵ / ₈ fl.ounces.
Elixir, sufficient to make	1 pint.

Mix them.

A fl.drachm represents 10 grains Guarana. The dose is from a teaspoonful to a dessertspoonful or more.

Some formulas for Elixir Guarana direct 4 fl.ounces in a pint. The New-York and Brooklyn Formulary directs Fluid Extract Guarana 3 fl.ounces, Elixir 3 fl.ounces, Compound Elixir Taraxacum 10 fl.ounces.

The quantity directed in our formula—10 grains in a fl.drachm—is the most convenient.

654. Elixir Guarana and Celery.

Fluid Extract Guarana,	2 fl.ounces.
Fluid Extract Celery,	2 fl.ounces.
Elixir,	12 fl.ounces.

Mix them and filter.

A fl.drachm represents about 7 grains each of Celery and Guarana. The dose is a teaspoonful or more.

655. Elixir Helonias Compound.

Mitchella (Partridge Berry or Squaw Vine),	2 ounces av.
Cramp Bark,	1 ounce av.
Blue Cohosh,	1 ounce av.
Unicorn Root (Helonias),	1 ounce av.
Elixir Percolating Menstruum, q. s.,	about 20 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). The dose is a teaspoonful or more, as a catholicon.

656. Elixir Hops, or Humulus.

Hops, in coarse powder,	2 ⁵ / ₈ ounces av.
Elixir Percolating Menstruum, q. s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512).

This may also be made from Fluid Extract of Hops 2⁵/₈ fl.ounces, Elixir 14 fl.ounces, Carbonate of Magnesium 1 drachm. Mix and filter.

A fl.drachm represents 10 grains of Hops. The dose is a teaspoonful to a

tablespoonful, as a nervine and tonic.

657. Elixir Hydrastis or Golden Seal.

Fluid Extract of Golden Seal, Aqueous,	640 grains.
Elixir, sufficient to make	1 pint.

Mix, and, after standing, filter.

This may also be made by percolating 640 grains powdered Hydrastis with Elixir sufficient to make a pint.

A fl.drachm represents 5 grains Golden Seal. The dose is a teaspoonful to a dessertspoonful.

658. Elixir Hydrastis and Iron.

Ferri-phosphated Elixir Hydrastis.

Phosphate of Iron in scales (1880),	128 grains.
Water,	1 fl.ounce.
Elixir Hydrastis,	15 fl.ounces.

Dissolve the Iron salt in the water by the aid of heat, and add to the Elixir.

A fl.drachm contains 1 grain of the Iron salt combined with Elixir Hydrastis. The dose is a teaspoonful or two.

Other salts of Iron may be combined with Elixir Hydrastis in a similar manner.

671. Elixir Jaborandi.

Elixir Pilocarpus.

Fluid Extract of Jaborandi,	2 ³ / ₄ fl.ounces.
Alcohol,	2 fl.ounces.
Elixir,	12 fl.ounces.

Mix, and after standing filter, adding a little powdered Carbonate

Magnesium to the filter.

A fl.drachm represents 10 grains of Jaborandi. The dose is a teaspoonful to a dessertspoonful.

672. Elixir Juniper Berries.

Fluid Extract of Juniper Berries,	2 ³ / ₄ fl.ounces.
Holland Gin,	4 fl.ounces.
Elixir,	10 fl.ounces.
Carbonate of Magnesium,	1 drachm.

Mix the liquids; rub with the Carbonate Magnesium in a mortar, and filter.

A fl.drachm represents 10 grains Juniper Berries. The dose is a teaspoonful or more.

682. Elixir Laxative.

A number of preparations by this name have been quite popular. The following formula makes a preparation similar to the one which has been best received:

Senna, in coarse powder,	2 ounces av.
Gentian, in coarse powder,	1/2 ounce av.
Cardamom Seed, in fine powder,	1 drachm.
Coriander Seed, in fine powder,	1 drachm.
Elixir Percolating Menstruum,	1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 ounce av.
Phosphate of Iron in scales (1880),	128 grains.

Make by percolation as directed (512). Detannate with 1/2 ounce white of egg. Dissolve the Iron salt in 1 ounce of hot water, and add to the detannated Elixir. It may also be made by adding 2 fl.ounces Fluid Extract Senna and 1/2 fl.ounce Tincture Cardamom Seed to 14¹/₂ fl. ounces of Elixir Gentian and Phosphate of Iron. The dose is a dessertspoonful to a tablespoonful as a laxative and tonic.

Other Laxative Elixirs are noted under the Cathartic Elixirs and among the Standard Remedies.

683. Elixir Lactucarium.

Lactucarium,	256 grains.
Elixir,	1 pint.

Macerate the Lactucarium in the Elixir for 24 hours; then rub it to a smooth mixture with the Elixir, and after standing a day or two filter.

A fl.drachm contains 2 grains of Lactucarium.

The dose is a teaspoonful or more.

684. Elixir Leptandra.

Leptandra (Culver's Root), in coarse

powder,	1280 grains.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or it may be made by mixing $2\frac{3}{4}$ fl.ounces of Fluid Extract Leptandra with enough Elixir to make a pint.

A fl.drachm represents 10 grains Leptandra.

The dose is a teaspoonful or two.

685. Elixir Liquorice.

Elixir Glycyrrhiza.

Liquorice Root, in coarse powder,	$2\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Water of Ammonia,	1 fl.drachm.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or it may be made by mixing Fluid Extract Licorice $2\frac{3}{4}$ fl. ounces with Water of Ammonia, 20 minims, and Elixir 14 fl.ounces.

A fl.drachm represents 10 grains of Licorice Root.

The dose is a teaspoonful or more.

This Elixir is much used as a vehicle for bitter medicines, as Quinine, etc.

686. Elixir Licorice Compound.

Elixir Glycyrrhiza Compound.

Licorice Root, in coarse powder,	1 $\frac{1}{2}$ ounce av.
Wild Cherry, in coarse powder,	1 ounce av.
Cardamom Seed, in fine powder,	1 drachm.
Coriander Seed, in fine powder,	1 drachm.
Cinnamon, in fine powder,	1 drachm.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Water of Ammonia,	1 fl.drachm.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or add the Fluid Extract of the drugs to Elixir, as directed (513).

This Elixir is used chiefly as a vehicle for Quinine and other bitter medicines.

687. Elixir Lobelia Compound.

Lobelia, in coarse powder,	1 ounce av.
Bloodroot, in coarse powder,	1 ounce av.
Skunk Cabbage, in coarse powder,	1 ounce av.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or add 1 ounce each of the Fluid Extracts of the drugs to 13 fl.ounces of Elixir. The dose is $\frac{1}{2}$ to 1 teaspoonful as an expectorant.

688. Elixir Lupulin.

Alcohol,	4 fl.ounces.
Lupulin,	$2\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q.s.,	about 12 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or add $2\frac{3}{4}$ fl.ounces of the Fluid Extract Lupulin to 14 fl.ounces Elixir, and filter through Carbonate Magnesium.

A fl.drachm represents 10 grains Lupulin.

The dose is a teaspoonful.

693. Elixir Mandrake or May Apple.

Elixir Podophyllum Compound.

Fluid Extract of Mandrake,	2 fl.ounces.
Alcohol,	2 fl.ounces.
Elixir,	12 fl.ounces.

Mix them, and, after standing, filter through a little Carbonate of Magnesium.

A fl.drachm represents 7 grains Mandrake. Dose, a teaspoonful.

694. Elixir Mandrake Compound.

Elixir Podophyllum Compound.

Mandrake (Podophyllum), in powder,	1 ounce av.
Leptandra (Culver's Root), in powder,	1 ounce av.

Senna, in coarse powder,	1 ounce av.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or mix the Fluid Extracts of the drugs with Elixir, and filter through Carbonate Magnesium.

A fl.drachm contains about 3¹/₂ grains each of the drugs. The dose is a teaspoonful as a cholagogue and laxative.

695. Elixir Matico Compound.

Matico, in coarse powder,	1 ounce av.
Buchu, in coarse powder,	1 ounce av.
Cubebs, in fine powder,	1 ounce av.
Elixir Percolating Menstruum, q.s.,	about 18 fl. ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or by mixing the fluid extracts of the drugs with Elixir, rubbing with Carbonate of Magnesium and filtering. The dose is a teaspoonful or more.

700. Elixir Orange.

Elixir Aurantii.

Oil of Orange, fresh,	30 minims.
Alcohol,	6 fl.ounces.
Water,	10 fl.ounces.
Sugar,	5 ounces av.
Carbonate of Magnesium,	120 grains.

Dissolve the Oil of Orange in the Alcohol, rub the Magnesium Carbonate to a fine powder, and add to the Water; then gradually add the mixture of Magnesium to the Solution of Orange, and after mixing thoroughly allow to stand; then filter clear and dissolve the Sugar in the filtrate.

This Elixir is known by many names, and used mostly as an adjuvant or

simple Elixir. It may also be made by macerating 4 ounces of fresh Orange Peel in half a pint of Alcohol for several days, draining and pressing; then adding 8 ounces of Water and 4 ounces of Syrup, and filtering.

For other Elixirs of Orange see Simple Elixir, Aromatic Elixir, Adjuvant Elixir, Curaçoa Cordial, etc.

701. Elixir Orange Compound.

Elixir Vicerale Hoffmanni.

This Elixir was formerly official in the German Pharmacopoeia. The formula is as follows :

Orange Peel, cut,	50 parts or 3 ³ / ₄ ounces.
Cinnamon,	10 parts or 6 drachms.
Carbonate of Potassium,	2 ¹ / ₂ parts or 90 grains.
Sherry Wine,	250 parts or 19 fl.ounces.
Extract of Gentian,	5 parts or 3 drachms.
Extract of Wormwood,	5 parts or 3 drachms.
Extract of Buckbean,	5 parts or 3 drachms.
Extract of Cascarella,	5 parts or 3 drachms.

Macerate the Orange, Cinnamon and Carbonate of Potassium for 8 days in the Wine, pour off, express, and dissolve the extracts in the liquid. The dose is a teaspoonful.

706. Elixir Pareira Brava.

Fluid Extract Pareira Brava,	2 ¹ / ₂ fl.ounces.
Elixir,	14 fl.ounces.

Mix them, and, after standing, filter through a little Carbonate Magnesium. It may also be made by percolating the drug with Elixir, as directed (512).

A fl.drachm represents 10 grains of the drug. The dose is a teaspoonful to a dessertspoonful.

749. Elixir Rhubarb.

Rhubarb, in coarse powder,	1½ ounce av.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). This may also be made by mixing 1½ ounce Fluid Extract of Rhubarb with enough Elixir to make a pint.

A fl.drachm represents about 5 grains of Rhubarb. The dose is a teaspoonful to a tablespoonful.

750. Elixir Rhubarb and Columbo.

Fluid Extract of Columbo,	256 minims.
Fluid Extract of Rhubarb,	256 minims.
Elixir, sufficient to make	1 pint.

Mix, and after standing, filter.

This may also be made by percolating Rhubarb and Columbo, each 256 grains, with Elixir Percolating Menstruum, 1 pint, adding 5 ounces sugar and 1 ounce Soluble Flavoring, and filtering.

A fl.drachm represents 2 grains each, Rhubarb and Columbo. The dose is a teaspoonful to a dessertspoonful.

751. Elixir Rhubarb, Columbo, and Iron.

Phosphate of Iron, in scales,	128 grains.
Elixir Rhubarb and Columbo,	1 pint.
Water,	1 fl.ounce.

Mix the Elixir with the white of one egg, and let stand for two days, with occasional agitation, then filter through cloth. Dissolve the Iron salt in water, by the aid of heat, and add to the detannated Elixir; after standing a few days, filter.

A fl.drachm represents 2 grains each, Rhubarb and Columbo, and 1

grain Phosphate of Iron. The dose is a teaspoonful to a dessertspoonful.

752. Elixir Rhubarb and Magnesia.

Two Elixirs of Rhubarb and Magnesia are used, one containing sulphate of Magnesium (Epsom Salt) and the other Citrate of Magnesium in solution. The former is probably most used, but the latter is by far the more elegant preparation.

MADE WITH SULPHATE OF MAGNESIUM.

Sulphate of Magnesium (Epsom Salt),	640 grains.
Elixir Rhubarb (749),	15 fl.ounces.

Rub the salts with the Elixir until dissolved. The dose is a dessertspoonful to a tablespoonful.

MADE WITH CITRATE OF MAGNESIUM.

Citric Acid,	3 drachms.
Carbonate of Magnesium,	2 drachms.
Water,	1 fl.ounce.
Elixir Rhubarb (749),	15 fl.ounces.

Rub the Carbonate of Magnesium with the Water and gradually add the Citric Acid. When effervescence has ceased add the Elixir Rhubarb, and mix thoroughly. The dose is a dessertspoonful or more.

753. Elixir Rhubarb and Potassium.

Neutralizing Elixir.

Rhubarb, in coarse powder,	160 grains.
Bicarbonate of Potassium,	160 grains.
Cinnamon,	80 grains.
Golden Seal,	80 grains.
Elixir Percolating Menstruum,	1 pint.
Sugar,	5 ounces av.
Spirit of Peppermint,	2 fl.drachms.

Mix all together and macerate for several days, with occasional

agitation, then filter, adding enough Elixir through the filter to make a pint. In making larger quantities of this Elixir it is best made by percolation as directed (512).

This is the same strength as the "Neutralizing Cordial" of the American Dispensatory. The dose is a dessertspoonful to a tablespoonful.

759. Elixir Santonin.

Santonin, in very fine powder,	64 grains.
Alcohol,	2 fl.ounces.
Elixir,	14 fl.ounces.

Rub the Santonin with the Alcohol, and heat gently by water-bath until dissolved, then add the Elixir.

A fl.drachm contains $\frac{1}{2}$ grain Santonin. The dose is a teaspoonful to a dessertspoonful. As Santonin is quite insoluble, and it is not desirable to have it dissolved when taken as a vermifuge, it is best given in the form of an emulsion, or suspended in syrup or in powders.

760. Elixir Sarsaparilla Compound.

Fluid Extract Sarsaparilla Compound,	4 fl.ounces.
Elixir,	12 fl.ounces.

Mix them. This Elixir may also be made from the drugs directed for making 1 pint Fluid Extract Sarsaparilla Compound by percolating the ingredients as directed under Fluid Extract of Sarsaparilla Compound with Elixir Percolating Menstruum sufficient to make 52 fl.ounces, adding 20 ounces of Sugar and 4 fl.ounces soluble flavoring to make 4 pints of Elixir.

This is of the same strength as Syrup Sarsaparilla Compound. The dose is a dessertspoonful or more.

761. Elixir Scilla Compound.

Elixir Squill Compound.

Squill, in coarse powder,	640 grains.
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Senega, in coarse powder,	640 grains.
Tartrate of Antimony and Potassium,	16 grains.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir P'lavoring,	1 fl.ounce.

Make by percolation as directed (512.) This is the same strength as Syrup of Squill Compound. The dose is $\frac{1}{4}$ to one teaspoonful or more.

762. Elixir Senna.

Fluid Extract of Senna,	$2\frac{3}{4}$ fl.ounces.
Elixir, sufficient to make	1 pint.

Mix, and, after standing, filter.

A fl.drachm represents 10 grains of Senna. Dose, a dessertspoonful to a tablespoonful as a laxative.

763. Elixir Senna Compound.

Senna Leaves, in coarse powder,	2 ounces av.
Rhubarb, in coarse powder,	1 ounce av.
Jalap, in coarse powder,	$\frac{1}{2}$ ounce av.
Mandrake, in coarse powder,	$\frac{1}{2}$ ounce av.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). The dose is a tea-spoonful to a dessertspoonful as a laxative, a tablespoonful as a cathartic.

764. Elixir Stillingia.

Fluid Extract Stillingia,	$2\frac{3}{4}$ ounces av.
Alcohol,	2 fl.ounces.
Elixir, sufficient to make	1 pint.

Mix them, and, after standing, filter. This may also be made by

percolating $2\frac{3}{4}$ ounces Stillingia with 2 ounces Alcohol and 14 ounces Percolating Menstruum, adding 5 ounces of Sugar and 1 ounce Soluble Flavoring.

A fl.drachm represents 10 grains Stillingia. The dose is a teaspoonful or more.

765. Elixir Stillingia Compound.

Fluid Extract Stillingia Compound,	4 fl.ounces.
Elixir,	12 fl.ounces.

Mix them, and, after standing, filter. This may also be made by percolating the drugs as directed for making 1 pint Fluid Extract of Stillingia Compound with Elixir Percolating Menstruum until 52 fl.ounces have passed, then dissolving 20 ounces av. of Sugar in the percolate and adding 4 fl.ounces Soluble Flavoring to make 4 pints Elixir. This is the same strength as Syrup Stillingia Compound. The dose is a teaspoonful to a dessertspoonful.

767. Elixir Sumbul.

Elixir of Musk Root.

Sumbul, or Musk Root,	1280 grains.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring	1 fl.ounce.

Make by percolation as directed (512), or mix $2\frac{3}{4}$ fl.ounces of Fluid Extract of Sumbul with enough Elixir to make a pint and filter.

A fl.drachm represents 10 grains of Sumbul. The dose is a teaspoonful to a dessertspoonful.

770. Elixir Taraxacum Compound.

The formulas for this Elixir are given under the heading *Elixir Dandelion Compound* (626), which see. The formula was first given for this Elixir by Prof. P. C. Candidus of Mobile, and as this particular

formula is still frequently called for, it is here repeated in substance :

Dandelion Root,	1 ounce av.
Wild Cherry Bark,	3/4 ounce av.
Gentian Root,	1/8 ounce av.
Bitter Orange Peel,	1/4 ounce av.
Cinnamon,	1/8 ounce av.
Liquorice Root,	1/2 ounce av.
Star Anise,	30 grains.
Caraway Seed,	30 grains.
Coriander Seed,	30 grains.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces
Sugar,	5 ounces av.

Grind the drugs to a coarse powder, and make by percolation as directed (512). This Elixir is used as a vehicle for Quinine, and as an addition to other medicines. Also as a laxative and tonic in doses of a dessertspoonful or more.

772. Elixir Valerian.

Valerian Root, in coarse powder,	1280 grains.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). This may also be made by mixing 2³/₄ fl.ounces Fluid Extract Valerian with enough Elixir to make a pint, and, after standing, filtering.

A fl.drachm represents 10 grains Valerian. The dose is a teaspoonful to a dessertspoonful or more.

784. Elixir Veratrum Viride.

American Hellebore, in fine powder,	256 grains.
Elixir,	1 pint.

Macerate for five days, and filter. This may also be made by adding 256

minims of Fl. Ext. Veratrum Viride to enough Elixir to make a pint.

A fl.drachm represents 2 grains Veratrum Viride. The dose is $\frac{1}{2}$ to 1 teaspoonful.

785. Elixir Wild Cherry.

Wild Cherry Bark, in coarse powder,	2 $\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). This may also be made by mixing 2 $\frac{3}{4}$ fl.ounces of Fl. Ext. of Wild Cherry with enough Elixir to make a pint.

A fl.drachm represents 10 grains of Wild Cherry. The dose is a teaspoonful or two.

786. Elixir Wild Cherry, Detannated.

Wild Cherry Bark, in coarse powder,	2 $\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), and detannate with Ferric Hydrate as directed (515).

This Elixir is used with solutions of Iron salts, Bismuth, etc., that would form inky colors or precipitates with the former formula.

Elixir Wild Cherry, from Cherry Pits.

An Elixir may be made from Cherry Pits, which does not need to be detannated to combine with Iron, etc., by macerating 2 ounces of Cherry Pits, crushed, with a pint of Elixir, for several days, and filtering.

790. Elixir Wild Cherry Compound.

Wild Cherry Bark,	1 ounce av.
Liquorice Root,	1/2 ounce av.
Marshmallow Root,	1/2 ounce av,
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512).

This Elixir is used chiefly as a vehicle for Quinine, for which it is excellent. It may be made by maceration instead of per' eolation if desired.

791. Elixir Yerba Santa.

Fluid Extract Yerba Santa,	2 ³ / ₄ fl.ounces.
Alcohol,	2 fl.ounces.
Elixir, sufficient to make	1 pint.

Mix, and, after standing, filter.

A fl.drachm represents 10 grains Yerba Santa. The dose is a teaspoonful or more.

792. Elixir Yerba Santa Compound.

The following formula is adopted from the original, first published by Mr. J. S. McClary, of Los Angeles, Cal., who first brought to notice the advantages of Yerba Santa as a carrier for Quinine :

Yerba Santa,	6 ounces av.
Orange Peel,	2 ounces av.
Cinnamon Bark,	3 drachms.
Cloves,	3 drachms.
Cardamom Seeds,	3 drachms.
Coriander Seed,	2 drachms.
Caraway Seed,	3 drachms.
Anise Seed,	2 drachms.

Cochineal,	2 drachms.
Glycerin,	1 pint.
Alcohol,	1/2 pint.
Sugar,	4 pounds av.
Water, sufficient to make	1 gallon.

Powder the drugs coarsely, and, having mixed the Alcohol and Glycerin, moisten the powder and pack in the percolator, adding Water through the percolator, and continuing the percolation until 6 pints of percolate are obtained. In this dissolve the Sugar by gentle heat, and strain.

This Elixir is used mainly to disguise the taste of Quinine and other bitter medicines.

Other Elixirs.

In the first part of this article, it was explained that Elixirs, as understood in American Pharmacy, were flavored, sweetened, weakly alcoholic preparations, in which medicinal substances are exhibited in pleasant, palatable form, etc. The foregoing formulae have corresponded to this description, but there are many preparations which have been known in the past as "Elixirs," which are not of this class, and which could not properly be included with it. The formulae for such of these as are most important, or likely to be called for, are therefore given here. Many of them have been official in foreign Pharmacopaeias:

794. Aloes Elixirs.— *Compound Tincture of Aloes.*— Acetate of potassium, inspissated oxgall, Socotrine Aloes, myrrh each 120 grains, hay saffron 60 grains, brandy or proof spirit 2¹/₂ fl.ounces; digest seven days and strain. Several other preparations are also known as Elixirs of Aloes. Tincture of Aloes and myrrh is sometimes known as Elixir Aloes Compound.

795. Elixir Amarum.—*Bitter Elixir.*—The present German Pharmacopoeia gives the following formula : Extract of wormwood 10 parts, oleo-saccharate of peppermint 5 parts, dissolve by triturating with water 25 parts, then add aromatic tincture 5 parts, bitter tincture 5 parts.

796. Anti-Asthmatic Elixirs.—Oil of anise, camphor, balsam of tolu

each 1 ounce, cochineal 1 drachm, proof spirit 1 gallon; digest seven days and filter.

Boerhaave's.—Anise seed, asarabacca, elecampane, liquorice root, orris root, and sweet flag root of each 1 part, proof spirit 5 parts; macerate and filter.

797. Elixir Antigoutteux de Villette.—*Gout Elixir.*—Cinchona bark 4 parts, poppy petals 2 parts, sassafras 1 part, guaiacum 2 parts, rum 160 parts, syrup sarsaparilla 100 parts; macerate and filter.

798. Boerhaave's Visceral Elixir.—Aloes, myrrh, and saffron, of each 1 ounce, tartrate of potassium 2 ounces, alcohol 14 fl.ounces, water 1 ounce; macerate three days and filter.

800. Elixir Deslaurier's.—*Toni-febrifuge, au Quinquina et Caffé.*—Yellow cinchona bark 2¹/₂ ounces, brown cinchona bark 1 ounce, coffee slightly roasted 2 ounces, sugar 12¹/₂ ounces, sherry wine 2 pints, citric acid 150 grains; powder the drugs, macerate seven days, filter, and dissolve the sugar in the filtrate.

802. Elixir de Garus.—Myrrh 90 grains, aloes 90 grains, cloves 180 grains, nutmeg 180 grains, saffron 483 grains, cinnamon 360 grains, alcohol 12 pints; reduce the drugs to a coarse powder, macerate with the alcohol and distill 9 pints, which reserve; then take maidenhair 4 tr.ounces, liquorice root ¹/₂ tr.ounce, figs 3 tr.ounces; infuse in 8 pints boiling water, strain, express, and dissolve in the liquid 12 pounds av. of sugar; mix equal parts by weight of the syrup thus prepared with the distilled spirit reserved.

804. Elixir of Long Life.—*Compound Tincture of Aloes (Codex).*—Aloes 8 parts, gentian, rhubarb, zedoary, saffron, agaric, opium each 1 part, alcohol 400 parts; macerate and filter.

805. Elixir Pectoral.—Balsam tolu 2 ounces, benzoin 1¹/₂ ounce, saffron ¹/₂ ounce, alcohol 32 fl.ounces; digest by gentle heat for four days and filter.

The German Pharmacoporia, 1883, gives the following under the name

of *Burstelixir* or *Pectoral Elixir* (Elixir E Succo Liquiritiae): Purified extract of liquorice 10 parts, dissolved in fennel water 30 parts, and added to anis-ated spirit of ammonia 10 parts; after standing the liquid is poured off from the sediment.

806. Elixir Salutis.—*Elixir of Health, Duffy's Elixir*— This Elixir was formerly official under the title Tincture Senna Compound. Many formulas for it are extant. The following is from the Edinburgh Dispensatory:

Senna 2 tr.ounces, jalap 1 tr.ounce, coriander $\frac{1}{2}$ tr.ounce. diluted alcohol $3\frac{1}{2}$ pints; macerate and filter. To this 1 pound of sugar and other aromatics may be added if desired.

807. Elixir Stoughton's.—(Codex.) Aloes and cascarilla of each 1 drachm, rhubarb 3 drachms, gentian, germander, wormwood, and bitter orange peel of each 5 drachms, alcohol 60° proof 2 pints; macerate and filter.

809. Elixir Visceral, Hoffman's.—*Elixir Orange Compound* of the German Pharmacopoeia. Orange peel cut 50 parts, cinnamon bruised 10 parts, carbonate of potassium $2\frac{1}{2}$ parts, sherry wine 250 parts; macerate for eight days and express; add sherry wine to make 230 parts, and dissolve in the liquid extracts of gentian, wormwood, buckbean, and cascarilla each 5 parts; allow the mixture to settle, then filter. See, also, Boerhaave's Visceral Elixir.

Besides the Elixirs of this kind which are here mentioned, are several which are official in the U. S. P., under other names, as Elixir Proprietatis (Tincture Aloes and Myrrh), Elixir Vitriol (Aromatic Sulphuric Acid), McMunn's Elixir of Opium (Deoderized Tincture of Opium), etc. There are also many which are not of sufficient general importance to require a formula for their preparation. They may usually be prepared as wanted by intelligent druggists.

EMPLASTRA — PLASTERS.

The making and spreading of Plasters, which was formerly quite an important feature of the business of the apothecary, is now nearly a lost

art as far as the retail druggist is concerned, the business having been relegated to manufacturers, who have experience and suitable machinery for the work, and furnish all the necessary combinations in the plaster line. In this country several large establishments are devoted entirely to the manufacture of plasters, and from long experience and experiment have perfected their products to a high degree. It is not therefore supposed that many druggists will attempt to make their spread plasters, but only such plaster masses as are occasionally used in making other preparations, or sometimes called for in old formulas.

For spreading Plasters in a small way the Plaster Iron is generally used. Plaster-spreading machines are advertised, but they are not generally practical.

812. Emplastrum Arnicae.

Arnica Plaster.

Extract of Arnica Root,	1 ounce.
Resin Plaster,	2 ounces.

Add the Extract to the Plaster, previously melted by means of a water-bath, and mix them thoroughly.

813. Emplastrum Asafoetidae.

Asafetida Plaster. Asafetida,	3 ¹ / ₂ ounces av.
Lead Plaster,	3 ¹ / ₂ ounces av.
Galbanum,	1 ¹ / ₂ ounce av.
Yellow Wax,	1 ¹ / ₂ ounce av.
Alcohol,	14 fl.ounces.

Digest the Gums with the Alcohol on a water-bath, and strain while hot; evaporate to the consistence of honey; then add the Lead Plaster and Wax, previously melted together, stir the mixture well, and evaporate to the proper consistence.

814. Emplastrum Belladonnae.

Belladonna Plaster.

The U. S. 1880 formula directs to make a solid extract from Belladonna Root 100 parts, by exhausting with Alcohol and evaporating, and then to add to the Extract enough Resin Plaster, previously melted, to make 100 parts, and mix thoroughly.

The Belladonna Extract is best made by water-bath percolation as directed. (See Extract Belladonna Root.)

The Br. Pharmacopoeia directs:

Alcoholic Extract of Belladonna,	1 part.
Resin Plaster,	2 parts.
Soap Plaster,	2 parts.

Melt the Plasters by the heat of a water-bath, then add the Extract, and mix the whole thoroughly together.

815. Emplastrum Capsici.

Capsicum Plaster.

The official Capsicum Plaster is made by first spreading Resin Plaster upon muslin and then brushing it over with a thin coating of Oleoresin of Capsicum, leaving a narrow blank margin along the edges. As furnished by manufacturers, the Oleoresin or Extract of Capsicum is first incorporated with the plaster mass before spreading.

820. Emplastrum Galbani.

Galbanum Plaster.

The U. S. formula is :

Galbanum,	8 ounces.
Turpentine (Gum Thus.),	1 ounce.
Burgundy Pitch,	3 ounces.
Lead Plaster,	38 ounces.

To the Galbanum and Turpentine, previously melted together and strained, add, first the Burgundy Pitch and then the Lead Plaster, melted over a gentle fire, and mix the whole together.

The Br. formula is Galbanum, Ammoniacum, Yellow Wax of each 1 ounce, Lead Plaster 8 ounces.

824. Emplastrum Picis.

Pitch Plaster.

The Br. P. gives the following formula. There is no corresponding U. S. formula:

Burgundy Pitch,	26 ounces or parts.
Common Frankincense,	13 ounces or parts.
Resin,	4 ¹ / ₂ ounces or parts.
Yellow Wax,	4 ¹ / ₂ ounces or parts.
Expressed Oil of Nutmeg,	1 ounce or part.
Olive Oil,	2 ounces or parts.
Water,	2 ounces or parts.

Add the Oils and Water to the Frankincense, Burgundy Pitch, Resin, and Wax, previously melted together; then, constantly stirring, evaporate to a proper consistence.

825. Emplastrum Picis Burgundicae.

Burgundy Pitch Plaster.

Burgundy Pitch,	90 parts or 9 ounces.
Yellow Wax,	10 parts or 1 ounce.

Melt them together, strain the mixture and stir constantly until it thickens on cooling.

826. Emplastrum Picis Canadensis.

Canada Pitch Plaster, Hemlock Pitch Plaster.

Canada Pitch (Hemlock Gum),	90 parts or 9 ounces.
Yellow Wax,	10 parts or 1 ounce.

Melt them together, strain the mixture and stir constantly until it thickens on cooling.

828. Emplastrum Plumbi.

Lead Plaster, Diachylon Plaster, Litharge Plaster.

The U. S. formula is :

Oxide of Lead (Litharge'), in very fine powder,	8 ounces.
Olive Oil, by weight,	15 ounces.
Water, a sufficient quantity.	

Rub the Oxide of Lead with about one half the Olive Oil and add the mixture to the remainder of the Oil, contained in a suitable vessel of a capacity equal to three times the bulk of the ingredients; then add about 4 ounces of boiling Water and boil the whole together until a homogeneous plaster is formed, adding from time to time during the process a little Water as that first added is evaporated.

The Br. formula directs 5 ounces of Oxide of Lead, 10 ounces of Olive Oil, and 5 ounces of Water, to be boiled together by the heat of a steam bath for four or five hours, stirring constantly until the product acquires a proper consistence for a plaster, adding more Water during the process if necessary.

The German Pharmacopoeia directs equal parts of common Olive Oil, Lard and Oxide of Lead to be boiled together with Water in the same manner as above directed. It is called *Emplastrum Lithargyri* in the G. P.

Lead Plaster is the basis of most of the official plasters. The British formula makes the best product.

The Compound Lead Plaster (*Emplastrum Lithargyri Compositum*) of the German Pharmacopoeia is nearly identical with the Galbanum

Plaster of the Br. P.

830. Emplastrum Resinae.

Resin Plaster, Adhesive Plaster.

The U. S. formula is:

Resin, in fine powder,	14 parts or $\frac{7}{8}$ ounce.
Lead Plaster,	80 parts or 5 ounces.
Yellow Wax.	6 parts or $\frac{3}{8}$ ounce.

To the Lead Plaster and Wax, melted together over a gentle fire, add the Resin and mix them.

The Br. formula is Resin 4 ounces or 2 parts, Lead Plaster 2 pounds (av.) or 16 parts. Curd Soap 2 ounces or 1 part. To the Lead Plaster, previously melted at a low temperature, add the Resin and Soap, first liquefied, and stir them until they are thoroughly mixed.

This is the "Adhesive Plaster," which, when spread, is used so extensively in surgery. Druggists are familiar with the spread plaster but are little acquainted with the plaster mass.

831. Emplastrum Saponis.

Soap Plaster.

The U. S. formula is :

Soap, dried and in fine powder,	10 parts or 1 ounce.
Lead Plaster,	90 parts or 9 ounces.
Water sufficient.	

Rub the Soap with Water until brought to a semi-liquid state, then mix it with the Lead Plaster, previously melted, and evaporate to the proper consistence.

The Br. formula is Curd Soap 6 ounces, Lead Plaster $2\frac{1}{4}$ pounds av., Resin 1 ounce. To the Lead Plaster, melted at a low temperature, add

the Soap and the Resin, first liquefied; then, constantly stirring, evaporate to a proper consistence.

The German formula is Lead Plaster 70 parts, Yellow Wax 10 parts, melted together, and to the partially cooled mass add medicinal Soap, powdered, 5 parts, and Camphor, rubbed with a little Olive Oil, 1 part.

Other Plasters.

The official Plasters for which formulae have been given embrace most that are used to any extent in pharmacy; but a few others deserve attention, and are therefore mentioned here:

833. Aconite Plaster.—This Plaster was formerly official in the U. S. P. It is made by exhausting 16 ounces of Aconite Root with Alcohol, evaporating to a soft extract and adding to it sufficient Resin Plaster, previously melted, to make 16 ounces.

835. Camphor Plaster.— For extemporaneous work Camphor in fine powder may be applied to the warmed surface of adhesive or other spread plaster. Several plasters containing Camphor are official.

836. Cancer Plaster.— Several Plasters are furnished for the purpose of removing Cancers. The one to which the greatest success is attributed is used by some of the most noted cancer doctors. Sheep-sorrel is gathered green and pounded to a pulp, the juice is expressed and dried on pewter plates to an extract; this is then used as it is as a plaster, or combined with some sort of adhesive salve and applied. Another Cancer Plaster is made with Extract of Hemlock 1 drachm, Arsenious Acid in very fine powder 30 grains, Wax Plaster i ounce.

Many other Cancer Plasters are used, most of them consisting of Arsenic combined with other substances.

837. Corn Plaster.— A great variety of Corn Plasters are found in the market, the most popular being made of Felt coated with Adhesive Plaster, and a hole punched in the centre to relieve the pressure from the corn. These are not in any way medicinal, but simply remove the pressure from the corn.

To apply to corns in the form of a plaster, the following will be found

effective: Salicylic Acid 60 grains, Beeswax 6 drachms, Venice Turpentine 2 drachms, Verdigris, in fine powder, 60 grains. Melt the Wax, add the Venice Turpentine, and mix in the other ingredients.

838. Croton-Oil Plaster.— The most common way of making a Croton-Oil Plaster is to rub a few drops of Croton-Oil over the surface of Adhesive or any spread plaster. It can also be made by melting Lead Plaster and adding 1 part of Croton-Oil to 6 parts of the plaster.

839. Elemi Plaster. — Wax Plaster 3 parts. Gum Elemi 1 part, melted together. This is also called Issue Plaster.

840. Euphorbium Plaster.—Burgundy Pitch Plaster 8 ounces, melted and mixed with Euphorbium in fine powder 1 drachm. Capuchin Plaster is sometimes furnished by the name of Euphorbium Plaster. It is made of Burgundy Pitch and Beeswax each 3 ounces, Venice Turpentine 1 ounce, melted together and then added to the mass Gum Ammoniacum, Olibanum, Mastich and Calamine, each 1 ounce. Euphorbium, Pyrethrum (pellitory) and Common Salt, all in fine powder, each 2 ounces. The whole is then well mixed together.

841. Extract Plasters.— A great variety of plasters may be made by mixing solid extracts of drugs with Burgundy Pitch Plaster, Resin Plaster, Lead Plaster, or other combined plasters. The plaster is first melted and the extract incorporated. The proportion is generally 1 part of extract to 9 parts of plaster.

842. Issue Plaster.—Beeswax 8 parts, Burgundy Pitch and Chian Turpentine, each 4 parts, Vermilion and Orris Root each 1 part. Many other stimulating plasters are used as Issue Plasters.

843. Mustard Plaster.—This is always made extemporaneously by mixing powdered Mustard to a stiff paste with warm water or vinegar. It is usually diluted with 3 or 4 parts of Corn-meal.

Ginger Plaster may be made in the same way. *Spread Mustard Plasters* are prepared mustard spread upon paper. The formulas will be found under *Chartae Sinapis* (407).

844. Poor Man's Plaster.—This is another name for Pitch Plaster, which is conveniently made by melting together Beeswax 1 ounce. Resin

3 ounces, Tar 3 ounces, and spreading upon paper or cloth.

846. Sticking Plaster or Sticking Salve.— A great variety of Sticking Salves or Plasters are found in the market, most of them being made of Burgundy Pitch combined with various ingredients and sold under various names. The following formula makes a first-class "Sticking Salve ":

Burgundy Pitch 6 parts, Resin 4 parts. Turpentine Gum 2 parts, Canada Balsam 1 part. Yellow Wax 2 parts, Venice Turpentine 1 part. Melt them together. This may be colored green with Bayberry Wax 2 parts. It is put up in small round sticks and sold by various names.

848. Wax Plaster or Simple Plaster.— Beeswax 3 parts, Yellow Resin 2 parts, Suet (fresh tallow) 2 parts, melted together and stirred while cooling.

The foregoing are all the Plasters for which formulae are generally needed: but many other combinations are made, and may occasionally be called for. The judgment of the druggist will generally enable him to prepare any combination that may be wanted.

EMULSIONES — EMULSIONS.

Emulsions are preparations in which an oil, liquid resin, balsam, or other fluid fatty matter is made to combine with water or aqueous solutions by means of some substance which combines with it to form a homogenous mixture in which the globules of oil or other substance are so broken up or divided as to be invisible except by a microscope. To fulfill the required conditions, an Emulsion must be of a uniform consistence, permanent without separation, miscible in all proportions with water, syrup or aqueous liquids, and sufficiently fluid to be poured readily from a bottle. To make such an Emulsion it is necessary to use the proper emulsifying ingredients in the proper proportions and to combine them in the proper manner, all of which requires an understanding of the method of making emulsions and care in preparing them.

In medicine Emulsions are employed to render many nauseating medicines palatable, and by minutely dividing the globules of oil, etc.,

fitting them for digestion and assimilation. They are mainly employed as nutritive food in debilitated conditions.

Emulsification is the process of making emulsions, which may be briefly described as follows :

850. General Directions for Preparing Emulsions.

To prepare Emulsions in a small way, choose a shallow-shaped mortar that will hold double the quantity of the Emulsion desired to be made, and a pestle with a large flattened head. See that the mortar and pestle are perfectly dry, then put the powdered Gum Arabic in the mortar, and gradually add the water, rubbing it to a smooth paste: or if Acacia Mucilage Syrup is used, rub it with the pestle around the sides of the mortar. Then begin to add the Oil by pouring it very slowly from a bottle into the centre of the Gum Solution, constantly rubbing it with the pestle with a circular motion around the sides of the mortar. This will form a thick pasty mass, which should get thicker as more Oil is added. If the Oil does not combine as rapidly as added, stop pouring for a moment and work the mass with the pestle until it is homogeneous. The Oil should be more slowly added as the process proceeds, and care must be used to maintain a coating of the pasty mass on the sides of the mortar and on the pestle, the Oil being broken up and emulsified between the two clinging surfaces thus presented. When all the Oil is added, the mass should be white and of a thick, pasty consistence, having no globules of Oil visible. The Flavoring Oils should then be added, the Glycerin or Syrup incorporated with the mass by rubbing them together, and then the water, to which is added any salts or solutions that are directed to be incorporated, should be gradually added and thoroughly rubbed with the pasty mass to complete the Emulsion.

If any insoluble salts or other insoluble substances are to be added, they should be reduced to a very fine powder and rubbed with the Emulsion when completed.

In making Emulsions it frequently happens that the Oil is added too fast to emulsify, or that the sides of the mortar become "greased" and will not "cling" to the Oil and break up its globules. It is then necessary to start the Emulsion over again in a clean dry mortar, with a small quantity of fresh Mucilage Syrup, and work in the "cracked" Emulsion

in the mortar in the same manner as at first. The clinging surfaces must be maintained or the Emulsion cannot be made.

On a large scale Emulsions are best made in revolving churns or other apparatus by which the Oil and Mucilage may be thoroughly agitated. The Mucilage sufficient for the whole batch is first put in the churn and the inside thoroughly covered, the Oil is then added in portions and the mixture well agitated after each portion is added.

The Mucilage or Mucilage Syrup which is used for emulsifying must be sweet and fresh, and of a uniform consistence without lumps.

851. Acacia Mucilage Syrup.

For making Emulsions it is most convenient to have a Mucilage Syrup prepared and ready, for when made by rubbing powdered Gum Arabic with Water considerable delay is experienced and the results are not always satisfactory. We have, therefore, found it desirable to have the following syrup prepared for this purpose:

Best Gum Arabic, granulated,	6 ounces av.
Albumen, (white of egg,)	8 fl.ounces.
Glycerin,	4 fl.ounces.
Boric Acid,	30 grains.

Rub the Boric Acid to a very fine powder, and dissolve by rubbing with the Glycerin. Mix the solution with the Albumen in a wide-mouth bottle or jar, add the Gum Arabic, and stir several times a day with a stick from the bottom, until the Gum is entirely dissolved, strain, if necessary, stop tight, and put away in a cool place.

This requires two or three days to make, as heat cannot be used to effect the solution. It should be kept on hand, but it may be quickly made by using powdered Gum Arabic and rubbing with the Glycerin, etc., in a mortar.

This is used as the emulsifying agent instead of Gum Arabic alone, as it is more effective.

853. Emulsion Castor Oil.

Tasteless Cod Liver Oil.

Castor Oil,	8 fl.ounces.
Acacia Mucilage Syrup,	5 fl.ounces.
Oil of Wintergreen,	20 minims.
Water,	3 fl.ounces.

Rub the Oils with the Syrup, and add the Water as directed (850). The efficacy of Castor Oil as thus prepared is very much increased, and it is not unpleasant to take. The dose is a dessertspoonful to a tablespoonful in milk or plain. It contains 50 per cent. of Oil.

854. Emulsion Cod Liver Oil.

Tasteless Cod Liver Oil.

Cod Liver Oil,	8 fl.ounces.
Acacia Mucilage Syrup,	5 fl.ounces.
Oil Bitter Almonds,	10 drops.
Oil Wintergreen,	5 drops.
Water,	3 fl.ounces.

Rub the Oils with the Syrup and add the Water as directed (850). This Emulsion"contains 50 per cent. of Oil, and is very palatable if made from good Oil. The dose is a dessertspoonful to a tablespoonful.

The New-York and Brooklyn Formulary gives the following:

855. Emulsio Olei Morrhuæ Fortior.

Stronger Emulsion of Cod Liver Oil.

Acacia, in fine powder,	2 ounces av.
Sugar, in fine powder,	4 ounces av.
Cod Liver Oil,	16 fl.ounces.
Water, enough to make	28 fl.ounces.

Mix the Acacia and Sugar with the Cod Liver Oil in a dry mortar, and add 8 fl.ounces of Water, then triturate thoroughly and continuously

until the Oil is emulsified, and finally incorporate enough Water to make the product measure 28 fl.ounces. The *Common Emulsion of Cod Liver Oil* is made by mixing 14 fl.ounces of the Stronger Emulsion of Cod Liver Oil, 15 minims each Oil of Sassafras and Wintergreen, Water enough to make 16 fl.ounces. This makes a 50 per cent. Emulsion. Unless this Emulsion is very skillfully made it will soon separate, and it will soon ferment in warm weather. It is therefore good only for immediate use.

878. Cod Liver Oil with Extract of Malt.

Cod Liver Oil,	8 fl.ounces.
Extract of Malt,	8 fl.ounces.
Oil Wintergreen,	20 minims.
Oil Bitter Almonds,	5 minims.

Rub the Oils with the Extract of Malt as directed for making Emulsions. The dose is a dessert to a tablespoonful, containing 50 per cent. each. Cod Liver Oil and Malt Extract.

Extract of Malt makes a semi-solid palatable mixture with Cod Liver Oil, and is an excellent combination for debilitated conditions and wasting diseases.

A great variety of combinations of Cod Liver Oil with Extract of Malt may be advantageously made, but it is unnecessary to give formulas for them, as they may be made by adding powders, Pepsin, Pancreatine, etc., or solutions, as Phosphate of Calcium, Phosphates Compound, etc., or other substances as may be desired.

879. Emulsion Copaiba.

Acacia Mucilage Syrup,	6 fl.ounces.
Balsam Copaiba,	4 fl.ounces.
Syrup,	3 fl.ounces.
Water,	3 fl.ounces.
Oil Wintergreen,	20 drops.

Rub the Oil and Balsam with the Mucilage Syrup, and add the Syrup and Water, as directed for making Emulsions.

A fl.drachm contains 15 minims Balsam Copaiba. The dose is a teaspoonful to a dessertspoonful or more.

880. Emulsion Olive Oil.

Acacia Mucilage Syrup,	6 fl.ounces.
Best Olive Oil,	8 fl.ounces.
Oil Wintergreen,	20 minims.
Water,	2 fl.ounces.

Rub the Oils with the Mucilage Syrup and add the Water as directed (850). Dose, a dessertspoonful containing 50 per cent. of Oil.

881. Emulsion Turpentine.

Acacia Mucilage Syrup,	6 fl.ounces.
Syrup,	3 fl.ounces.
Water,	3 fl.ounces.
Oil of Turpentine,	4 fl.ounces.
Oil of Wintergreen,	20 minims.

Rub the Oils with the Mucilage Syrup, and add the Syrup and Water as directed (850).

A fl. drachm contains 15 minims Oil of Turpentine. The dose is half to a teaspoonful or more.

882. Emulsion Canada Turpentine.

Emulsion Balsam Fir.

Acacia Mucilage Syrup,	6 fl.ounces.
Water,	3 fl.ounces.
Syrup,	3 fl.ounces.
Canada Balsam,	4 fl.ounces.
Oil of Wintergreen,	20 minims.

Rub the Oil and Balsam with the Mucilage Syrup, and add the Syrup and Water as directed (850).

A fl.drachm contains 15 minims Canada Balsam.

Other Emulsions.

A variety of other Emulsions may be made from fixed and volatile Oils, Balsams, Gums, Resins, Extracts, etc., in the same manner as the foregoing. A few sample formulas are given:

883. Emulsion of Almonds—*Milk of Almonds*.—Blanched Almonds, 1 ounce av., beat to a pulp, with water gradually added sufficient to make 10 fl.ounces, and strained through gauze or cheese cloth.

This may also be made with Oil of Almonds 3 fl.drachms. Acacia Mucilage Syrup 10 fl.drachms, Rose Water 1 fl.ounce, Distilled Water 3 fl.ounces. Rub the Oil with the Mucilage, then add the other ingredients.

884. Emulsion Asafetida.—Asafetida 1 ounce, Oil of Almonds 3 flounces, Acacia Mucilage Syrup 4 fl.ounces, Water 3 fl.ounces. Warm the Asafetida with the Oil, and rub in a mortar until uniformly mixed, then rub with the Mucilage Syrup, and add the Water. This may be flavored with Peppermint if desired. Many other Gums or Gum Resins may be made into Emulsions in the same manner.

885. Emulsion Balsam Peru.—Balsam Peru 2 ounces, Acacia Mucilage Syrup 4 fl.ounces, Syrup 6 fl.ounces, Water 4 fl.ounces. Rub the Balsam with the Mucilage Syrup, add the Syrup and Water. Emulsions of other liquid Balsams and Oleo-resins may be made in the same manner.

886. Emulsion of Wax.—White Wax 1 ounce, Acacia Mucilage Syrup 4 ounces. Water 12 ounces. Melt the Wax, and having warmed the Mucilage Syrup to about 140°F., rub the melted Wax with it in a mortar, and gradually add the Water, warmed to about 100°F., rubbing them well together until cold. Emulsions of other waxes, Spermaceti, etc., may be made in the same manner.

ESSENTIÆ — ESSENCES — FLAVORING EXTRACTS.

The term Essence is applied in a general way to the important or essential part or portion of plants or other substances, and in pharmacy to a class of preparations made from or possessing the essential

principles of substances, such as Essential Oils or their solutions in alcohol, Ethers used as artificial flavors, Fluid Extracts or Tinctures of odorous substances used for flavoring or in perfumery, etc., etc.

In the U. S. P. there is no mention of essences, but in the Br. P. Essence of Anise and Essence of Peppermint are assigned a place, being very much stronger solutions of the Essential Oils than the "Spirits" of the same. Many of the preparations which are commonly known as essences are found in the Spirits of the U. S. and other pharmacopoeias, and others are found among the Ethers, Fluid Extracts, Tinctures, etc.

It is intended in this work to class under this heading only such preparations as are known as Essences and Flavoring Extracts—the esprits and essences used in perfumery being classed under perfumes.

The preparations included under this classification are naturally divided into several departments, as solutions of Essential Oils or Essences proper, many of which are also known as Extracts, Extracts of odorous substances used for flavoring, etc., Soluble Extracts or Essences used for flavoring beverages, Artificial Fruit, Essences or Flavors, and miscellaneous essences and extracts that cannot well be classified under any of these headings.

Concentrated Essences or Extracts.

Solutions of Essential Oils.

The Solutions of Essential Oils in Spirits have been familiarly known from time immemorial as "Essences," and the characteristic "Yankee Essence Peddler" is not even now entirely extinct in the rural districts.

No uniform standard of strength has ever been adopted for Essences, but the general practice of Pharmacists in this country is to use 1 ounce of the Oil in a pint of Alcohol for all the more common ones, but Peddlers' Essence is made much weaker as a rule.

It is needless to remark that only the best quality of oils and good cologne spirit or alcohol should be used in making all these preparations. Many of them are used for flavoring soda water syrups, and are known as "Concentrated Extracts." Others are extensively used for flavoring

confectionery, ice cream, and for culinary use, and some are well known domestic remedies.

890. Anise Essence.

Oil of Anise,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The Essence of Anise of the Br. P. contains 20 per cent. of the Oil, which is double the strength of the U. S. Spirit of Anise; both are stronger than is generally sold as Essence of Anise.

891. Bay Essence.

Oil of Bay Leaves,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. This is used for flavoring soups, etc., in place of the leaves. A soluble Essence of Bay for making Bay Rum may be made by dissolving 4 fl.drachms Oil of Bay in 6 ounces Cologne Spirit, rubbing 6 drachms of Carbonate of Magnesium with 8 ounces of Water, adding the mixture to the solution, and filtering.

892. Bergamot Essence.

Oil of Bergamot,	1 fl.ounce.
Cologne Spirit,	1 pint.

Mix and filter. This Essence is considerably called for as a scent for hair preparations, etc.

893. Bitter Almond Essence.

Oil of Bitter Almond,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. This is sold as the Concentrated Essence or Extract of Bitter Almond. A good ordinary Essence may be made by dissolving 1½ fl.drachm of Oil Bitter Almond in 8 fl.ounces of Alcohol and adding 8 fl.ounces of Water.

894. Calamus or Sweet Flag Essence.

Oil of Calamus,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring confectionery, etc., and in making Bitters, etc. An extract may also be made by macerating 4 ounces av. of powdered Calamus in a pint of Alcohol.

895. Caraway Essence.

Oil of Caraway Seed,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring confectionery, pastry, etc.

896. Cardamom Essence.

Oil of Cardamom Seed,	4 fl.drachms.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, etc. The Oil of Cardamom is quite expensive, but of fine flavor. An extract may also be made by macerating 4 ounces of powdered Cardamom Seed in a pint of Alcohol.

897. Cassia or Cinnamon Essence.

Oil of Cassia,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. Spirit of Cinnamon contains 10 per cent. of the Oil; the Br. contains but 2 per cent.

898. Cedar Essence.

Oil of Cedar,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

899. Celery Essence.

Oil of Celery,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring. An extract is also made from Celery Seed.

900. Clove Essence.

Oil of Cloves,	1 fl.ounce.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring, etc.

901. Cherry Essence.

Cherry Laurel Oil,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring.

902. Cognac Essence.

Oil of Cognac,	2 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. This is used for flavoring, also for making artificial Brandy. Good Oil of Cognac is very expensive. This Essence may be diluted, if desired, cheaper.

903. Coriander Essence.

Oil of Coriander,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring.

904. Curaçoa Essence.

Oil of Curaçoa,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, like Orange.

905. Dill Essence.

Oil of Dill,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

906. Fennel Essence.

Oil of Fennel Seed,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

907. Hemlock Essence.

Oil of Hemlock,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

908. Juniper Essence.

Oil of Juniper Berries,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. Spirit of Juniper contains 3 per cent. of the Oil; the Br. P. directs 2 per cent.

909. Lavender Essence.

Oil of Lavender,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. Spirit of Lavender contains 3 per cent. of the Oil; the Br. P. directs 2 per cent.

910. Lemon Essence.

Oil of Lemon, fresh,	1 fl.ounce.
Fresh Lemon Peel, chopped fine or grated,	1 ounce av.
Cologne Spirit,	15 fl.ounces.

Mix them and macerate for 7 days, then filter. The outer, yellow portion of the peel only should be used. If the fresh Lemon Peel cannot readily be obtained, color with a few chips of Fustic. This essence is the well-known Extract of Lemon, so much sold as a flavoring extract. It may be made stronger or weaker if desired by using more or less Lemon Oil; but this formula makes an extract fully up to the standard. The U. S. P. directs 6 per cent. of Lemon Oil and 4 per cent. of Lemon Peel.

911. Lime Essence.

Oil of Limes,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, like Lemon.

912. Mace Essence.

Oil of Mace, etherial,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, like Nutmeg.

913. Mustard Essence.

Oil of Mustard, essential,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring. The Oil of Mustard must be carefully handled.

914. Nutmeg Essence.

Oil of Nutmeg,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring. The Br. P. directs 2 per cent. of the Oil for making Spirit of Nutmeg.

915. Orange Essence.

Oil of Sweet Orange, fresh,	1 fl.ounce.
Fresh Orange Peel, outside, grated,	1 ounce av.
Cologne Spirit,	15 fl.ounces.

Mix them and macerate for 7 days, then filter. See remarks after Lemon Essence.

916. Parsley Essence.

Oil of Parsley,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring.

917. Pennyroyal Essence.

Oil of Pennyroyal,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them, and filter.

918. Peppermint Essence.

Oil of Peppermint,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them, and filter. It is customary with some druggists to color Essence of Peppermint green, which may be done by adding a little peppermint herb to the Essence, or a little grass-green coloring (443). The U. S. P. Spirit of Peppermint contains 10 per cent. of the Oil; the Br. P. directs 2 per cent. of the Oil for making Spirit of Peppermint, but also gives an Essence of Peppermint containing 20 per cent. of the Oil.

919. Pimento or Allspice Essence.

Oil of Pimento,	1 fl.ounce.
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Cologne Spirit, 15 fl.ounces.

Mix them. Used for flavoring.

920. Rose Essence.

Oil of Rose, 1 fl.drachm.
Cologne Spirit, 1 pint.

Mix them. This may be reduced if a cheaper Essence is desired.

921. Rosemary Essence.

Oil of Rosemary, 1 fl.ounce.
Cologne Spirit, 15 fl.ounces.

Mix them.

922. Sage Essence.

Oil of Sage, 1 fl.ounce.
Cologne Spirit, 15 fl.ounces.

Mix them.

923. Sarsaparilla Essence.

Oil of Sassafras, 3 fl.drachms.
Oil of Wintergreen, 4 fl.drachms.
Oil of Anise, 30 minims.
Cologne Spirit, 12 fl.ounces.
Water, 3 fl.ounces.

Mix them. This is the popular "Sarsaparilla Flavoring" so much used for flavoring Soda Water, Syrup Sarsaparilla, etc. A stronger flavor can be made by using a larger quantity of the Oils and no Water.

924. Sassafras Essence.

Oil of Sassafras, 1 fl.ounce.
Cologne Spirit, 15 fl.ounces.

Mix them.

925. Spearmint Essence.

Oil of Spearmint,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. This may be colored with Spearmint herb or grass-green coloring if desired. See remarks under Essence Peppermint. The U. S. P. Spirit of Spearmint contains 10 per cent. of the Oil.

926. Spruce Essence.

Oil of Spruce,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them, and filter.

927. Wintergreen Essence.

Oil of Wintergreen,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. P. directs Spirits of Gaultheria to be made with 3 parts of Oil of Wintergreen and 97 parts of Alcohol.

928. Wormwood Essence.

Oil of Wormwood,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

Essences of other Oils may be made in the same manner as the preceding, the judgment of the druggist directing how much of the Essential Oil should be used with a pint of Alcohol.

Concentrated Extracts.

In this department are included the liquid extracts of substances, not Essential Oils, that are used as Flavoring Extracts, or for flavoring beverages, pastry, etc. Some of them are properly Fluid Extracts, others are Tinctures and others are mixtures both of Extracts and Essences.

929. **Angelica Extract or Essence.**

Angelica Root, in coarse powder,	4 ounces av.
Alcohol,	12 fl.ounces.
Water, sufficient to make	1 pint.

Mix 4 ounces of Water with the Alcohol, and macerate the drug in the mixture for 7 days, then pour off the liquid, transfer the drug to a percolator, and percolate first with the poured off liquid, then with Water, until a pint is obtained.

This may also be made by mixing $\frac{1}{2}$ fl.ounce Oil of Angelica with a pint of Cologne Spirit.

930. **Beef or Meat Extract, Essence or Juice.**

A variety of preparations are sold under this name. The Extracts of Meat or Beef are usually of the consistence of a soft, solid Extract, while some are gelatinous. The Essences of Beef found in the market are liquid. Of the Beef or Meat Extracts, Liebig's is the most popular. It is made on a large scale in South America by evaporating Meat Juices in vacuo in iron cylinders—the finished Extract representing 32 times its weight of fresh meat. It is much used in making Wine of Beef and Iron and other similar nutritive preparations, and for making soups and other articles of diet.

Essence of Beef or Meat Juice is prepared from the expressed juice of fresh meat, condensed and preserved with glycerin. The most popular meat juice in this country is Valentine's. It is said to contain the nutritive value of two pounds of beef in a fl.ounce.

In a small way Meat Juice may be made by chopping fresh beefsteak fine, enclosing it in a linen cloth, and pressing it in a lemon squeezer or a small press. It is much better and more nutritious than beef tea.

931. Chocolate Extract or Essence.

Confectioners' Cocoa or Chocolate, 16 ounces av.
Alcohol, a sufficient quantity.

Reduce the Cocoa or Chocolate to a coarse powder, and put in a wide-mouth quart bottle, pour upon it a pint of Alcohol, and shake them thoroughly together, let stand in a warm place for 12 hours, with occasional agitation, then heat in a water-bath for one hour or more to about 160°F., leaving a little vent in the cork for the steam to escape. When cool, pour off the liquid and add half a pint more of Alcohol, heat as before, and add the product to the liquid before obtained to make about a pint of the Extract. The Chocolate may be still more thoroughly exhausted by adding more Alcohol, concentrating the Tincture by distillation and adding the soft extract to the liquid formerly obtained.

932. Coffee Extract or Essence.

Java Coffee, browned or roasted, 8 ounces av.
Mocha Coffee, browned or roasted, 8 ounces av.
Alcohol, 8 fl.ounces.
Water, a sufficient quantity to make 1 pint.

Grind the Coffee to a moderately fine powder, mix the Alcohol with 8 ounces of Water, and moisten the powder with 8 ounces of the mixture, pack firmly in the water-bath percolator, pour the remainder of the mixture upon it, and set in a warm place for one day, then heat moderately, and after one hour begin to percolate, adding Water through the percolator, and continuing the percolation until 14 fl.ounces are obtained, which reserve, continue the percolation with Water until the drug is exhausted, then evaporate to 2 fl.ounces, and add to the reserved liquid to make a pint. This is a Fluid Extract of Coffee. It may be used for flavoring soda water syrups, etc., or medicinally. It requires about 4 fl.ounces to flavor a gallon of Coffee Syrup for soda water.

933. Jamaica Ginger Extract or Essence.

Extracts or Essences of Jamaica Ginger are well known as proprietary remedies, and are considerably used as flavors for pastry and other articles of diet. The following formula is for a Fluid Extract of Jamaica

Ginger, which is used chiefly for flavoring, or may be diluted for the proprietary Essence of Jamaica Ginger :

Jamaica Ginger, in moderately fine powder, 16 ounces av.
Alcohol, a sufficient quantity.

Moisten the powder with Alcohol, pack firmly in a water-bath percolator, pour upon it sufficient Alcohol to cover it, and set in a warm place for 2 days, then heat moderately for one hour, and begin to percolate, adding Alcohol to the drug, and continuing the percolation until 14 fl.ounces are obtained, which reserve; continue the percolation with Alcohol until the drug is exhausted, then concentrate the later percolate by distillation to 2 fl.ounces, and add to the reserved portion to make a pint of Fluid Extract of Jamaica Ginger.

This is used as a Flavoring for Soda Water Syrup and other beverages. To make the proprietary Essence of Jamaica Ginger, mix 3 parts of this Extract with 5 parts of Cologne Spirit.

934. Orris Extract or Essence.

Orris Root, in moderately fine powder, 4 ounces av.
Cologne Spirit, sufficient to make 1 pint.

Moisten the powder with Cologne Spirit, pack firmly in water-bath percolator, cover with Cologne Spirit, let stand 2 days, then heat moderately 1 hour, and percolate with Cologne Spirit until a pint has passed. Used for flavoring and in compound perfumes. It has the odor of violets.

935. Sherbet Extract or Essence.

Vanilla Extract (940), 6 fl.ounces.
Oil of Orange, fresh, 3 fl.drachms.
Oil of Rose, 3 minims.
Acetate of Amyl, 1 fl.drachm.
Cologne Spirit, 8 fl.ounces.

Mix them, and filter.

936. Tonka Extract or Essence.

Tonka Beans, in fine powder,	4 ounces av.
Cologne Spirit, sufficient to make	1 pint.

Moisten the powder with the Cologne Spirit, pack firmly in the water-bath percolator, cover with Cologne Spirit, and let stand for 2 days, then heat moderately and percolate with Cologne Spirit until a pint has passed.

This was formerly much used to combine with Vanilla for making a cheap Vanilla Extract, but is now rapidly going out of use. It is considerably employed in perfumery.

937. Vanilla Extract or Essence.

A great variety of Extracts of Vanilla are found on the market, and as it is one of the most important Extracts, the selection of the beans for preparing it, and the manner of making, should be well understood.

The Mexican Vanilla Beans have the finest flavor, and the longer the bean, as a rule, the better the Extract; but owing to the increased value of the longer beans they are seldom used by the large manufacturers.

The Bourbon Beans are considerably used, but they have a ranker flavor, more like Tonka, and a first-class Extract cannot be made from them alone. They are, however, used to mix with the Mexican Beans, and give a strength to the flavor, which is considered desirable by some manufacturers, but is not liked by the best judges of Good Vanilla Extract.

Owing to the high price of Vanilla Beans, they are liable to manipulation in the hands of unscrupulous jobbers, and an Extract is frequently made by soaking the whole beans in spirits, then drying and selling them. They are then brittle and lighter colored, and are practically worthless. The best way is to buy them of reliable houses only.

Several strengths of Vanilla Extracts are made. One containing 4 ounces to a pint being usually called Fluid Extract of Vanilla; one,

containing 2 ounces to the pint, being called Concentrated Extract of Vanilla, chiefly used by confectioners and for flavoring soda water, etc.; and one for the popular trade, usually made 1 ounce to the pint, and called by any name that the manufacturers chose to give it. Besides these, which rank as first-class, and vary only in strength, are the Extracts made of Vanilla and Tonka, or of poorer quality of beans, which are much sold by grocers and also by druggists. The following are the formulae:

938. Fluid Extract of Vanilla.

Vanilla Beans, cut fine,	4 ounces av.
Cologne Spirit,	12 fl.ounces.
Water, sufficient to make	1 pint.

The Beans are best cut fine with a dried-beef slicer, or by chopping in a chopping-bowl; they should then be pounded in an iron mortar until they are thoroughly crushed or dessicated, then pack them firmly in the water-bath percolator, and pour upon them 8 ounces of Cologne Spirit mixed with 4 ounces of Water, and set in a warm place for 2 days ; then heat moderately for 2 hours, and begin to percolate. When the liquid has ceased to drop add the remaining 4 ounces of Cologne Spirit, mixed with 4 ounces of Water, and continue the percolation, adding Water, if necessary, through the percolator until a pint of the Extract is obtained, then filter.

This Extract is not sold except as a Fluid Extract, or for special use to those who know its strength.

939. Concentrated Extract of Vanilla.

Vanilla Beans, cut fine,	1 ounces av.
Cologne Spirit,	12 flounces.
Water, sufficient to make	1 pint.

Make the same as the preceding.

940. Extract of Vanilla.

This is the Flavoring Extract of Vanilla that is mostly made and sold by druggists and manufacturers when Extract of Vanilla is wanted:

Vanilla Beans, cut fine,	1 ounce av.
Cologne Spirit,	10 fl.ounces.
Water, sufficient to make	1 pint.

Reduce the Cut Beans to a coarse powder by beating in an iron mortar and put them in a pint wide-mouth bottle. Mix the Cologne Spirit with 6 ounces of Water, and pour one third of the mixture upon the Vanilla, and stop with a perforated cork, heat for one hour in a water-bath to about 160°F., pour off the liquid and reserve; pour on the drugs one third more of the menstruum, and heat as before, adding the liquid to the portion previously reserved. Pour on the remainder of the liquid, heat as before, and add the product to the reserved Extract, then add sufficient Water to the Vanilla in the bottle, heat again and pour off, adding the liquid to the reserved extract to make a pint of the Extract of Vanilla.

In making larger quantities of this Extract, it is best made by water-bath percolation the same as the preceding.

941. Vanilla-Tonka Extract.

Many druggists mix a portion of Tonka with Vanilla to make an Extract of Vanilla. Although it gives a stronger flavor, it is not the same as Vanilla.

This is called by some manufacturers *Fortified Extract of Vanilla*, but those who are accustomed to the true Vanilla flavor think but little of it. It .may be made by using :

Vanilla Beans,	$\frac{3}{4}$ ounce.
Tonka Beans,	$\frac{1}{4}$ ounce.
Alcohol,	10 fl.ounces.
Water, sufficient to make	1 pint.

Make in the same manner as Extract of Vanilla. Some manufacturers use a still larger proportion of Tonka.

Soluble Flavoring Extracts.

Most of the Essences and Extracts made from Essential Oils and substances containing Oleo-resins, are insoluble in aqueous solutions—making cloudy or milky mixtures. It is desirable for many purposes that some of them should make clear solutions when mixed with Water or Syrup. A general formula is therefore given by which any of the Essences made from Oils may be made soluble, and a few special formula; for others are given.

These Soluble Extracts are mainly used for Soda Water Syrups and for making bottled beverages.

942. General Formula for Soluble Extracts.

The Essential Oil or Oils,	1/2 fl.ounce.
Cologne Spirit,	9 fl.ounces.
Carbonate of Magnesium,	1/2 to 1 ounce av.
Water, sufficient to make	1 pint.

Mix the required Oil or Oils with the Cologne Spirit, rub half an ounce of Carbonate of Magnesium to a fine powder, and then with the Water, and add the mixture to the solution, shaking them well together, let stand a few days, shaking occasionally, then filter, adding enough Water through the filter to make a pint. As some Oils are much less soluble than others in aqueous solutions, the filtered product may not make a clear mixture with Water. This may be ascertained by dropping a few drops into a few ounces of Water. If the solution is cloudy it will be necessary to rub the filtrate with more Carbonate of Magnesium and again filter.

943. Soluble Extract of Ginger.

Jamaica Ginger Root, in moderately fine powder,	4 pounds av.
Alcohol, a sufficient quantity.	
Water, a sufficient quantity.	
Carbonate of Magnesium,	3 ounces av.
Carbonate of Sodium (Sal Soda),	1 ounce av.

Pack the Ginger in the water-bath percolator, and pour sufficient

Alcohol upon it to cover it, let stand 48 hours in a warm place, then add more Alcohol, heat moderately for 1 hour and begin to percolate, adding Alcohol to the percolator, and continuing the percolation until the drug is exhausted. Reserve the first 4 pints that pass, and concentrate the remainder by distilling off the Alcohol until only a pint of the Extract remains; add this to the percolate reserved. Dissolve the Carbonate of Sodium in 4 pints of Water; rub the Carbonate of Magnesium to a smooth mixture with the solution, and add the mixture to the Extract. Let stand for several days, with occasional agitation, and finally filter.

This is about half the strength of a Fluid Extract, and makes a clear solution with Syrup or Water. It is used for flavoring Syrup for Soda Water, Ginger Beer, and other beverages. For making the U. S. official Syrup of Ginger, mix 1 fl.ounce of this Extract with 15 fl.ounces of Syrup.

944. Ginger Ale Extract.

Jamaica Ginger, in moderately fine powder,	4. pounds av.
Oil of Lemon,	1 fl.ounce.
Oil of Orange,	3 fl.drachms.
Oil of Pimento,	1 ¹ / ₂ fl.drachms.
Carbonate of Magnesium,	4 ounces av.
Carbonate of Sodium,	1 ounce av.
Caramel Coloring,	2 fl.ounces.
Alcohol, a sufficient quantity.	
Water, a sufficient quantity.	

Pack the Ginger in the water-bath percolator, and pour sufficient Alcohol upon it to cover it, let it stand 48 hours in a warm place, then add more Alcohol, heat moderately for i hour and begin to percolate, adding Alcohol to the percolator, and continuing the percolation until the drug is exhausted. Reserve the first 4 pints that pass, and concentrate the remainder by distilling off the Alcohol until only a pint of the Extract remains. Add this to the percolate reserved, then add the Oils to the same.

Dissolve the Carbonate of Sodium in 4 pints of Water, rub the Carbonate of Magnesium with the solution, add the Caramel Coloring, and then add the mixture to the Extract. Let stand several days, with occasional agitation, and finally filter.

This is the popular Ginger Ale Extract so much used as a flavoring for Soda Water Syrups and bottled beverages.

For making Ginger Ale to bottle or charge in a fountain, mix 6 ounces of this Extract with 1¹/₂ gallons of Syrup, 7 gallons of Water, 1 ounce solution Citric Acid and 2 ounces Caramel, and charge to 30 pounds. For making Syrup Ginger Ale to draw from the fountain, mix 3 ounces of the Extract with 1 gallon Syrup, and add ¹/₂ ounce solution Citric Acid.

945. Soluble Extract of Lemon.

Oil of Lemon, fresh,	1/2 fl.ounce.
Carbonate of Magnesium,	3/4 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oil of Lemon in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let stand a few days, with occasional agitation, then filter, adding enough Water through the filter to make the measure one pint.

For making Lemon Pop, etc., mix 8 ounces of this Extract with 2 gallons of Syrup and 8 gallons of Water, add 1 ounce of Citric Acid, and charge to 30 pounds. For Soda Water Syrup, mix 3 ounces with 1 gallon of Syrup, and add 1 ounce Citric Acid Solution.

946. Soluble Extract of Mead.

A great number of formulas have been published for making this popular beverage, some being in the form of Extracts, and others in the form of a Syrup. The following makes a soluble Extract of fine flavor and strength :

Oil of Lemon,	2 fl.ounces.
Oil of Sassafras,	4 fl.drachms.
Oil of Cloves,	3 fl.drachms.
Oil of Wintergreen,	1 fl.drachm.
Oil of Pimento,	1 fl.drachm.
Oil of Cinnamon,	40 minims.

Caramel Coloring,	2 fl.ounces.
Carbonate of Magnesium,	4 ounces av.
Cologne Spirit,	4 ¹ / ₂ pints.
Water, q. s., or	4 pints.

Dissolve the Oils in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add the Caramel Coloring, then add the mixture to the solution, and let stand a few days, shaking occasionally, and filter.

For charging in a fountain or bottling, mix 6 ounces of this Extract with 1¹/₂ gallons of Syrup, 7 gallons of Water, and 1 ounce Solution Citric Acid, and charge to 30 pounds.

For making *Syrup of Mead* to draw from the fountain, mix 3 ounces with 1 pint Strawberry or Raspberry Fruit juice, and ¹/₂ ounce Citric Acid Solution, and add enough Syrup to make 1 gallon.

947. Excelsior Mead Extract.

Fluid Extract Sarsaparilla Compound,	4 fl.ounces.
Strawberry Juice (or other Fruit Juice),	4 ¹ / ₂ pints.
Soluble Mead Extract (946),	8 fl.ounces.
Caramel Coloring,	1 fl.ounce.
Sugar,	5 pounds av.
Cologne Spirit,	12 fl.ounces.

Mix the liquids and dissolve the Sugar in the mixture.

To charge in a fountain, or make *Bottled Mead*, mix 1¹/₂ gallons of this Extract with 1 gallon of Syrup and 7¹/₂ gallons of Water, and charge to 30 pounds.

For *Excelsior Mead Syrup* to draw from the fountain, mix 1 part with 3 parts of Syrup.

948. Soluble Extract of Orange.

Oil of Orange,	1/2 fl.ounce.
Carbonate of Magnesium,	3/4 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oil in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let stand a few days, shaking occasionally, then filter, adding enough Water through the filter to make the measure a pint.

For making *Orange Syrup* for Soda Water, mix 3 ounces with 1 gallon Syrup and 1/2 ounce Solution Citric Acid.

949. Soluble Extract of Sarsaparilla.

Oil of Wintergreen,	2 1/2 fl.drachms.
Oil of Sassafras,	1 3/4 fl. drachm.
Oil of Anise,	15 minims.
Carbonate of Magnesium,	1/2 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oils in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let stand a few days, then filter, adding enough Water through the filter to make the measure a pint.

For charging in a fountain, making *Sarsaparilla Pop*, etc., mix 8 ounces of this Extract with 2 gallons of Syrup, 8 gallons of Water, 1/2 ounce Citric Acid, and 8 ounces Caramel Coloring, and charge to 30 pounds.

For Soda Water Syrup, mix 3 ounces with 1 gallon Syrup, and color with Caramel.

950. Soluble Extract of Tolu.

Balsam Tolu,	1 ¹ / ₂ ounce av.
Alcohol,	3 fl.ounces.
Carbonate of Magnesium,	2 ounces av.
Water, a sufficient quantity to make	1 pint.

Dissolve the Balsam of Tolu in the Alcohol by the aid of a water-bath, and rub the solution thoroughly with the Carbonate of Magnesium, then gradually add to the mixture a pint of boiling Water, rubbing them well together, allow the mixture to stand until cold, then filter, adding through the filter sufficient Water to make the measure 16 fl.ounces.

To make *Syrup of Tolu*, mix 2 fl.ounces of this with 14 fl.ounces of Syrup. It is also used to flavor Soda Water Syrup in the same proportion.

951. Soluble Extract of Winter-green.

Oil of W [^] intergreen,	3 fl.ounces.
Carbonate of Magnesium,	1/2 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oil in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let it stand for a few days, shaking occasionally, then filter, adding enough Water through the filter to make the measure a pint.

For charging in a fountain, etc., use the same as Sarsaparilla. For Soda Water Syrup, mix 3 ounces with 1 gallon Syrup.

952. Birch Beer Extract.

Oil Wintergreen,	3 fl.ounces.
Oil Sassafras,	1/2 fl.ounce.
Oil Lemon,	1/2 fl.ounce.
Oil Cassia,	10 minims.
Catechu,	60 grains.
Carbonate of Magnesium,	3 ounces av.

Caramel Coloring,	2 fl.ounces.
Cologne Spirit,	4 ¹ / ₂ pints.
Water, q. s., or	4 pints.

Dissolve the Oils in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, add the Caramel and Catechu, and add the mixture to the solution, let stand several days, with occasional agitation, then filter.

This Soluble Extract is much used by bottlers and for flavoring Soda Water Syrup.

For *Birch Beer* charged in a fountain or bottled, mix 6 ounces with 1¹/₂ gallon of Syrup, 2 ounces of Caramel, ¹/₂ ounce Solution Citric Acid, 8 gallons of Water, and charge to 30 pounds.

For *Birch Beer Syrup* to be drawn from the fountain, mix 3 ounces with 1 gallon of Syrup, and add ¹/₂ ounce Solution Citric Acid. Color with Caramel.

953. Ottawa Beer Extract.

This was formerly a proprietary preparation, but now all the leading Soda Water manufacturers furnish it. A good Extract may be made as follows :

Burdock Root,	1 pound av.
Sarsaparilla,	1 pound av.
Sassafras,	8 ounces av.
Sweet Flag (Calamus),	2 ounces.
Dandelion Root,	6 ounces av.
Caramel Coloring,	1 fl.ounce.
Oil of Wintergreen,	2 fl.drachms.
Oil of Lemon,	2 fl.drachms.
Carbonate of Magnesium,	1 ounce av.
Alcohol,	4 ¹ / ₂ pints.
Water, q. s. to make	1 gallon.

Grind the drugs to a coarse powder, mix 4 pints of Alcohol with 4 pints

of Water, make an Extract by water-bath percolation, reserving the first 7 pints that pass, continue the percolation with water, evaporate the remaining percolate to 1 pint, and add. Dissolve the Oils in 8 fl. ounces of Alcohol, and add; rub the Carbonate of Magnesium with a portion of the Extract, add to the remainder, and, after standing, filter.

For *Ottawa Beer* charged in a fountain, mix 6 ounces with 1 $\frac{1}{2}$ gallon Syrup, 1 ounce Solution Citric Acid, 2 ounces Caramel, and 8 gallons of Water, and charge to 30 pounds.

For *Ottawa Beer Syrup*, mix 3 ounces with $\frac{1}{2}$ ounce Solution Citric Acid and 1 gallon of Syrup, and color with Caramel.

954. Peruvian Beer Extract.

Fluid Extract of Sarsaparilla Compound,	4 fl. ounces.
Oil of Lemon,	2 fl.drachms.
Oil of Sassafras,	2 fl.drachms.
Oil of Wintergreen.	1 $\frac{1}{2}$ fl.drachm.
Oil of Spruce,	1 fl.drachm.
Oil of Nutmeg,	$\frac{1}{2}$ fl.ounce.
Carbonate of Magnesium,	1 ounce av.
Caramel Coloring,	$\frac{1}{2}$ fl.ounce.
Alcohol,	16 fl.ounces.
Water,	16 fl.ounces.

Dissolve the Oils in the Alcohol, rub the Carbonate of Magnesium with the Water, add the Fluid Extract and Caramel, then add the mixture to the solution, and, after standing a few days, with occasional agitation, filter.

Directions for charging, bottling and drawing as a Syrup the same as for Birch Beer.

955. Root Beer Extract.

American Sarsaparilla,	16 ounces av.
Sassafras Bark,	12 ounces av.
Dandelion,	12 ounces av.

Sweet Flag (Calamus),	3 ounces av.
Nutmeg,	2 ounces av.
Oil of Wintergreen,	2 fl.drachms.
Oil of Lemon,	2 fl.drachms.
Oil of Spruce,	1 fl.drachm.
Caramel Coloring,	1 fl.ounce.
Carbonate of Magnesium,	1 ounce av.
Alcohol,	4 ¹ / ₂ pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a coarse powder; mix 4 pints of the Alcohol with 4 pints of Water; make an Extract by water-bath percolation, reserving the first 7 pints which pass, and continue the percolation with Water until the drugs are exhausted; evaporate this last percolate to 1 pint, and add to the reserved Extract. Dissolve the Oils in 8 ounces of Alcohol, and mix with the Extract. Rub the Carbonate of Magnesium with a portion of the Extract, and add to the remainder; then add the Caramel, and, after standing a few days, with occasional agitation, filter.

Directions for charging, bottling, and drawing as a Syrup the same as for Ottawa Beer.

956. Spruce Beer Extract.

Oil Hemlock, pure,	4 fl.drachms.
Oil Lemon,	1 fl. drachm.
Oil Wintergreen,	¹ / ₂ fl.drachm.
Oil Sassafras.	¹ / ₂ fl.drachm.
Carbonate of Magnesium,	1 ounce av.
Alcohol,	20 fl.ounces.
Water,	12 fl.ounces.

Dissolve the Oils in the Alcohol, rub the Carbonate of Magnesium with the Water, and add to the solution; let stand a few days, with occasional agitation, and filter.

Directions for charging, bottling, and drawing as a Syrup the same as for Birch Beer, except that the color is omitted.

Artificial Fruit Essences or Flavors.

A variety of artificial Fruit Flavors or Essences are made from various ethers, which, when largely diluted, resemble the flavors of fruit to a greater or less degree. (*Most are deleted - they really ARE artificial - MM*)

983. Cachou Flavor.

Oil of Peppermint.	2 fl.ounces.
Oil of Wintergreen.	1 fl.ounce.
Oil of Cassia.	2 fl.drachms.
Oil of Cloves,	1 fl.drachm.

Mix them. By the addition of 2 drachms Oil of Calamus or the same quantity of Oil of Cardamom the flavor is much improved, but they add to the expense.

Aromatic Cachous for the breath are made by mixing powdered Extract of Liquorice 7 parts, powdered Purified Catechu 2 parts, powdered Gum Arabic 1 part, Cachou Flavoring 1 part, with Water sufficient to make a mass, and making into pills which may be coated with silver leaf. Trix, a proprietary article, are made in the same manner, but rolled out in sheets and cut in small squares. The flavoring may be varied by adding other aromatic substances, as desired.

984. Essence of Coltsfoot.

Balsam Tolu,	1 ounce av.
Compound Tincture of Benzoin,	3 ounces.
Alcohol,	3 ounces.

Mix the liquids, dissolve the Balsam in the mixture by the aid of gentle heat, and filter. This is used for flavoring Coltsfoot Candy, and as a remedy for coughs.

Bitters Extracts.

These Extracts are used for flavoring Liquors and for making Bitters to bottle. They are dispensed at bars from squirt bottles, by which a few

drops may be added to a glass of liquor, and are used as directed for flavoring put-up Bitters, for which druggists have considerable demand:

985. Angostura Bitters Extract.

Angostura Bark,	6 ounces av.
Bitter Orange Peel,	8 ounces av.
Canada Snake Root,	8 ounces av.
Calisaya Bark,	8 ounces av.
Virginia Snake Root,	8 ounces av.
Gentian Root,	4 ounces av.
Galangal Root,	4 ounces av.
Sweet Flag (Calamus),	4 ounces av.
Cardamom Seed,	2 ounces av.
Cinnamon,	1 ounce av.
Cloves,	1 ounce av.
Coriander,	1 ounce av.
Mace,	1 ounce av.
Alkenet Root,	2 ounces av.
Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a moderately fine powder, and moisten them with 2 pints of Alcohol, pack in the water-bath percolator, and, having mixed the remainder of the Alcohol with 4 pints of Water, pour enough of the mixture upon the drugs to cover them, and set in a warm place, let stand 2 days, then pour the remainder of the diluted Alcohol upon them, heat very moderately, and after one hour begin to percolate, adding Water to the drugs, and continuing the percolation until the drugs are exhausted. Reserve the first 7 $\frac{1}{2}$ pints that pass, evaporate the remainder of the percolate to a $\frac{1}{2}$ pint, and add to the reserved portion to make 1 gallon. This is a very strong Extract.

To make *Angostura Bitters* for bottling, take 2 ounces of this Extract, $\frac{1}{4}$ gallon Pure Proof Spirit, $\frac{1}{4}$ gallon Water, 1 ounce Glycerin.

986. Aromatic Bitters Extract.

Bitter Orange Peel,	2 pounds av.
Sweet Flag Root (Calamus),	8 ounces av.

Hops,	8 ounces av.
Cardamom Seed.	2 ounces av.
Cassia Bark,	2 ounces av.
Coriander Seed,	1 ounce av.
Cloves,	1 ounce av.
Mace,	1 ounce av.
Cochineal,	1 ounce av.
Alcohol,	5 pints.
Water, sufficient for	1 gallon.

Grind the Orange and Hops to a coarse powder, and the other articles to a fine powder, mix them, moisten with 1 pint of Alcohol, pack, percolate, and proceed in the same manner as for making Angostura Bitters Extract. This is a pleasant Aromatic Extract.

To make Aromatic Bitters to bottle, mix 4 fl.ounces of this Extract with 6 pints Pure Proof Spirit and 2 pints of Water, and add 1 ounce Glycerin.

987. Boker's Bitters Extract.

Quassia,	8 ounces av.
Sweet Flag Root,	8 ounces av.
Bitter Orange Peel,	12 ounces av.
Catechu,	4 ounces av.
Cardamom,	3 ounces av.
Alcohol,	5 pints.
Water, sufficient to make	1 gallon.

Make by water-bath percolation same as the preceding.

988. Orange Bitters Extract.

Fresh Orange Peel, chopped fine,	2 pounds.
Bitter Orange Peel, coarsely ground,	1 pound.
Oil of Orange,	1 fl.ounce.
Cologne Spirit,	6 pints.
Water, sufficient to make	1 gallon.

Mix the Orange Peels, fresh and dry, and cover them with Cologne Spirit, 4 pints; let stand a few days and pour off the liquid, pour on 2 pints fresh Cologne Spirit, macerate as before, and pour off, then pour 3

pints Water upon the drugs, macerate as before, pour off and express. Dissolve the Oil of Orange in the spiritous tincture, and add the last portion obtained by maceration and pressure to it. After standing a few days filter.

To make Orange Bitters for bottling, add 8 fl.ounces of this Extract to 6 pints Pure Proof Spirit, 2 pints of Water, and 1 ounce Glycerin.

989. Peruvian Bitters Extract.

Peruvian or Calisaya Bark, in coarse powder,	1 ¹ / ₂ pound av.
Bitter Orange Peel, in coarse powder,	1 pound av.
Galangal Root, in fine powder,	1 ounce av.
Cinnamon Bark,	2 ounces av.
Nutmeg,	1 ounce av.
Cloves,	1 ounce av.
Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Make by water-bath percolation the same as Angostura Bitters.

To make *Peruvian Bitters* or *Cinchona Bitters* for bottling, mix 8 fl.ounces of this Extract with 6 pints of Pure Proof Spirit and 2 pints of Water, and add 1 ounce of Glycerin.

990. Stomach Bitters Extract.

Wahoo Bark,	2 pounds av.
Bitter Orange Peel,	1 pound av.
Hops,	8 ounces av.
Juniper Berries,	4 ounces av.
Cardamom Seed,	4 ounces av.
Cinnamon,	3 ounces av.
Cloves,	1 ounce av.
Nutmeg,	1 ounce av.
Alcohol,	6 pints.
Water,	2 pints.

Grind the Wahoo, Orange and Hops to a coarse powder and the other drugs to a fine powder, mix them and make by water-bath percolation as directed for making Angostura Bitters.

To make Stomach Bitters for bottling, mix 4 ounces of this Extract with 6 pints of Pure Proof Spirit, and 2 pints of Water, and add 1 ounce of Glycerin.

991. Stoughton Bitters Extract.

Gentian, in coarse powder,	1 pound av.
Virginia Snake Root, in coarse powder,	8 ounces av.
Bitter Orange Peel, in coarse powder,	1 pound av.
Sweet Flag (Calamus), in coarse powder,	8 ounces av.
Cardamom Seed, in fine powder,	4 ounces av.
Cloves, in fine powder,	1 ounce av.
Coriander Seed, in fine powder,	2 ounces av.
Red Saunders, in fine powder,	4 ounces av.
Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Make by water-bath percolation as directed for Angostura Bitters. This is a strong extract and is to be diluted for use.

992. Wild Cherry Bitters Extract.

Fluid Extract of Wild Cherry,	15 fl.ounces.
Oil of Cherry Laurel,	60 minims.
Cologne Spirit,	1 fl.ounce.

Dissolve the Oil in the Cologne Spirit, and mix with the Extract. A Wild Cherry Bitters may be made by mixing 6 ounces of this extract with 6 pints of Pure Proof Spirit, 2 pints of Water, and 1 ounce of Glycerin.

Cordial Essences or Flavors.

The following are familiar Cordials which are used for flavoring Liquors, etc., similar to the foregoing Bitters. Other Cordials will be found under other headings.

993. Absinthe Essence.

Absinthe is usually made by distillation from the drugs, but a good article may be made from this essence :

Oil of Wormwood,	4 fl.ounces.
Oil of Anise,	2 fl.ounces.
Oil of Fennel,	2 fl.ounces.
Oil of Coriander,	1 fl.drachm.
Cologne Spirit,	8 fl.ounces.

Mix them.

994. Absinthe.— To make Absinthe mix 2 fl.ounces of Absinthe Essence with 5 gallons of Cologne Spirit, and add 5 gallons of water in which 5 pounds of white sugar has formerly been dissolved, then color by adding 2 ounces fluid Extract of Wormwood and sufficient grass-green coloring to give the desired tint, or by macerating 1 pound of fresh Wormwood tops in the liquid. Filter if necessary.

995. Anisette Essence.

Many formulas, all differing somewhat in flavor, are employed for making Anisette. The following combination will be found as agreeable as any:

Oil of Aniseed,	8 fl.ounces.
Oil of Coriander,	1 fl.drachm.
Oil of Cinnamon	1 fl.drachm.
Oil of Nutmeg,	30 minims.
Oil of Neroli, .	30 minims.
Cologne Spirit,	8 fl.ounces.

Mix them.

996. Anisette or *Anisette Cordial*.—To make Anisette mix 2 fl.ounces of this essence with 4 gallons Cologne Spirit and add to the mixture 5 gallons of water and 15 pounds of white sugar. Let stand and filter through a little Carbonate of Magnesium, if necessary.

997. Kümmel Essence.

Oil of Caraway Seed,	8 fl.ounces.
Oil of Aniseed,	2 fl.drachms.
Oil of Calamus,	20 minims.

Oil of Coriander,	20 minims.
Oil of Bitter Almond,	20 minims.
Cologne Spirit,	8 fl.ounces.

Mix them.

998. Kümmel.—To make Kümmel mix 2 fl.ounces of Kümmel Essence with 4 gallons of Cologne Spirit and add 5 gallons of water in which 15 pounds of white sugar has previously been dissolved. Let stand and filter through a little Carbonate of Magnesium.

A good Kümmel may also be made by dissolving 1 fl.drachm Oil of Caraway Seed in 3 pints Cologne Spirit, adding 4 pints of water, 1¹/₂ pounds of sugar, and filtering through Carb. Magnesium.

Curacoa Cordial is noticed on page 262. Some other cordials will be mentioned under other headings, but do not properly belong with the foregoing.

EXTRACTA — EXTRACTS.

The class of Galenicals known as Extracts or Solid Extracts are preparations usually in the form of mass or powder, and intended to represent in a concentrated form the soluble portions of vegetable drugs. In pharmacy they are used for making pills, plasters, ointments, suppositories, and many other forms of medicine where a concentrated preparation is desirable. Various methods are employed for obtaining the soluble properties of the drugs, as may best be suited to their nature, and their solutions are then concentrated by evaporation in various ways to the required consistence.

In large manufacturing establishments the evaporation is usually conducted in vacuo, at a low temperature, as the volatile properties are best preserved in this manner; but as this process is not expedient to the ordinary pharmacist, the formulas here given are designed for such conveniences as may readily be employed by them.

For making small quantities of Solid Extracts the fluid extract of the drug may be evaporated by a water-bath to a pilular consistence.

For prescription work, Powdered Extracts are much used and are more convenient than extracts in mass. Many extracts cannot well be reduced to a powder without admixture with other substances, but they are furnished by manufacturers who claim to give a true representative of the extract in the form of powder.

The following formulae are for Extracts Official in the U. S., Br. and German Pharmacopoeias. They represent, however, but a small part of the number of extracts that may be made, for it is evident that extracts may be prepared from all vegetable drugs; but from the formulae given the intelligent druggist will have no trouble to prepare any extract that may be desired by using the same menstruum for exhausting the drug which is directed for making a Fluid Extract of the same and evaporation in the manner directed for making other Extracts of the same nature.

1001. General Formula for Making Extracts.

The general directions which apply to making all kinds of Extracts, may be briefly stated as follows:

The Substance, any convenient quantity.
The Menstruum, a sufficient quantity.

Moisten the drug with the Menstruum, allow to macerate from 12 to 24 hours, pack in the water-bath percolator, pour Menstruum upon it and set in a warm place for one or two days, then heat moderately, adding the Menstruum or Water to the drug, and percolate until the drug is exhausted. Evaporate the percolate by distillation if it contains alcohol, or by gentle heat if aqueous, to a pilular consistence, adding 5 per cent. of Glycerin to such extracts as become hard and dry after standing, unless wanted in powdered form.

1002. Extracts from Expressed Juices.

Inspissated Juices.

The Extracts made by evaporating the expressed juices of fresh plants have always been considered superior to those made from the dried plants, and the popularity of the English Extracts made by reliable houses in this manner is well known. The following is the general

process of the Br. P. for making extracts in this manner :

The fresh leaves, tops or plants, any convenient quantity.

Bruise in a stone mortar and press out the juice, heat it gradually to 130° F. (54°4 C.), and separate the green coloring matter by straining through a calico filter. Heat the strained liquid to 200° F. (93°3 C.) to coagulate the albumen, and again filter through calico. Evaporate the filtered liquid by a water-bath at a low temperature to the consistence of a thin syrup, then add to it the green coloring matter previously obtained, and pass through a hair sieve; then stir together and continue the evaporation at a temperature not exceeding 140° F. (60° C.) until an extract of pilular consistence is obtained.

1003. Extractum Absinthium — *Extract of Wormwood.*—Exhaust Wormwood with Alcohol 2 parts mixed with water 3 parts, by means of the water-bath percolator. Distill off the Alcohol and evaporate the remainder to a thick extract. This is official in the G. P. The dose is 1/2 to 2 grains.

1004. Extractum Aconiti — *Extract of Aconite Root.*— Exhaust Aconite Root with Alcohol by means of the water-bath percolator, distill off the Alcohol until a thick extract remains, to which add 5 per cent of its weight of Glycerin and mix thoroughly. Official in the U. S. and G. P. Dose 1/30 to 1/4 grain.

1005. Extract of Aconite Leaves.—This is official in the Br. P., and is made by bruising the fresh leaves and flowering tops of Aconite, expressing the juice, heating, evaporating, etc., as directed (1002). The dose is 1/4 to 1 grain.

It was formerly official in the U. S. P. and was made by exhausting the dried Aconite Leaves with diluted Alcohol, distilling off the Alcohol and evaporating the residue to a solid extract.

1006. Extractum Aloes—*Extract of Aloes.*—Dissolve Aloes 1 part in Boiling Water 10 parts, and strain. Set aside for 12 hours, then pour off the clear liquid from the residue and evaporate by a current of warm air or by the heat of a water-bath to dryness. The dose is from 2 to 6 grains.

The U. S. P. calls this Aqueous Extract of Aloes; the Br. directs an Extract both of Barbadoes and Socotrine Aloes.

1007. Extractum Arnicae Radicis—*Extract of Arnica Root.*—Exhaust Arnica Root with Diluted Alcohol, distill off the Alcohol and evaporate the remainder to a thick extract, add 5 per cent. of its weight of Glycerin, and mix thoroughly.

An *Extract of Arnica Flowers* is made in the same manner. Extract of Arnica is used in making plasters.

1008. Extractum Belladonna Alcoholicum — *Alcoholic Extract of Belladonna.*—The U. S. P. directs this to be made from Belladonna Leaves, while the Br. P. directs the Root to be used ; the following formula will do for either: Exhaust the Leaves or Root of Belladonna with Alcohol by means of the water-bath percolator, distill off the Alcohol until only a soft extract remains, then evaporate to a pilular consistence, add 5 per cent. of its weight of Glycerin and mix thoroughly. Dose $\frac{1}{16}$ to $\frac{1}{4}$ grain.

Under the name *Extractum Belladonnae* the Br. P. and G. P. direct Extract of Belladonna to be made from the fresh leaves, by bruising, expressing the juice, evaporating, etc., as directed (1002). The same process was official in the 1870 U. S. P. The dose is from $\frac{1}{4}$ to 1 grain.

1009. Extractum Calumbae—*Extract of Calumba.*—Exhaust Calumba Root with diluted Alcohol, by maceration and pressure with separate portions of the menstruum, mix the liquors, distill off the Alcohol, and evaporate the residue to an extract of pilular consistence. The dose is 2 to 10 grains, Br. P.

1010. Extractum Cannabis Indicae—*Extract of Indian Cannabis.*—Exhaust Indian Hemp with Alcohol by water-bath percolation, distill the Alcohol from the percolate until an extract of pilular consistence remains. The dose is $\frac{1}{4}$ to 1 grain.

1011. Extractum Cascarae Sagradae—*Extract of Cascara Sagrada.*— This is a new extract of the Br. P., and is made by exhausting the drug first with two parts of diluted Alcohol, then with Water by means of water-bath percolation. The Alcohol is then distilled

from the first portion of the percolate, and the residue, with the remaining percolate, is evaporated to an extract of pilular consistence. Dose from 2 to 8 grains.

1012. Extractum Cinchonae — *Extract of Cinchona, Extract of Bark.*— Exhaust Yellow Cinchona by means of the water-bath percolator, first with 2 parts of an alcoholic or partly alcoholic menstruum, then by continuing the percolation with water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the remainder of the percolate to an extract of pilular consistence, add 5 per cent. of its weight of Glycerin and mix thoroughly. The dose is 1 to 5 grains.

The German Pharmacopoeia directs an *Aqueous Extract of Cinchona* to be made by exhausting the drug with separate portions of water, by maceration and expression, evaporation, etc.; also an *Alcoholic Extract of Cinchona* made with diluted Alcohol in the same manner.

1013. Extractum Cardui Benedicti—*Extract of Blessed Thistle.*— Blessed Thistle is exhausted with boiling water, and the liquid strained and evaporated to pilular consistence. The dose is from 3 to 30 grains. G. P.

1014. Extractum Cascariillae— *Extract of Cascarilla.*—Exhaust Cascarilla in No. 40 powder with boiling water, strain the liquid and evaporate to pilular consistence. The dose is 2 to 20 grains. G. P.

1015. Extractum Calami— *Extract of Calamus.*—Exhaust Calamus Root in No. 30 powder by percolating in the water-bath percolator, first with diluted Alcohol, then with Water. Distill the Alcohol from the first portion of the percolate and evaporate the residue with the remainder of the percolate to pilular consistence. This is official in the G. P.

1017. Extractum Colocyntidis—*Extract of Colocynth.*—Exhaust the pulp of Colocynth, deprived of seeds, with diluted Alcohol by maceration with separate portions of the Menstruum and expression. Distill off the Alcohol and evaporate the remainder by means of a water-bath to dryness. The dose is $\frac{1}{8}$ to $\frac{1}{4}$ grain.

1018. Extractum Colocyntidis Compositum—*Compound Extract of Colocynth*—

Extract of Colocynth,	8 ounces.
Aloes,	25 ounces.
Cardamom in No. 60 powder,	3 ounces.
Resin of Scammony, in fine powder,	7 ounces.
Soap, dried and in coarse powder,	7 ounces.
Alcohol,	5 ounces.

Melt the Aloes on a water-bath, then add the Alcohol, and having stirred the mixture thoroughly, strain it through a fine sieve, which has just been dipped into boiling water. To the strained mixture add the Soap, Extract and Resin, and heat the mixture not to exceed 248°F., until it is perfectly homogeneous, and a thread taken from the mass becomes brittle when cool. Then remove from the heat, add the Cardamom, mix thoroughly, and cover. This is much used in making Cathartic Pills. The dose is from 3 to 10 grains.

1019. Extractum Conii Alcoholicum—*Alcoholic Extract of Conium.*
— The U. S. formula is :

Conium (fruit) in No. 40 powder, 16 ounces av.

Diluted Hydrochloric Acid, 1/2 ounce av.

Glycerin and Diluted Alcohol each a sufficient quantity. Exhaust the drug- with Diluted Alcohol, distill off the Alcohol, add the Diluted Hydrochloric Acid to the remainder, and evaporate by heat of water-bath not exceeding 122°F. to a pilular consistence, to this add 5 per cent. of its weight of Glycerin, and mix thoroughly.

The Br. P. directs it to be made from the Juice expressed from the bruised young branches and fresh leaves of Hemlock, as directed (1002), The dose is from 2 to 6 grains.

1022. Extractum Euonymi — *Extract of Euonymus (Wahoo).*— Exhaust Wahoo Bark with diluted Alcohol. Distill off the Alcohol, evaporate the remainder to the consistence of a solid extract, add 5 per cent. of its weight of Glycerin, and mix them thoroughly.

1024. Extractum Gelsemium Alcoholicum—*Alcoholic Extract of Gelsemium.*— Gelsemium in fine powder is exhausted first with Alcohol

4 parts, and the percolation then continued with Water. The Alcohol is distilled from the first percolate until it is reduced to a soft extract, the aqueous percolate is then evaporated and mixed with the soft extract, and the whole is reduced to a pilular consistence. The dose is $\frac{1}{2}$ to 2 grains.

1025. Extractum Gentianae—*Extract of Gentian*.—Gentian Root in very coarse powder is macerated in successive portions of boiling water, expressed, and the mixed liquids evaporated to a pilular consistence. The dose is from 2 to 10 grains.

1026. Extractum Glycyrrhizae Pura—*Pure Extract of Liquorice*. Exhaust Liquorice Root in coarse powder first with water in which 12 per cent. of the weight of the root of Water of Ammonia has been added, then with water until no more strength is perceptible. Heat the liquids obtained to boiling, then strain and evaporate by a water-bath to a solid extract.

Crude or common Extract of Liquorice is made by exhausting Liquorice with water and evaporating to an extract.

1027. Extractum Haematoxyli—*Extract of Logwood*.—Exhaust Logwood with hot water, boil, strain, and evaporate the liquid to a solid extract. Dose 10 to 30 grains.

1028. Extractum Hyoscyami Alcoholicum—*Alcoholic Extract of Hyoscyamus*. The U. S. P. directs recently dried Hyoscyamus leaves, which may be exhausted by means of the water-bath percolator by percolating first with 4 parts of a menstruum of two-thirds Alcohol and then with Water. The Alcohol is distilled from the first portion of the percolate and the residue together with the aqueous percolate evaporated by water-bath to pilular consistence. The dose is 5 to 10 grains.

The Br. P. directs the juice of the fresh leaves to be obtained by bruising them and pressure, and evaporated, strained, etc., in the same manner as is directed (1002).

1029. Extractum Helenii — *Extract of Inula (Elecampane)*.—Exhaust Inula in No. 40 powder by percolating in the water-bath percolator, first with Diluted Alcohol, then with water, distill the Alcohol from the first

portion of the percolate and evaporate the residue with the remainder of the percolate by water-bath, to pilular consistence. The dose is from 2 to 15 grains. This is official in the G. P.

1030. Extractum Iridis—*Extract of Iris (Blue Flag)*.—Exhaust the drug by water-bath percolation, first with Alcohol 4 parts, and then by percolating with Diluted Alcohol. Distill off most of the Alcohol and evaporate the residue by means of a water-bath to pilular consistence. The dose is $\frac{1}{4}$ to 1 grain. U. S.

1031. Extractum Jaborandi—*Extract of Jaborandi*.—Percolate the drug in the water-bath percolator first with Alcohol 4 parts and then with Water until exhausted. Distill the Alcohol from the first percolate until only a soft extract remains, evaporate the aqueous percolate and, having mixed the extracts thus obtained, reduce them to pilular consistence. The dose is 2 to 10 grains. This extract is official in the Br. P.

1032. Extractum Jalapa—*Extract of Jalap*.—Exhaust Jalap by means of water-bath percolation first with 4 times its weight of Alcohol and then with Water, distill the Alcohol from the first portion of the percolate until only a soft extract remains, then evaporate the aqueous percolate, and having mixed the two extracts thus obtained reduce them to pilular consistence. The dose is from 5 to 15 grains. This extract is official in the Br. P.

1033. Extractum Juglandis—*Extract of Juglans (Butternut Bark)*.—Exhaust the Bark of Butternut Root with Alcohol by means of water-bath percolation. Distill off the Alcohol until the residue is reduced to a pilular consistence; to this add 5 per cent. of its weight of Glycerin and mix thoroughly. The dose is 2 to 10 grains.

1034. Extractum Krameriae—*Extract of Rhatany*.—Exhaust the Rhatany Root by percolating in the water-bath percolator with hot water. Heat the percolate to boiling, strain and evaporate by a water-bath at a temperature not exceeding 158° F. to dryness. The dose is from 5 to 20 grains.

1035. Extractum Lactucae — *Extract of Lettuce*.—The Br. P. directs this to be made from the fresh flowering herb of Lettuce, by bruising, expressing the juice and evaporating, treating in the same manner as is

directed (1002). The dose is from 5 to 15 grains.

1036. Extractum Leptandrae—(*Extract of Leptandra Culvers Root*).— Exhaust Leptandra by percolating in the water-bath percolator, first with a menstruum of two thirds Alcohol and then with water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the aqueous percolate, by means of a water-bath to a pilular consistence, to this add 5 per cent. of Glycerin and mix thoroughly. The dose is 2 to 10 grains.

1037. Extractum Lupuli—*Extract of Hop*.—The hops are first percolated in the water-bath percolator with Alcohol, 4 parts, and then with water until exhausted. Distill the Alcohol from the first portion of the percolate and evaporate the aqueous percolate to a soft extract, mix the two extracts, and evaporate to a pilular consistence. The dose is 5 to 15 grains. This is official in the Br. P.

1038. Extractum Malti—*Extract of Malt*.—Exhaust coarsely ground Malt in a water-bath percolator with water heated to about 60°C. (140°F.) and as the percolate is received evaporate it by the heat of a water-bath not exceeding 60°C. (140°F.) until it is reduced to the consistence of a thick syrup. It is necessary in making this preparation to begin the evaporation at once as the percolate is received, and to continue it at a temperature as uniform as possible until it is evaporated to the proper consistence, for upon this depends the preservation of the Diastase which is its important constituent. Extract of Malt is combined with many other preparations, which may be added to it in concentrated form. These combinations will be noticed under the heading MALTUM, which see.

1039. Extractum Mezerei — *Extract of Mezereum*. — The U. S. P. directs an Alcoholic Extract, which may be prepared by exhausting Mezereum Bark in No. 30 powder, with Alcohol, by means of the water-bath percolator, and then distilling the Alcohol from the percolate until only a soft extract remains, and evaporating this by a water-bath to pilular consistence.

The Br. P. directs an Ethereal Extract of Mezereum to be prepared in a similar manner as the above, but after being thus prepared, to dissolve the Extract in Ether and macerate with occasional agitation for 24 hours, then to decant the ethereal solution, recover part of the Ether by

distillation, and evaporate the remaining liquid to a soft extract.

1042. Extractum Papaveris—*Extract of Poppy*.—Exhaust Poppy Capsules, freed from their seeds and in No. 20 powder, with successive portions of boiling water. Evaporate the liquors by a water-bath to a pint for each pound of the capsules used, to this add 2 fl.ounces of Alcohol, allow to stand 24 hours, then filter and evaporate the filtered liquid to pilular consistence. The dose is 2 to 5 grains. Br. P.

1043. Extractum Pareirae—*Extract of Pareirae*.—Exhaust Pareira Root in No. 40 powder by percolating in the water-bath percolator with boiling Water, and evaporate the percolate by a water-bath to pilular consistence. The dose is from 10 to 30 grains. Br. P.

1045. Extractum Podophylli—*Extract of Podophyllum (Mandrake)*.—Exhaust Mandrake Root in No. 60 powder by percolating in a water-bath percolator first with a menstruum of 75 per cent. Alcohol, then with Water. Distill off the Alcohol from the first percolate and evaporate the residue with the remaining percolate to pilular consistence. The dose is $\frac{1}{2}$ to 2 grains.

1046. Extractum Quassiae—*Extract of Quassia*.—Exhaust Quassia by means of a water-bath percolator with boiling Water, and evaporate the percolate by a water-bath to pilular consistence, to this add 5 per cent. of its weight of Glycerin and mix thoroughly. The dose is from 2 to 5 grains.

1047. Extractum Rhamni Frangulae—*Extract of Frangula or Buckthorn Bark*. — Exhaust Buckthorn Bark in No. 40 powder by percolating in a water-bath percolator, first with Diluted Alcohol and then with Water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the remaining percolate to pilular consistence. Dose, 10 to 60 grains.

1048. Extractum Rhei—*Extract of Rhubarb*.—Exhaust Rhubarb in No. 30 powder by percolating in a water-bath percolator first with Diluted Alcohol and then with water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the remainder of the percolate by a water-bath, at a temperature not exceeding 70° C. (158° F.) to pilular consistence. The dose is from 5 to 15 grains. This may also be prepared by macerating with successive

portions of Water and pressure, then evaporating the liquids as above.

1049. Extractum Rhei Compositum—*Compound Extract of Rhubarb.*—This is made according to the G. P. from—

Extract of Rhubarb,	30 parts.
Extract of Aloes,	10 parts.
Resin of Jalap,	5 parts.
Medicinal Soap,	20 parts.

Rub them together, and, having moistened the mixture with Diluted Alcohol, evaporate to a dry extract by means of a steam-bath.

1050. Extractum Sabinæ—*Extract of Savine.*—Exhaust Savine with Diluted Alcohol by means of the water-bath percolator. Distill off the Alcohol and evaporate the percolate, by a water-bath, to a thick extract. The dose is 2 to 15 grains. G. P.

1051. Extractum Scillæ—*Extract of Squill.*—Macerate Squill with separate portions of Diluted Alcohol and express. Mix the liquids, distill off the Alcohol, and evaporate the residue to a thick extract. The dose is $\frac{1}{2}$ to 2 grains. G. P.

1052. Extractum Stramonii—*Extract of Stramonium.* — Exhaust Stramonium Seed in No. 40 powder with diluted alcohol by percolating in the water-bath percolator. Distill the Alcohol from the percolate and evaporate the residue at a temperature not exceeding 50°C. (122°F.) by means of a water-bath to a pilular consistence. The dose is $\frac{1}{4}$ to $\frac{1}{2}$ grain.

1053. Extractum Taraxaci—*Extract of Dandelion.*—Fresh Dandelion Root, gathered in September, is cut fine, crushed in a mortar until reduced to a pulp, a little water added, and the juice expressed and allowed to deposit. It is then strained and heated to boiling, strained again and evaporated to pilular consistence. The dose is from 5 to 30 grains.

1054. Extractum Trifolii Fibrini—*Extract of Buckbean.*—Exhaust Buckbean with boiling water, strain and evaporate the liquid to a thick extract. This is official in the G. P.

1055. Extractum Tritici— *Extract of Couch Grass.* — Exhaust Triticum with boiling water, strain and evaporate the liquid to a thick extract. This is official in the G. P. under the name *Extractum Graminis*,

1056. Extractum Valerianae—*Extract of Valerian.*—Exhaust Valerian Root in No. 40 powder by percolating in the water-bath percolator with 75 per cent. Alcohol, then with water. Distill the Alcohol from the first portion of the percolate, and evaporate the residue with the remainder of the percolate, by water-bath, at a temperature not exceeding 50°C. (122°F.) to a pilular consistence. Dose 2 to 20 grains. Although this extract is not official, it is more frequently used than many of those which are.

1057. Other Extracts.

The foregoing Extracts, official in the U. S., Br. and German Pharmacopoeias are all that are usually required. But a great number are quoted by manufacturing houses, and may be made by druggists in the same general manner as is directed for the Official Extracts, by using for exhausting the drug the same menstruum as is directed for making a fluid extract of the drug.

EXTRACTA DESTILLATA—DISTILLED EXTRACTS.

In American Pharmacy only two or three Distilled Extracts are known, and none are official; but from the favor with which Distilled Extract of Witch Hazel has been received, it is evident that many such Distilled Extracts might with advantage be made. In French Pharmacy under the name *Alcoolats* quite a large number of preparations made by distilling aromatic substances with a spiritous medium are known, and several of them are official.

All drugs whose valuable medicinal properties are volatilized by the heat of boiling alcohol or water, and do not consist of essential oils which rise to the surface when cool, may be represented in the form of Distilled Extracts.

For making these Extracts the steam still, by which steam may be forced

through the substances, is the best; but for pharmaceutical use they may be distilled with the low shape still described on page 29 in the same manner as is directed on page 32 (Part 1) for distilling medicated waters from leaves, etc. A wire-cloth basket should be suspended in the boiler in which the drugs should be placed to preserve the drug from too close contact with the heat.

A few formulas only are given as samples from which the druggist may make any desired extract:

1058. Extractum Hamamelidis Destillatum.

Distilled Extract Witch Hazel.

Witch Hazel Leaves, fresh,	2 pounds av.
Water,	1 gallon.
Alcohol,	8 fl.ounces.

Bruise the leaves in a mortar, pour the Alcohol upon them; put them in the still without the water-bath, add the Water and distill 2 pints. This may also be made by distilling with Water alone and then adding to the distillate 25 per cent. of Alcohol.

Distilled Extract of Horseradish, Scurvy Grass, Mustard, Nasturtium, Smartweed, and all other substances possessing like volatile principles, may be made in a similar manner.

1059. Extractum Buchu Destillatum.

Distilled Extract Buchu.

Buchu Leaves,	1 pound av.
Water,	1 gallon.
Alcohol,	8 fl.ounces.

Moisten the Buchu leaves with the Alcohol and put them in the still without the water-bath, add the water and distill 2 pints. A great variety of similar aromatic dry substances may be treated in the same manner.

1060. Extractum Pruni Virginianae Distillatum.

Distilled Extract Wild Cherry.

Wild Cherry Bark, of root, fresh,	2 pounds av.
Water,	1 gallon.
Alcohol,	8 fl.ounces.

Bruise the bark, pour the Alcohol upon it and put in the still without the water-bath, pour the water upon it and distill 2 pints. This may also be made from the dry bark 1 pound, Alcohol 8 ounces, Water 1 gallon, and distill 2 pints, in the same manner as Extract Buchu.

Other extracts of similar substances, whose virtues consist of volatile principles. may be made in the same manner.

Alcoolats or Alcoholates.

These are extracts made in a similar manner, but with a much larger proportion of Alcohol. Many substances containing essential oils are distilled with alcohol and represented in this manner. When made from the Oils they would be classed as spirits. The following formulae are examples. In French Pharmacy they are variously called *Esprit* or *Eau* without reference to their Alcoholic strength or composition :

1061. Alcoolat d'Absinthe.—Fresh leaves and tops of Wormwood 1,000 parts, Alcohol 80 per cent., 4,000 parts, distilled Wormwood water 1,000 parts. Let them macerate for 4 days, then distill by a salt water-bath, 2,500 parts. Alcoolats of Sweet Basil, Hysop, Lavender, Marjorum, Balm, Peppermint, Spearmint, Sage, Thyme and other similar fresh substances are prepared in the same manner.

1062. Alcoolat d'Anis.—Aniseed 1 part, Alcohol 56 per cent., 5 parts, Let them macerate for two days then distill until all the Alcohol used is recovered. Alcoolats of Caraway, Coriander, Fennel, Spice and other similar substances are prepared in this manner.

1063. Alcoolat de Cannelle (Cinnamon).—Cinnamon Bark ground fine 1 part, Alcohol 50 per cent., 5 parts. Let macerate 4 days then distill until all the Alcohol used is recovered. Alcoolats of Angelica, Calamus,

Mace, Sassafras. Cloves, and a great variety of other strong aromatic substances are made in a similar manner.

The foregoing formula; will be sufficient to show the general method of making the Alcoolats of French Pharmacy. Many more are known and used, but they are seldom called for in this country, and generally the simple spirits or essences of the substances will do when simple Alcoolats are desired; of the compound Alcoolats so few are used here that it seems unnecessary to give their formulas.

EXTRACTA FLUIDA—FLUID EXTRACTS.

Fluid extracts are of American origin, and our Pharmacopoeia is the only one which recognizes preparations by this name. The British Pharmacopoeia has a few "Liquid Extracts," some of which are similar to Fluid Extracts, but this class of preparations may be claimed as distinctly American.

Fluid Extracts aim to represent the entire soluble medicinal constituents of a certain weight of drug in an equivalent fluid measure. As such, they are the most convenient of the galenicals, for they may be used in place of the drugs themselves in making many preparations extemporaneously that would otherwise require considerable time to prepare. They are also very convenient to prescribe, as the dose is the same as of the powdered drug or substances from which they are prepared.

Since the introduction of Fluid Extracts, some forty years ago, many methods for making them have been proposed, all having in view the same object, viz.: To represent the entire medicinal value of a specified weight of the drug in an equivalent quantity of Fluid Extract. While in main, this may readily be done, yet it must be borne in mind that the *entire* medicinal value of *some* drugs cannot be held in solution in an equivalent fluidmeasure of Fluid Extract, by the menstrums usually employed for making them.

A brief description of the principal methods which have heretofore been employed for making Fluid Extracts, is given for the convenience of our readers, but the process of water-bath percolation presents great advantages over any other, and is therefore employed in the formulae

for the preparations. It is, in fact, the only process by which first-class fluid extracts can be made economically, in a small way, by druggists.

The value of a fluid extract depends upon the amount of active medicinal agent that it contains, and the formulae given are designed to best secure that end, without producing preparations loaded with inert and worthless extractive matter as is often the case with those furnished by manufacturers.

The formulas are each calculated to make a pint of fluid extract, but larger quantities may be made somewhat more advantageously.

In making large quantities it may not be necessary to continue the heat so long as is directed, as the water-bath will retain its heat for some time, when once heated.

When Fluid Extracts are used for making Tinctures, Infusions, Syrups, etc., fluidmeasure equivalent to the weight of the drug, or drugs directed, may be used. Solid extracts may be made from nearly all the fluid extracts by evaporating them to the proper pilular consistence.

The following are the principal popular methods that have been employed or directed for making fluid extracts :

1064. U. S. 1870 Process.

"The quantity of powdered material directed to be used is 16 troyounces. This powder is to be moistened with a specified quantity of menstruum, and properly packed in a suitable percolator. The surface of the powder is then to be covered with a disc of paper, and the remaining portion of 16 fluid-ounces of menstruum is to be poured upon it. When the liquid begins to drop from the percolator, close the lower orifice with a cork, and, having closely covered the percolator to prevent evaporation, set it aside in a moderately warm place for four days.

"The cork is then to be removed, more menstruum is to be gradually poured on, and the percolation continued until 24 fluidounces have been obtained. Of these, the first 14 fluidounces are to be reserved, and the remainder having been carefully evaporated to two fluidounces, is to be mixed with the reserved portion, and filtered through paper if necessary."

The quantity of drug directed in the 1870 formula; is about 5 per cent. more than the equivalent fluid measure of the fluid extract obtained, the difference being the same as between troyweight and fluid measure.

1065. U. S. 1880 Process.

No general formula is given in the 1880 Pharmacopoeia for making fluid extracts, each drug having a detailed formula for itself; but from them the following general formula may be deduced:

100 grammes of the powdered material directed to be used are moistened with from 30 to 50 grammes of menstruum (according to the nature of the drug), and properly packed in a suitable percolator; enough menstruum is then added to saturate the powder, and leave a stratum above it. When the liquid begins to drop from the percolator, the lower orifice is closed, the percolator covered, and its contents allowed to macerate for 48 hours. The stopper is then loosened, and the percolation allowed to proceed gradually, adding first the remainder of 100 grammes of the menstruum, which has not previously been used, and then more menstruum, as is directed in the formula until the drug is exhausted. The first 85 cubic centimetres of the percolate received are reserved and, by means of a water-bath and still the Alcohol is recovered from the remainder, and the residue evaporated to a soft extract; this soft extract is then dissolved in the reserved portion, and enough menstruum (as is directed in the formula) added to make the fluid extract measure 100 cubic centimetres.

Fluid extracts made by this process represent the medicinal value of a gramme of a drug in a cubic centimetre, therefore the weight of the drug and fluid measure of the fluid extract are equivalent.

1066. Repercolation Process.

The following is an abstract of Squibb's method of Fractional or Repercolation. This process is probably the best cold process in use, but it is too tedious to be generally employed by druggists; some skill and experience are required to use it successfully:

To make 3 pints of a fluid extract take of

The required drug, or drugs, in powder as directed, 50 ounces av.
The required menstruum as directed, a sufficient quantity.

First.—Take $\frac{1}{3}$ of the powder ($16\frac{2}{3}$ ounces avoir.) and 3 pints of the menstruum required. Moisten the powder with from 6 to 8 fl.ounces of the menstruum, pack it properly in a suitable percolator, pour upon it sufficient menstruum to saturate the drug and leave a stratum above it, and when the percolate begins to drop, close the lower orifice and allow to-macerate from two or three days; then begin to percolate, adding the remainder of the menstruum (and more if necessary) to the powder, continuing the percolation until the drug is exhausted, receiving the percolate as it passes in the following manner:

Reserve the first 12 fl.ounces,	mark <i>a</i> .
the next 6 fl.ounces,	mark <i>b</i> .
the next 8 fl.ounces,	mark <i>c</i> .
the remainder of the percolate,	mark <i>d</i> .

The last portion, *d*, is a variable quantity, but should be from 20 to 30 fl.ounces. With some drugs this may be forced through by adding water through the percolator, while with others the same menstruum must be used throughout.

Second.—Take $\frac{1}{3}$ more of the powder ($16\frac{2}{3}$ ounces avoir.) as before, moisten it with the portion of percolate marked *b*, pack as before, pour upon it the percolate marked *c*, and afterward sufficient of the percolate marked *d* and sufficient fresh menstruum to exhaust the drug, receiving the percolate as follows.

Reserve the first 16 fl.ounces,	mark <i>e</i> ,
the next 6 fl.ounces,	mark <i>f</i> .
the next 8 fl.ounces,	mark <i>g</i> .
the remainder of the percolate,	mark <i>h</i> .

The last portion, *h*, is a variable quantity, but should be from 16 to 20 fl.ounces. With some drugs it may be forced out with water, while with others the same menstruum should be used throughout.

Third.—Take the remaining $\frac{1}{3}$ ($16\frac{2}{3}$ ounces avoir.) of the powder; moisten it with the portion marked *f*, pack as before, pour upon it the

When this process is employed the drugs should be inclosed in a coarse, canvas cloth or bag before putting in the press. The pressure should be gradual and long continued, that the moisture may be as nearly as possible extracted from the drugs. A 1-gallon tincture press will answer very well for making from 1 to 3 pounds of fluid extract.

Combination Process — Repercolation and Pressure. — A combination of the Repercolation and Pressure process is used by some manufacturers. The percolation is conducted the same as is directed for repercolation, except that the last portions, *d*, *h* and *j*, are obtained by pressure instead of by percolation. It is more economical than repercolation alone, as there is no loss of menstruum in the last part of the percolations, which is quite an important item of the expense of the Fluid Extracts.

1068. Fluid Extracts by Water-Bath Percolation.

To give a detailed formula for every Fluid Extract which is made or known on the market, would require a large volume, and, indeed, it is unnecessary, for they may be classed according to the nature of the drug employed, and a few formulas will represent them all, it being necessary only to insert the name of the drug in the specified formula to adapt it to the particular Fluid Extract being made.

The drugs from which Fluid Extracts are made are therefore divided as far as is practicable into Classes, and a general formula given which is suited to the nature of the drugs in each Class. The formulas given are by water-bath percolation, which, as previously explained, is considered the best process for making Fluid Extracts. Other processes, however, maybe employed by using the menstruum designated for the drug, and proceeding as is directed in the process.

Full detailed formulae for all the official Fluid Extracts will be found in FENNER'S WORKING FORMULAE.

Fluid Extracts, Class A.

In this class are included all Fluid Extracts made from drugs requiring Alcohol as a menstruum, except such as require special treatment or manipulation. To complete the formula for any Fluid Extract in this

class, put the name of the drug and the fineness of the powder in the following

1069. General Formula.

The Drug in No. powder, $16\frac{2}{3}$ ounces av.
Alcohol, a sufficient quantity.

Moisten the powder with from 6 to 8 fl. ounces of Alcohol, pack firmly in the water-bath percolator, pour upon it enough Alcohol to saturate and cover the drug and set in a warm place for two days; then heat very moderately, and after one hour begin to percolate slowly, adding Alcohol to the drug, and continuing the heat and percolation until 14 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with Alcohol until the drug is exhausted. Distill the Alcohol from this last portion of the percolate until only 2 fl.ounces remain, which add to the reserved portion to make a pint of the Fluid Extract. Lastly, after standing a few days filter through paper or muslin, adding enough Alcohol through the filter to make the measure a pint. If Glycerin is directed to be used it should be added to the first portion of the menstruum used.

The Alcohol remaining in the drug after percolation maybe recovered by distillation.

The star(*) before a formula denotes that a Fluid Extract is also made from the green plant. See Green Plant Fluid Extracts.

U. S. Official Fluid Extracts.

The following are the U. S. Official Fluid Extracts made with Alcohol in accordance with this formula :

1070. Extractum Aconiti Fluidum—*Fluid Extract of Aconite.*—Aconite Root in No. 60 powder — Alcohol. Make a fluid extract as directed (1069), and add 30 grains Tartaric Acid to a pint.

1071. Extractum Aromaticum Fluidum—*Aromatic Fluid Extract.*-Aromatic powder—Alcohol. Make a fluid extract as directed (1069).

1072. Extractum Belladonna Fluidum—*Fluid Extract of*

Belladonna Root. —Belladonna Root in No. 60 powder—Alcohol. Make a fluid extract as directed (1069). For Fluid Extract Belladonna Leaves see Class C.

1073. Extractum Brayerae Fluidum—*Fluid Extract of Koussou.*—Koussou Flowers in No. 40 powder — Alcohol. Make a fluid extract as directed (1069).

1074. Extractum Calami Fluidum—*Fluid Extract of Calamus (Sweet Flag).*—Calamus in No. 50 powder—Alcohol. Make a fluid extract as directed (1069).

1075. Extractum Cannabis Indicae Fluidum—*Fluid Extract of Indian Cannabis or Indian Hemp.*— Cannabis in No. 20 powder — Alcohol. Make a fluid extract as directed (1069).

1076. Extractum Capsici Fluidum — *Fluid Extract of Capsicum (Cayenne Pepper).*—Capsicum in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1077. *Extractum Cimicifugae Fluidum — *Fluid Extract of Cimicifuga (Black Cohosh).*—Cimicifuga in No. 50 powder—Alcohol. Make a fluid extract as directed (1069).

The British Liquid Extract of Cimicifuga is identical with this.

1078. Extractum Cubebae Fluidum—*Fluid Extract of Cubeb.*—Cubeb in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1079. *Extractum Cypripedii Fluidum— *Fluid Extract of Cypripedium (American Valerian, Nervine).*—Cypripedium in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1080. *Extractum Gelsemii Fluidum — *Fluid Extract of Gelsemium (Yellow Jasmine).*—Gelsemium in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1081. *Extractum Gossypii Radicis Fluidum — *Fluid Extract of Cotton Root.*—Gossypium (Cotton Root Bark) in No. 30 powder, $16\frac{2}{3}$

ounces av., Glycerin 4¹/₂ fl.ounces. Alcohol a sufficient quantity. Percolate first with the mixed Glycerin and Alcohol, then with Alcohol as directed (1069).

1082. Extractum Lupulinae Fluidum — *Fluid Extract of Lupulin.*—Lupulin—Alcohol. Make a fluid extract as directed (1069).

1083. Extractum Mezerii Fluidum — *Fluid Extract of Mezereum (Mezereon).*—Mezereum in No. 30 powder—Alcohol. Make a fluid extract as directed (1069).

1084. Extractum Sabinae Fluidum—*Fluid Extract of Savin,*—Savin (tops) in No. 40 powder — Alcohol. Make a fluid extract as directed (1069).

1085. Extractum Sanguinariae Fluidum—*Fluid Extract of Sanguinaria (Bloodroot).*—Sanguinaria in No. 50 powder—Alcohol. Make a fluid extract as directed (1069).

1086. Extractum Scillae Fluidum — *Fluid Extract of Squill.*—Squill in No. 20 powder—Alcohol. Make a fluid extract as directed (1069).

1087. * Extractum Veratri Viridis Fluidum—*Fluid Extract of Veratrum Viride (American Hellebore).*—Veratrum Viride in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1088. Extractum Xanthoxyli Fluidum — *Fluid Extract of Xanthoxylum (Prickly Ash).*—Xanthoxylum (Prickly Ash) in No. 40 powder—Alcohol. Make a fluid extract as directed (1069).

1089. Extractum Zingiberis Fluidum—*Fluid Extract of Ginger.*—Ginger in No. 40 powder — Alcohol. Make a fluid extract as directed (1069).

Unofficial Fluid Extracts.

The following are unofficial Fluid Extracts which require *Alcohol* as a menstruum for preparing them, and are made in the same manner as directed (1069):

UNOFFICIAL FLUID EXTRACTS CLASS A.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powde No.
1090	<i>Actæa alba</i>	White Cohosh.	Root	60
1091	<i>Actæa rubra</i>	Baneberry, red.	Root	60
1092	<i>Agaricus albus</i>	White Agaric	Fungus	40
1093	<i>Akasga</i>	Boundon, Ikaju, Quai.	Root	60
1094	<i>Alkanna (Anchusa)</i>	Alkanet.	Root	50
1095	<i>Alstonia constricta</i>	Australian Bitter Bark.	Bark.	60
1096	<i>Alstonia scholaris</i>	Dita Bark.	Bark.	60
1097	<i>Angelica officinalis</i>	Angelica.	Root	60
1098	<i>Apium graveolens</i>	Celery.	Seed	60
1099	<i>Asarum Canadense</i>	Canada Snakeroot.	Root	60
1100	<i>Asclepias cornuti</i>	Silkweed.	Root	60
1101	<i>Asclepias incarnata</i>	White Indian Hemp.	Root.	60
1102	* <i>Asclepias tuberosa</i>	Pleurisy, or White Root.	Root	60
1103	<i>Aspidium (Filix Mas)</i>	Male Fern.	Root	60
1104	<i>Avena Sativa</i>	Common Oats.	Seed	40
1105	<i>Azederach (melia A.)</i>	Pride of India or China.	Root bark.	60
1106	* <i>Baptisia tinctoria</i>	Wild Indigo.	Root	60
1107	<i>Boldus (Peumus B.)</i>	Boldo	Leaves	50
1108	<i>Boletus Laricis</i>	Agaric.	Fungus	40
1109	<i>Bryonia alba</i>	Bryony, White	Root	60
1110	<i>Canella alba</i>	Canella	Bark.	60
1111	* <i>Cannabis sativa</i>	American Hemp.	Plant	50
1112	<i>Cantharis vesicatoria</i>	Cantharides	Whole fly.	60
1113	<i>Capsella, B'a-pastoris</i>	Shepherd's Purse.	Herb	50
1114	<i>Cardamomum</i>	Cardamom.	Seed	60
1115	<i>Carophyllus</i>	Cloves.	Flower buds	60
1116	* <i>Cereus</i>	Cactus.	Plant	50
1117	<i>Chenopodium</i>	Wormseed	Seed	60
1118	<i>Cinnamomum</i>	Cassia or Cinnamon.	Bark.	60
1119	<i>Cocculus Indicus</i>	Fish Berries.	Fruit.	60
1120	<i>Convallaria Majalis</i>	Lily of the Valley.	Root or flow's	60
1121	<i>Coriandrum</i>	Coriander	Fruit.	60
1122	<i>Curcuma longa</i>	Turmeric.	Rhizome	60
1123	<i>Delphinium consolida</i>	Larkspur.	Seed	60
1124	<i>Delphinium Staphisagria</i>	Stavesacre.	Seed	60
1125	<i>Dioscorea villosa</i>	Wild Yam.	Rhizome.	60
1126	<i>Dipterix odorata</i>	Tonka, Tonqua, or T. Bean	Seed	60
1127	<i>Dita (Alst'a scholaris)</i>	Dita Bark.	Bark	60
1128	<i>Drosera</i>	Sundew	Herb.	40
1129	<i>Drimys Winteria</i>	Winter's Bark.	Bark	60
1130	<i>Erechthites hieracif'a</i>	Fireweed.	Herb.	40
1131	<i>Erigeron Canadense</i>	Canada Fleabane.	Herb.	40
1132	* <i>Eriodictyon</i>	Yerba Santa.	Leaves.	50
1133	* <i>Euphorbia corollata</i>	Large Flowering Spurge	Root	60

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1134	Filix Mas (Aspid'm).....	Male Fern.....	Root.....	60
1135	Galanga.....	Galangal (Catarrh Root).	Rhizome....	60
1136	Gillenia stipulacea.....	American Ipecac.....	Root.....	60
1137	Gillenia trifoliata.....	Indian Physic.....	Root.....	60
1138	Guaiacum lignum.....	Guaiac.....	Wood.....	50
1139	*Helonias.....	False Unicorn.....	Root.....	60
1140	Hibiscus Abelmos's.....	Amber or Ambrette....	Seeds.....	50
1141	Humulus.....	Hops.....	Flowers....	50
1142	Hyoscyami semen.....	Henbane.....	Seed.....	60
1143	Ignatia.....	Ignatia Bean.....	Seed.....	60
1144	Imperatoria.....	Masterwort.....	Rhizome....	60
1145	Iris Florentina.....	Orris Root.....	Rhizome....	60
1146	Jalapa (Ipomea J'a).....	Jalap.....	Tuber.....	60
1147	Kamala (Rottlera).....	Kameela.....	Glands, etc.	60
1148	Kava (Methisticum).....	Ava Kava.....	Root.....	60
1149	Levisticum.....	Lovage.....	Root or seed	60
1150	Lindera.....	Spicewood, Fever Bush.	Berries or b'k	60
1151	Liquidambar.....	Sweet Gum Tree.....	Bark.....	60
1152	Lippia Mexicana.....	.....	Herb.....	50
1153	Liriodendron.....	Tulip Tree, Whitewood.	Bark.....	60
1154	*Lobelia.....	Lobelia, Indian Tobacco	Seed.....	60
1155	Magnolia glauca.....	Magnolia.....	Flowers or b	50
1156	Methysticum.....	Ava Kava, Kava Kava..	Root.....	60
1157	Micromeria.....	Yerba Buena.....	Plant.....	50
1158	Myrica cerefera.....	Bayberry.....	Bark.....	60
1159	Myristica fragrans.....	Mace or Nutmeg.....	Seed.....	60
1160	Petroselinum.....	Parsley Seed.....	Fruit.....	60
1161	Peumus Boldus.....	Boldo.....	Leaves.....	50
1162	Phelandrium.....	Water Fennel Seed.....	Fruit.....	50
1163	Physostigma.....	Calabar Bean.....	Seed.....	60
1164	P. menta.....	Allspice.....	Fruit.....	60
1165	Piper Methysticum.....	Ava or Kava Kava.....	Root.....	60
1166	Piper Nigrum.....	Black Pepper.....	Fruit.....	60
1167	Pimpinella saxifraga.....	Pimpernel, Small Saxifrage	Root.....	60
1168	*Populus Candicans.....	Balm or Balsam of Gilead	Leaf buds..	40
1169	Pyrethrum.....	Pellitory.....	Root.....	60
1170	*Rhus Toxicodendron.....	Poison Ivy or Oak.....	Leaves.....	40
1171	Ricinus.....	Castor Oil Bean.....	Seed.....	50
1172	Rottleræ glandulæ.....	(Kamala) Kameela.....	Glands, etc.	60
1173	Sabadilla.....	Cevadilla.....	Seed.....	60
1174	Santalum citrinum.....	White or Yellow Santal.	Wood.....	60
1175	Santalum rubrum.....	Red Saunders.....	Wood.....	60
1176	Santonica.....	Wormseed, unexpanded.	Flowerheads	40
1177	Silphium lacinatatum.....	Rosin weed.....	Root.....	60
1178	Staphisagria (Del. S.).....	Stavesacre.....	Seed.....	60
1179	Strychnos Ignatia.....	Ignatia Bean.....	Seed.....	60
1180	Sumbul (Ferula S.).....	Musk root.....	Root.....	60
1181	*Thuja occidentalis.....	Arbor Vitæ, Thuya,....	Twigs.....	30
1182	Trillium pendulum.....	Beth or Birth Root.....	Root.....	60
1183	Turnera aphrodis'ca.....	Damiana.....	Leaves.....	50
1184	Urechites suberecta.....	.....	Leaves.....	50
1185	Veratrum sabadilla.....	Cevadilla.....	Seed.....	60
1186	Wintera (Drimys W.).....	Winter's Bark.....	Bark.....	60
1187	Xanthoxylum.....	Prickly-Ash Berries....	Fruit.....	50
1188	Zedoaria.....	Zedoary.....	Root.....	60

Fluid Extracts Class B.

The following drugs require a menstruum of three measures of Alcohol to one measure of Water for preparing their Fluid Extracts. To complete the formula for any Fluid Extract in this class put the name of the drug and the fineness of powder required in the following

1189. General Formula.

The Drug, in No. powder, $16\frac{2}{3}$ ounces av.
Alcohol, Water, each, a sufficient quantity.

Mix three measures of Alcohol with 1 measure of Water, and having moistened the drug with from 8 to 10 ounces of the mixture, macerate for 24 hours in a covered vessel in a warm place ; transfer to the water-bath percolator, pack firmly, pour upon it sufficient menstruum to saturate and cover the drug and set in a warm place for two days; then heat moderately and after one hour begin to percolate slowly, adding menstruum to the drug and continuing the heat and percolation until 13 ounces have passed, which reserve. Turn off the heat and continue the percolation with the menstruum until the drug is exhausted. Distill the Alcohol ($\frac{3}{4}$ of the measure) from this last portion, evaporate the residue to a soft extract, which dissolve in the reserved portion and add enough of the menstruum to make a pint of the Fluid Extract. The Alcohol remaining in the drug after percolation may be recovered by distillation. If Glycerin is directed it should be added to the first portion of the menstruum used.

The * indicates that Fluid Extracts are also prepared from the fresh or green drug. See Green Plant Fluid Extract.

Many of the drugs that are included in Class A yield their medicinal properties to a menstruum of 3 parts Alcohol to 1 of Water, and might properly be included in this class, but as they have generally been made with Alcohol only as a menstruum we have not thought best to depart from the established custom for the small saving that would be made.

U. S. Official Fluid Extracts.

The following are the U. S. Official Fluid Extracts, requiring a menstruum of 3 parts by weight of Alcohol to 1 of Water. They may, however, be made by the general formula (1189), using 3 measures of Alcohol to 1 of Water.

1190. *Extractum Grindeliae Fluidum — *Fluid Extract of Grindelia*. — Grindelia in No. 30 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1191. Extractum Guaranae Fluidum—*Fluid Extract of Guarana*.—Guarana in No. 50 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1192. Extractum Hydrastis Fluidum — *Fluid Extract Hydrastis (Golden Seal)*. Hydrastis in No. 50 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1193. *Extractum Iridis Fluidum — *Fluid Extract of Iris (Blue Flag)*. Iris (Blue Flag Root) in No. 50 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1194. Extractum Nucis Vomicae Fluidum — *Fluid Extract Nux Vomica*.—Nux Vomica in No. 60 powder.—Alcohol 8, Water 1. Make a fluid extract as directed (1189).

The official formula directs a menstruum of 8 parts by weight (9 by measure) of Alcohol to 1 part of Water. This formula is included in this class, but the menstruum as here directed should be used.

1195. Extractum Podophylli Fluidum—*Fluid Extract of Podophyllum (Mandrake)*. —Podophyllum (Mandrake Root) in No. 50 powder. —Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1196. Extractum Serpentariae Fluidum—*Fluid Extract of Serpentaria*. — Serpentaria in No. 50 powder. — Alcohol 3, Water 1. Make a fluid extract as directed (1189).

Fluid Extracts of *Digitalis*, *Hyoscyamus*, *Rhubarb* and *Stramonium*, are

directed by the U. S. P. to be made with 3 parts by weight of Alcohol to 1 of Water, but in our opinion their properties are as well obtained by a menstruum of less Alcoholic strength, and we have put them in Class C.

Some of the fluid extracts included in this class might be made with a menstruum of less alcoholic strength, but it is rather difficult to direct the exact proportion of Alcohol which would be necessary to hold the medicinal properties of the drugs, as they are found in the market, in solution; therefore, it is best to have the menstruum contain an excess rather than a deficiency of spirit.

Unofficial Fluid Extracts.

The following are unofficial Fluid Extracts which require 3 measures of Alcohol to 1 measure of Water as a menstruum for preparing them, and are made in the same manner as directed (1189):

UNOFFICIAL FLUID EXTRACTS CLASS B.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1197	<i>Acalypha Virginica</i>	Mercury Weed.....	Herb.....	40
1198	<i>Anemopsis Californica</i>	Yerba Mansa.....	Plant.....	40
1199	* <i>Arum triphyllum</i>	Wild or Indian Turnip..	Cormus ...	50
1200	<i>Asimina triloba</i>	Papaw.....	Seed.....	50
1201	<i>Aspidosperma</i>	Quebracho.....	Bark.....	50
1202	* <i>Baccharis pilularis</i>	Kidney Root.....	Root.....	50
1203	* <i>Calycanthus Floridus</i>	Carolina Allspice.....	Bark.....	50
1204	<i>Cascarilla</i> (<i>Croton Eluteria</i>)	<i>Cascarilla</i>	Bark.....	50
1205	<i>Cochlearia armoracia</i>	Horseradish.....	Root.....	50
1206	Coto (add 4 fl. oz. Glycerin)	Coto Bark.....	Bark.....	50
1207	<i>Eremocarpus Setigerus</i> ...	Ginger Leaf.	Herb.....	40
1208	<i>Erythrophloeum, Casca</i> ...	Sassy or Mancona.....	Bark.....	50
1209	<i>Ephedra Antisyphilitica</i> ..	<i>Ephedra</i>	Plant.....	50
1210	<i>Euphorbia Ipecacuanha</i> ..	<i>Ipecacuanha Spurge</i> ...	Root.....	50
1211	<i>Euphorbia pilulifera</i>	Pill Bearing Spurge....	Plant.....	40
1212	* <i>Grindelia squarrosa</i>.....	.....	Leaves, tops	40
1213	<i>Juglans cinerea</i>	American Butternut....	Root bark...	50
1214	<i>Menispermum</i>	Yellow Parilla.....	Root.....	50
1215	<i>Mercurialis annua</i>	Mercury Herb.....	Herb.....	40
1216	<i>Nectandra</i>	Bebeeru.....	Bark.....	50
1217	* <i>Polygonum</i>	Smartweed.....	Herb.....	30
1218	* <i>Polymnia uvedalia</i>	Bearsfoot, Leafcup....	Root.....	50
1219	<i>Sassafras officinalis</i>	<i>Sassafras</i>	Root bark...	50
1220	* <i>Stramonium (Datura S.)</i> ..	<i>Stramonium</i>	Leaves.....	40

Fluid Extracts, Class C.

The following drugs require a menstruum of two measures of Alcohol to one measure of Water, for preparing their Fluid Extracts. To complete the formula for any Fluid Extract in this Class, put the name of the drug and the fineness of powder required in the following

1221. General Formula.

The Drug in No. powder, $16\frac{2}{3}$ ounces av.
Alcohol, Water, each, a sufficient quantity

Mix two measures of Alcohol with one measure of Water, and having moistened the drug with from 8 to 10 ounces of the mixture, macerate for 24 hours in a covered vessel in a warm place; transfer to the water-bath percolator, pack firmly, pour upon it sufficient menstruum to saturate and cover the drug, and set in a warm place for two days; then heat moderately, and after one hour begin to percolate slowly, adding menstruum to the drug, and continuing the heat and percolation until 13 ounces have passed, which reserve. Turn off the heat and continue the percolation with the menstruum until the drug is exhausted. Distill the Alcohol ($\frac{2}{3}$ of the measure) from this last portion, evaporate the residue to a soft extract, which dissolve in the reserved portion, and add enough of the menstruum to make a pint of the fluid extract. The Alcohol remaining in the drug after percolation may be recovered by distillation. If Glycerin is directed it should be added to the first portion of menstruum used.

The * indicates that fluid extracts are also prepared from the fresh or green drug. See Green Plant Fluid Extract.

U. S. Official Fluid Extracts.

The following U. S. Official Fluid Extracts are directed by the U. S. P. to be made with a menstruum of Alcohol 2 parts by weight to Water i part, but they may be made by the general formula (1221), using Alcohol 2 parts by measure to Water i part.

1222. Extractum Aurantii Amari Fluidum — *Fluid Extract of Bitter Orange Peel.*— Bitter Orange Peel in No. 20 powder — Alcohol 2,

Water 1. Make a fluid extract as directed (1221).

1223. Extractum Buchu Fluidum—*Fluid Extract of Buchu*.—Buchu in No. 40 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1224. Extractum Colchici Radicis Fluidum—Fluid Extract of Colchicum Root.—Colchicum Root in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1225. Extractum Colchici Seminis Fluidum—*Fluid Extract of Colchicum Seed*. — Colchicum Seed in No. 30 powder — Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1226. Extractum Digitalis Fluidum — *Fluid Extract of Digitalis (Foxglove)*.—Digitalis (recently dried) in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1227. Extractum Hyoscyami Fluidum—*Fluid Extract of Hyoscyamus (Henbane)*.—Hyoscyamus in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1228. Extractum Matico Fluidum—*Fluid Extract of Matico*.—Matico in No. 40 powder—Alcohol, Water, Glycerin. Mix 14 fl.ounces of Alcohol 3 fl.ounces each Water and Glycerin for first percolation, then finish with Alcohol 2, Water 1, as directed (1221).

1229. Extractum Rhei Fluidum—*Fluid Extract of Rhubarb*.—Rhubarb in No. 30 powder— Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1230. Extractum Rubi Fluidum — *Fluid Extract of Rubus (Blackberry)*. — Blackberry Root-Bark in No. 50 powder — Alcohol, Glycerin, Water. Mix 8 fl.ounces Alcohol, 5 fl.ounces of Water and 1¹/₄ fl.ounces of Glycerin for first percolate, then finish with a menstruum of 26 fl.ounces Alcohol to 16 fl.ounces of Water.

1231. Extractum Senegae Fluidum — *Fluid Extract of Senega*—Senega in No. 40 powder—Alcohol 2, Water 1, Water of Ammonia. Make a fluid extract as directed (1221), and when completed add 3 fl.drachms Water of Ammonia to a pint.

1232. Extractum Stramonii Fluidum — *Fluid Extract of Stramonium.*— Stramonium in No. 40 powder — Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1233. Extractum Valerianae Fluidum—*Fluid Extract of Valerian.*— Valerian in No. 50 powder — Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1234. ***Extractum Viburni Fluidum**—*Fluid Extract of Viburnum.*— Viburnum (Black Haw) in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

Fluid Extract of *Digitalis*, *Hyoscyamus*, *Rhubarb* and *Stramonium*, are directed by the U. S. P. to be made with a menstruum of 3 parts Alcohol by weight to 1 part Water, but we have classed them here, as we think the alcoholic strength of the menstruum sufficient.

Many of the fluid extracts included in this class might readily be made with diluted Alcohol instead of 2 parts of Alcohol to 1 part of Water but for the difficulty experienced in percolating with the weaker menstruum, on account of the larger proportion of water softening their mucilaginous constituents, thus making it impossible for the menstruum to pass through them. It is therefore necessary in exhausting them to use a menstruum of sufficient alcoholic strength to prevent this difficulty and allow the percolation to proceed freely. Some manufacturers first exhaust these drugs with an alcoholic menstruum and then distill off a portion, making up the quantity with water, but this is hardly expedient in making small quantities.

Unofficial Fluid Extracts.

The following are unofficial Fluid Extracts which require 2 measures of Alcohol to 1 measure of Water for preparing them, and are made in the same manner as is directed (1221):

UNOFFICIAL FLUID EXTRACTS CLASS C.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1235	<i>Acacia jurema</i>	Adstringens.....	Bark.....	50
1236	<i>Aconiti folia</i>	Aconite, Monkshood...	Leaves.....	30
1237	<i>Æsculus glabra</i>	Buckeye.....	Bark.....	40
1238	<i>Æsculus Hippocastanum</i> .	Horse Chestnut.....	Seed.....	40
1239	* <i>Ailanthus</i>	Tree of Heaven.....	Root bark...	40
1240	<i>Adansonia digitata</i>	Baobab.....	Bark.....	40
1241	<i>Alnus rubra</i> (or <i>Serrulata</i>).	Tag Alder.....	Bark.....	40
1242	<i>Althææ radix</i>	Marsh Mallow.....	Root.....	20
1243	<i>Anemopsis Californica</i> ...	Herba Mansa.....	Root.....	40
1244	<i>Anethum graveolens</i>	Dill Seed.....	Fruit.....	40
1245	<i>Angostura</i> (<i>Galip'cuspora</i>).	Angustura.....	Bark.....	50
1246	<i>Anisum</i>	Anise Seed.....	Fruit.....	40
1247	<i>Apocynum androsæ'um</i> ...	Bitter Root.....	Root.....	50
1248	<i>Apocynum cannabinum</i> ...	Black Indian Hemp...	Root.....	50
1249	<i>Arnicae flores</i>	Arnica Flowers.....	Flowers.....	30
1250	<i>Artemisia frigida</i>	Mountain Sage.....	Plant.....	30
1251	<i>Artemisia vulgaris</i>	Mugwort.....	Root.....	40
1252	<i>Asclepias curassavica</i>	Blood Flower.....	Plant.....	30
1253	<i>Belladonnæ folia</i>	Belladonna.....	Leaves.....	30
1254	* <i>Berberis aquifolium</i>	Oregon Grape.....	Root.....	50
1255	<i>Berberis vulgaris</i>	Barberry.....	Bark.....	50
1256	<i>Betonica officinalis</i>	Betony.....	Herb.....	30
1257	<i>Buxus sempervirens</i>	Box.....	Bark or l'v's.	30
1258	<i>Calendula</i>	Marigold.....	Flowers.....	30
1259	<i>Carum carvi</i>	Caraway Seed.....	Fruit.....	50
1260	<i>Carrota</i> (<i>Daucus C.</i>).....	Carrot Seed.....	Fruit.....	50
1261	<i>Catalpa</i> (<i>Bignonia C.</i>)...	Cigar Tree.....	Bark, pods..	50
1262	<i>Caullophyllum</i>	Blue Cohosh.....	Root.....	50
1263	* <i>Cheledonium majus</i>	Garden Celandine.....	Herb.....	40
1264	<i>Chiococca racemosa</i>	Cachinca.....	Root bark...	40
1265	<i>Chrysophyllum</i>	Monesia.....	Bark.....	40
1266	* <i>Collinsonia</i>	Stone Root, Heal All...	Root.....	40
1267	<i>Corallorhiza</i>	Coral Root, Crawley....	Root.....	50
1268	* <i>Corydalis</i> (<i>Dicentra Can.</i>).	Turkey Corn.....	Tuber.....	50
1269	<i>Corypha cerefera</i>	Carnauba, Wax Palm...	Root.....	50
1270	<i>Cuminum Cyminum</i>	Cummin Seed.....	Fruit.....	50
1271	* <i>Draconitum</i>	Skunk Cabbage.....	Root.....	50
1272	<i>Duboisia Myoporoides</i>	Duboisia.....	Leaves.....	30
1273	<i>Equisticum</i>	Horsetail.....	Stems.....	40
1274	* <i>Eryngium aquaticum</i>	Water Eryngo.....	Root.....	50

1275	<i>Eryngium yuccæfolium</i> ...	Corn Snakeroot.....	Root.....	50
1276	* <i>Euonymus</i>	Wahoo.....	Bark.....	50
1277	<i>Fœniculum</i>	Fennel Seed.....	Fruit.....	50
1278	<i>Francisca uniflora</i>	Manaca.....	Root.....	50
1279	<i>Garrya Fremontii</i>	Quinine Bush.....	Herb.....	40
1280	<i>Hedeoma</i>	Pennyroyal.....	Leaves.....	30
1281	<i>Helianthus</i>	Sunflower.....	Seed.....	30
1282	<i>Helleborus niger</i>	Black Hellebore.....	Root.....	50
1283	<i>Hyoscyami radix</i>	Henbane.....	Root.....	50
1284	<i>Illicium Anisatum</i>	Star Anise Seed.....	Fruit.....	50
1285	<i>Inula Helenium</i>	Elecampane.....	Root.....	50
1286	<i>Laurus nobilis</i>	Bay Laurel, Bay Tree..	Leaves.....	30
1287	<i>Ledum palustre</i>	Labrador Tea.....	Twigs, Tops	40
1288	<i>Manzanita</i> (<i>Arctostaphylos</i>)	<i>Glauca</i>	Leaves.....	30
1289	<i>Matricaria</i>	German Chamomile....	Flowers.....	20
1290	<i>Monarda fistulosa</i>	Wild Bergamont.....	Herb.....	30
1291	<i>Monarda punctata</i>	Horsemint.....	Herb.....	30
1292	<i>Monotropa uniflora</i>	Fit Root, Ice Plant....	Plant.....	50
1293	<i>Myrtus Checan</i>	Cheken, Chequin.....	Leaves.....	40
1294	<i>Nuphar advena</i>	Yellow Pond Lily.....	Root.....	40
1295	<i>Nymphaea odorata</i>	White Pond Lily.....	Root.....	40
1296	<i>Onosmodium Virginianum</i>	False Gromwell.....	Seeds, root..	40
1297	<i>Origanum</i>	Wild Majoram.....	Herb.....	30
1298	<i>Pæonia officinalis</i>	Peony.....	Root.....	50
1299	* <i>Penthorium sedoides</i>	Virginia Stone Crop....	Herb.....	30
1300	* <i>Phytolacca</i>	Garget or Poke.....	Root.....	50
1301	<i>Phellandrium aquaticum</i> ..	Water Fennel.....	Seed.....	40
1302	<i>Piscidia</i>	Jamaica Dogwood.....	Root bark..	50
1303	<i>Polemonium reptans</i>	Abscess Root.....	Root.....	50
1304	<i>Polygonatum giganteum</i> ..	Soloman's Seal.....	Root.....	30
1305	<i>Potentilla Canadensis</i>	Cinquefoil, Firefinger..	Plant.....	30
1306	<i>Potentilla Tormentilla</i>	Tormentil.....	Root.....	40
1307	<i>Populus alba</i>	White Poplar.....	Inner bark..	50
1308	<i>Ptelea trifoliata</i>	Waferash, Hoptree....	Inner bark..	50
1309	<i>Pulsatilla</i> (<i>Anemone P.</i>)..	Pulsatilla.....	Herb.....	30
1310	<i>Pycnanthemum</i>	Mountain Mint.....	Herb.....	30
1311	<i>Quillaia</i>	Soap Tree.....	Bark.....	50
1312	* <i>Rhus aromatica</i>	Sweet Sumach.....	Root Bark..	50
1313	<i>Rhododendron maximum</i> ..	Great Laurel.....	Inner bark..	50
1314	<i>Robina</i>	Locust Tree.....	Leaves.....	40
1315	<i>Sabal serrulata</i>	Palmetto Saw Berries...	Fruit.....	40
1316	<i>Salix alba</i>	White Willow.....	Bark.....	40
1317	<i>Salix nigra</i>	Black Willow.....	Bark.....	40
1318	<i>Saponaria</i>	Soapwort.....	Root.....	50
1319	<i>Satureja hortensis</i>	Summer Savory.....	Herb.....	30
1320	<i>Sessamum orientale</i>	Benne.....	Leaves.....	30
1321	<i>Simaba Cedron</i>	Cedron Seed.....	Seed.....	50
1322	<i>Sterculia acuminata</i>	Cola or Kola.....	Nuts.....	50
1323	<i>Symplocarpus</i> (<i>Draconitum</i>)	Skunk Cabbage.....	Root.....	50
1324	<i>Veratrum album</i>	White Hellebore.....	Root.....	50
1325	<i>Xanthium Strumarium</i>	Cockleburr.....	Burrs.....	40
1326	<i>Xanthium spinosum</i>	Spiny Burweed.....	Plant.....	40
1327	<i>Uvularia perfoliata</i>	Bellwort.....	Root.....	40
1328	<i>Viburnum opulus</i>	Cramp, Cranberry.....	Bark.....	40
1329	<i>Zanthorrhiza Apiifolia</i>	Yellow Root.....	Root.....	50

Fluid Extracts Class D.

The following drug's require Diluted Alcohol as a menstruum for preparing their fluid extracts; equal measure of Alcohol and water, although it is not the present officinal standard for Diluted Alcohol, will be of sufficient Alcoholic strength for these Fluid Extracts. To complete the formula for any Fluid Extract in this class, put the name of the drug and the fineness of powder required in the following

1330 General Formula.

The Drug in No. powder, 16²/₃ ounces av.
Diluted Alcohol, a sufficient quantity.

Moisten the drug with from 8 to 10 ounces of Diluted Alcohol mixed with the Glycerin, if any is directed to be used, and macerate for 24 hours in a covered vessel in a warm place; transfer to the water-bath percolator, pack firmly, pour upon it sufficient Diluted Alcohol to saturate and cover the drug, and set in a warm place for two days, then heat moderately and after one hour begin to percolate slowly, adding Diluted Alcohol to the drug and continuing the heat and percolation until 13 ounces have passed, which reserve. Turn off the heat and continue the percolation with Diluted Alcohol until the drug is exhausted. Distill the Alcohol ($\frac{1}{2}$ the measure) from this last portion, evaporate the residue to a soft extract, which dissolve in the reserved portion and add enough Diluted Alcohol to make a pint of the Fluid Extract. The Alcohol remaining in the drug after percolation may be recovered by distillation.

The * indicates that Fluid Extracts are also prepared from the fresh or green drug. See Green Plant Fluid Extract.

U. S. Official Fluid Extracts.

The following are the U. S. Official Fluid Extracts made with *diluted Alcohol*, in accordance with this formula. When Glycerin is used it should be added to the diluted Alcohol used to moisten the drug:

1331. Extractum Arnicae Radicis Fluidum — *Fluid Extract of Arnica Root.*—Arnica Root in No. 50 powder—Diluted Alcohol. Make a

fluid extract as directed (1330).

1332. Extractum Calumbae Fluidum — *Fluid Extract of Calumba (Columbo)*.—Calumba (Columbo), in No. 20 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1333. Extractum Chimaphilae Fluidum—*Fluid Extract of Chimaphila (Pipsissewa)*.—Chimaphila (Prince's Pine), in No. 20 powder—Diluted Alcohol—Glycerin (1¹/₄ fl.ounce to a pint.) Make a fluid extract as directed (1330).

1334. Extractum Chiratae Fluidum—*Fluid Extract of Chirata*.—Chirata in No. 30 powder—Diluted Alcohol—Glycerin (1¹/₄ fl.ounce to a pint). Make a fluid extract as directed (1330).

1335. Extractum Conii Fluidum—*Fluid Extract of Conium*.—Conium (Fruit), in No. 40 powder—Diluted Alcohol— Diluted Hydrochloric Acid (1/2 fl.ounce to a pint). Make as directed (1330), adding the diluted acid to the portion to be evaporated.

1336. Extractum Cornus Fluidum—*Fluid Extract of Cornus (Dogwood)*.—Cornus (Dogwood Bark), in No. 50 powder—Diluted Alcohol— Glycerin (2¹/₂ fl.ounces to a pint). Make a fluid extract as directed (1330).

1337. Extractum Dulcamarae Fluidum—*Fluid Extract of Dulcamara (Bittersweet)*.—Dulcamara (Bittersweet), in No. 50 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1338. Extractum Erythroxyli Fluidum—*Fluid Extract of Erythroxyton (Coca)*. — Erythroxyton (Coca leaves), in No. 40 powder—Diluted Alcohol. Make a fluid extract as directed (1330). The Br. Liquid Extract of Coca is similar to this fluid extract.

1339. Extractum Eupatorii Fluidum—*Fluid Extract of Eupatorium Boneset (Thoroughwort)*.—Eupatorium (Boneset), in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1340. Extractum Gentianae Fluidum — *Fluid Extract of Gentian*—Gentian in No. 20 powder—: Diluted Alcohol. Make a fluid extract as

directed (1330).

1341. Extractum Geranii Fluidum — *Fluid Extract of Geranium (Cranesbill)*.—Geranium (Cranesbill Root), in No. 30 powder—Diluted Alcohol — Glycerin (1¹/₄ fl.ounce in a pint). Make a fluid extract as directed (1330).

1342. Extractum Glycyrrhizae Fluidum — *Fluid Extract of Glycyrrhiza (Liquorice)*.—Glycyrrhiza (Liquorice Root), in No. 30 powder—Diluted Alcohol—Water of Ammonia (1¹/₂ fl.ounce in a pint). Mix the Water of Ammonia with the first portions diluted Alcohol used and make a fluid extract as directed (1330).

1343. Extractum Krameriae Fluidum—*Fluid Extract of Krameria (Rhatany)*.—Krameria (Rhatany), in No. 30 powder—Diluted Alcohol—Glycerin (2¹/₄ fl.ounces in a pint). Make a fluid extract as directed (1330).

1344. * Extractum Leptandrae Fluidum—*Fluid Extract of Leptandra (Culver's Root)*.—Leptandra (Black Root) in No. 50 powder—Diluted Alcohol—Glycerin (2 fl.ounces in a pint). Make a fluid extract as directed (1330).

1345. * Extractum Lobeliae Fluidum — *Fluid Extract of Lobelia*.—Lobelia (herb) in No. 50 powder.— Diluted Alcohol. Make a fluid extract as directed (1330).

1346. Extractum Pareirae Fluidum—*Fluid Extract of Pareira*.—Pareira in No. 40 powder—Diluted Alcohol— Glycerin (2¹/₂ fl.ounces in a pint.) Make a fluid extract as directed (1330).

1347. Extractum Pilocarpi Fluidum—*Fluid Extract of Pilocarpus (Jaborandi)*. Pilocarpus (Jaborandi) in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1348. Extractum Quassiae Fluidum—*Fluid Extract of Quassia*.—Quassia in No. 50 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1349. Extractum Rhois Glabrae Fluidum—*Fluid Extract of Rhus*

Glabra (Sumac).—*Rhus Glabra* (Sumac "bobs") in No. 30 powder—Diluted Alcohol—Glycerin (1¹/₄ fl.ounces in a pint). Make a fluid extract as directed (1330).

1350. Extractum Rosae Fluidum—*Fluid Extract of Rose*.—Red Rose in No. 30 powder—Diluted Alcohol—Glycerin (1¹/₄ fl. ounce in a pint). Make a fluid extract as directed (1330).

1351. Extractum Rumicis Fluidum—*Fluid Extract of Rumex (Yellow Dock)*.—*Rumex* (Yellow Dock) in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1352. Extractum Spigeliae Fluidum—*Fluid Extract of Spigelia (Pink Root)*.—*Spigelia* (Pink Root) in No. 50 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1353. * Extractum Stillingiae Fluidum — *Fluid Extract of Stillingia (Queensroot)*.—*Stillingia* in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1354. Extractum Uvae Ursi Fluidum — *Fluid Extract of Uva Ursi*.— *Uva Ursi* in No. 30 powder—Diluted Alcohol—Glycerin (1¹/₄ fl.ounce in a pint). Make a fluid extract as directed (1330).

Unofficial Fluid Extracts.

The following are unofficial fluid extracts which require Diluted Alcohol as a menstruum for preparing them, and are made in the same manner as directed (1330). Many of these extracts may be made with a menstruum of less alcoholic strength, but, generally, their soluble properties are better held in solution with Diluted Alcohol than with a weaker menstruum.

UNOFFICIAL FLUID EXTRACTS CLASS D.

No.	LATIN NAME.	COMMON NAME.	Parts Used.	Powder No.
1355	<i>Abies balsamea</i>	Balsam Fir Tree.....	Inner bark..	40
1356	<i>Absinthium</i> (<i>Artemisia</i>)..	Wormwood.....	Leaves, tops.	30
1357	<i>Acanthus mollis</i>	Acanthus.....	Leaves.....	30
1358	<i>Achillea millefolium</i>	Yarrow.....	Leaves, tops.	30
1359	<i>Adiantum</i>	Maidenhair Fern.....	Plant.....	30
1360	<i>Agrimonia Eupatoria</i>	Agrimony.....	Whole plant.	30
1361	* <i>Aletris farinosa</i>	Unicorn, Star Grass....	Root.....	50
1362	<i>Althææ flores</i>	Marshmallow.....	Flowers.....	20
1363	<i>Ambrosia trifida</i>	Richweed, Ragweed....	Herb.....	30
1364	<i>Ampelopsis</i>	Virginia Creeper.....	Twigs, bark.	30
1365	* <i>Amygdalus Persica</i>	Peach Tree.....	Leaves.....	30
1366	<i>Anagallis arvensis</i>	Scarlet Pimpernel.....	Herb.....	30
1367	<i>Anemone</i>	Wood Anemone.....	Herb.....	30
1368	<i>Anthemis nobilis</i>	English Chamomile....	Flowers.....	30
1369	<i>Andira inermis</i>	Cabbage Tree, Yellow..	Bark.....	40
1370	<i>Aralia hispada</i>	Dwarf Elder.....	Root.....	40
1371	<i>Aralia spinosa</i>	Southern Prickly Ash..	Bark.....	40
1372	<i>Aralia nudicaulis</i>	Amer. Sarsaparilla....	Root.....	30
1373	<i>Aralia racomosa</i>	Spikenard.....	Root.....	30
1374	<i>Areca catechu</i>	Betel nut.....	Seed.....	50
1375	<i>Aster punicus</i>	Red Stalked Aster.....	Root.....	40
1376	<i>Asparagus officinalis</i>	Asparagus.....	Young shoots	30
1377	<i>Aurantii cortex, dulcis</i>	Sweet Orange Peel....	Fruit rind...	20
1378	<i>Betula Lenta</i>	Black or Cherry Birch..	Bark.....	40
1379	<i>Bidens bipinnata</i>	Spanish Needles.....	Root.....	50
1380	<i>Bistorta</i> (<i>Polygonum B.</i>)..	Bistort, Snakeweed....	Rhizome....	50
1381	<i>Borago officinalis</i>	Borage.....	Herb.....	30
1382	<i>Caffea</i>	Coffee Berries, green...	Seeds.....	30
1383	<i>Caffea tosta</i>	Coffee Berries, roasted..	Seeds.....	40
1384	<i>Carduus Benedictus</i>	Blessed Thistle.....	Leaves, tops.	30
1385	<i>Carya alba</i>	White Hickory.....	Inner bark..	50
1386	<i>Carthamus tinctorius</i>	Safflower, Am. Saffron..	Flowers.....	30
1387	<i>Cascara amarga</i>	Honduras Bark.....	Bark.....	40
1388	<i>Cascara sagrada</i>	Rhamnus Prushiana....	Bark.....	50
1389	<i>Cataria</i> (<i>Nepeta C.</i>).....	Catnip, Catmint.....	Herb.....	30
1390	<i>Cephalanthus</i>	Button Bush.....	Bark.....	50
1391	<i>Celastrus scandens</i>	Staff Tree.....	Root bark...	50
1392	<i>Cercis Canadensis</i>	Judas Tree.....	Root bark...	50
1393	<i>Cetraria</i>	Iceland Moss.....	Entire plant.	20
1394	<i>Ceonothus Americanus</i>	Jersey Tea, Red Root..	Root.....	50
1395	<i>Chelone glabra</i>	Balmony, Snakehead...	Herb.....	20

I396	<i>Chicorium Intybus</i>	Chicory.....	Root.....	20
I397	China (<i>Smilax glabra</i>)...	China Root.....	Rhizome....	40
I398	* <i>Chionanthus Virginica</i> ...	Fringe Tree.....	Root bark...	50
I399	<i>Cochleria</i> , fresh.....	Scurvy Grass.....	Bruised herb.	20
I400	<i>Colocynthus</i>	Colocynth, Bitter Apple.	Fruit.....	20
I401	<i>Comptonia asplenifolia</i> ...	Sweet Fern.....	Herb.....	30
I402	<i>Conii folia</i>	<i>Cicuta</i> , <i>Conium</i>	Leaves.....	30
I403	<i>Convulvulus panduratus</i> ...	Wild Jalap.....	Root.....	40
I404	<i>Coptis teeta</i>	East Indian Coptis.....	Rhizome....	40
I405	<i>Coptis trifolia</i>	Coptis, Gold Thread....	Entire plant.	30
I406	<i>Cornus circinata</i>	Green Ozier.....	Bark.....	50
I407	<i>Cornus sericea</i>	Swamp Dogwood.....	Bark.....	50
I408	<i>Crocus sativus</i>	True Saffron.....	Stigmas....	30
I409	<i>Cucumis citrullus</i>	Watermelon Seed.....	Seed.....	30
I410	<i>Cucumis pepo</i>	Pumpkin Seed.....	Seed.....	30
I411	<i>Cunderango</i>	Cunderango.....	Bark.....	40
I412	<i>Cunila Mariana</i>	Dittany, American.....	Root.....	40
I413	<i>Cynoglossum</i>	Hound's Tongue.....	Herb.....	30
I414	<i>Cyperus articulatus</i>	Adrue.....	Root.....	40
I415	<i>Diospyros cortex</i>	Persimmon.....	Bark.....	40
I416	<i>Diospyros fructus</i>	Persimmon.....	Green fruit..	12
I417	<i>Dirca palustris</i>	Leatherwood.....	Bark.....	40
I418	<i>Dulcamara</i> (<i>Solanum D.</i>)..	Bittersweet.....	Twigs.....	40
I419	<i>Elephantopus tomentosus</i> ..	Elephant's Foot.....	Herb.....	30
I420	<i>Epiphegus</i> (<i>Orobanche</i>)..	Cancer Root.....	Plant.....	40
I421	<i>Epigæa repens</i>	Trailing Arbutus.....	Leaves.....	30
I422	* <i>Epilobium</i>	Wickup or Willow.....	Herb.....	30
I423	<i>Erythracea</i>	Canchalagua.....	Herb.....	30
I424	<i>Erythraea Centaurium</i>	European Centaury....	Herb.....	30
I425	<i>Eupatorium aromaticum</i> ..	White Snakeroot.....	Root.....	40
I426	<i>Eupatorium perfoliatum</i> ..	Boneset, Thoroughwort.	Herb.....	30
I427	<i>Eupatorium purpureum</i> ..	Queen of the Meadow..	Root.....	50
I428	<i>Euphrasia</i>	Eyebright.....	Herb.....	30
I429	<i>Fagus ferruginea</i>	American Beech.....	Inner bark..	40
I430	* <i>Frankenia</i>	Yerba Rheuma.....	Plant.....	30
I431	<i>Frasera</i>	American Columbo.....	Root.....	30
I432	<i>Fraxinus Americana</i>	White Ash.....	Bark.....	50
I433	<i>Fraxinus sambucifolia</i>	Black Ash.....	Bark.....	50
I434	<i>Fucus vesiculosus</i>	Bladder or Sea Wrack..	Plant.....	20
I435	<i>Fumaria officinalis</i>	Fumitory.....	Leaves.....	30
I436	<i>Galla</i>	Nutgall.....	Excrecenses.	40
I437	<i>Galium aperine</i>	Cleavers.....	Herb.....	30
I438	<i>Galium verum</i>	Lady's Bedstraw.....	Herb.....	30
I439	<i>Gaultheria</i>	Wintergreen.....	Leaves.....	30
I440	<i>Gentiana quinqueflora</i>	Five-Flowered Gentian.	Plant.....	30
I441	<i>Geum rivale</i>	Water Avens.....	Root.....	40
I442	<i>Geum urbanum</i>	European Avens.....	Root.....	40
I443	<i>Gnaphalium</i>	Life Everlasting.....	Herb.....	30
I444	<i>Gouania Domingensis</i>	Chewstick.....	Stems.....	40
I445	<i>Granati fructus cortex</i>	Pomegranate.....	Fruit rind...	20
I446	<i>Granatum</i>	Pomegranate.....	Root bark...	50
I447	<i>Gratiola officinalis</i>	Hedge Hyssop.....	Herb.....	30
I448	Guaco (<i>Mikania G.</i>).....	Guaco.....	Leaves.....	30
I449	<i>Hæmatoxylon</i>	Logwood.....	Wood.....	40
I450	<i>Hamamelidis cortex</i>	Witch Hazel.....	Bark.....	50

I451	<i>Helianthemum</i>	Frostwort, Rockrose....	Herb.....	30
I452	<i>Hemidesmus</i>	Indian Sarsaparilla....	Root.....	40
I453	<i>Hepatica</i>	Liverwort, Kidney Leaf.	Leaves.....	30
I454	<i>Heracleum</i>	Masterwort.....	Leaves, root.	30
I455	<i>Heuchera</i>	Alum Root.....	Root.....	40
I456	<i>Hippocastanum</i>	Horse Chestnut.....	Bark.....	40
I457	<i>Hydrangea arborecens</i> ...	Hydrangea, Seven B'ks.	Root.....	50
I458	<i>Hyssopus</i>	Hysop (Am., European)	Plant.....	30
I459	<i>Hypericum perforatum</i> ...	Johnswort.....	Herb.....	30
I460	<i>Ilex Paraguayensis</i>	Paraguay Tea.....	Leaves.....	30
I461	<i>Jeffersonia diphylla</i>	Twin Leaf.....	Root.....	40
I462	<i>Jacaranda Caroba</i>	Caroba.....	Leaves.....	40
I463	<i>Juglans nigra</i>	Black Walnut.....	Bark.....	40
I464	<i>Juglans regia</i>	European Butternut....	Leaves.....	30
I465	<i>Kalmia latifolia</i>	Mountain Laurel.....	Leaves.....	30
I466	<i>Lactuca virosa</i>	Wild Lettuce.....	Leaves.....	30
I467	<i>Lappæ fructus</i>	Burdock Seed.....	Fruit.....	40
I468	<i>Lappæ radix</i>	Burdock Root.....	Root.....	40
I469	<i>Larix Americana</i>	Tamarack.....	Bark.....	40
I470	<i>Lavendula vera</i>	Lavender.....	Flowers.....	30
I471	<i>Leonorus cardiaca</i>	Motherwort.....	Herb.....	30
I472	<i>Limonis cortex</i>	Lemon Peel.....	Fruit rind...	20
I473	<i>Liatris odoratissima</i>	Vanilla Plant.....	Leaves.....	30
I474	<i>Liatris spicata</i>	Button Snakeroot.....	Root.....	50
I475	<i>Liatris squarrosa</i>	Blazing Star.....	Root.....	50
I476	* <i>Lycopus Europæus</i>	Bitter Bugle.....	Herb.....	30
I477	<i>Lycopus Virginicus</i>	Bugle Weed.....	Herb.....	30
I478	<i>Maltum</i>	Barley Malt.....	Malted Seed.	30
I479	<i>Malva sylvestris</i>	Common Mallow.....	Leaves.....	20
I480	<i>Mangifera Indica</i>	Mango.....	Bark rind...	30
I481	<i>Mangostana</i>	Mangosteen.....	Fruit rind...	30
I482	<i>Marjorana (Origanum M.)</i>	Sweet Marjoram.....	Herb.....	30
I483	<i>Marrubium vulgare</i>	Hoarhound.....	Herb.....	30
I484	<i>Marunta cotula</i>	May Weed.....	Herb.....	30
I485	<i>Melissa</i>	Sweet Balm.....	Herb.....	30
I486	<i>Melilotus officinalis</i>	Melilot, Sweet Clover..	Flowers.....	30
I487	<i>Mentha piperita</i>	Peppermint.....	Herb.....	30
I488	<i>Mentha viridis</i>	Spearmint.....	Herb.....	30
I489	<i>Menyanthes trifoliata</i> ...	Buck Bean, Bog Bean..	Leaves.....	30
I490	<i>Mikania Guaco</i>	Guaco Leaves.....	Leaves.....	30
I491	<i>Mitchella repens</i>	Partridgeberry.....	Herb.....	30
I492	<i>Morus nigra</i>	Mulberry.....	Root.....	40
I493	<i>Myrica Gale</i>	Sweet Gale.....	Herb.....	30
I494	* <i>Oenothera biennis</i>	Evening Primrose.....	Twigs, leaves	40
I495	<i>Osmarrhiza longistylis</i> ...	Sweet Cicely.....	Root.....	40
I496	<i>Osmunda regalis</i>	Buckhorn Brake.....	Root.....	40
I497	<i>Ostrya Virginica</i>	Ironwood.....	Bark.....	40
I498	<i>Oxydendron arboreum</i> ...	Sourwood.....	Twigs.....	30
I499	<i>Panax (Aralia quiquefolia)</i>	Ginseng.....	Root.....	30
I500	<i>Papaver Sonimiferum</i>	Poppy.....	Cap., leaves.	50
I501	<i>Pepo (Cucurbita P.)</i>	Pumpkin.....	Seed.....	20
I502	<i>Persia gratissima</i>	Alligator Pear.....	Seed.....	40
I503	<i>Petroselinum</i>	Parsley.....	Root, seed..	30
I504	<i>Pinus Strobus</i>	White Pine..	Inner bark..	40
I505	<i>Phoradendron</i>	American Mistletoe....	Plant.....	30

1506	<i>Plantago major</i>	Common Plantain.....	Plant.....	30
1507	<i>Pinus Canadensis</i>	Hemlock.....	Inner bark..	30
1508	<i>Polygala amara</i>	Bitter Polygala.....	Plant.....	30
1509	<i>Polypodium vulgare</i>	Polypody.....	Root.....	40
1511	<i>Polytrichum</i>	Hair Cap Moss.....	Plant.....	30
1512	<i>Prinos verticillatus</i>	Black Alder.....	Bark.....	40
1513	<i>Pulmonaria</i>	Lungwort.....	Herb.....	30
1514	<i>Pyrethrum Parthenum</i> ...	Feverfew.....	Herb.....	30
1515	<i>Pyrola rotundifolia</i>	Canker Lettuce.....	Herb.....	30
1516	<i>Pyrus Malus</i>	Apple Tree.....	Root bark..	40
1517	<i>Quercus alba</i>	White Oak.....	Bark.....	40
1518	<i>Rhamnus catharticus</i>	Buckthorn.....	Berries.....	20
1519	<i>Rhamnus Prushiana</i>	Cascara Sag. Chitem...	Bark.....	40
1520	<i>Rhœas (Papaver R.)</i>	Red Poppy.....	Flowers....	30
1521	<i>Ricini folia</i>	Castor Oil Leaves.....	Leaves.....	30
1522	<i>Rubus strigosus</i>	Red Raspberry.....	Leaves.....	30
1523	<i>Rubia</i>	Madder.....	Root.....	30
1524	<i>Rudbeckia</i>	Thimbleweed.....	Tops.....	30
1525	<i>Ruta graveolens</i>	Rue.....	Leaves.....	30
1526	<i>Sabbatia angularis</i>	Am. or Red Centaury..	Plant.....	30
1527	<i>Sabbatia Elliottii</i>	Quinine Flower.....	Herb.....	30
1528	<i>Salvia officinalis</i>	Sage.....	Leaves.....	30
1529	<i>Sambucus Canadensis</i>	Elder.....	Bark, flowers	30
1530	<i>Sarracenia purpurea</i>	Pitcher Plant.....	Plant.....	30
1531	<i>Scrofularia nodosa</i>	Carpenter's Square....	Root.....	30
1532	* <i>Senecio gracilis</i>	Life Root.....	Plant.....	30
1533	<i>Simaruba officinalis</i>	Simaruba.....	Bark.....	30
1534	<i>Smilax Sarsaparilla</i>	Bamboo Brier.....	Root.....	30
1535	<i>Solidago odora</i>	Golden Rod.....	Herb.....	30
1536	<i>Spiræa tomentosa</i>	Hardhack.....	Herb.....	30
1537	<i>Statice Caroliniana</i>	Marsh Rosemary.....	Root.....	40
1538	<i>Stigmata Maydis</i>	Corn Silk.....	Stigmas....	20
1539	<i>Symphytum officinale</i>	Comfrey.....	Root.....	30
1540	<i>Tabacum (Nicotiana T.)</i> ..	Tobacco.....	Leaf.....	30
1541	<i>Tanacetum vulgare</i>	Tansy.....	Herb.....	30
1542	<i>Tecoma radicans</i>	Trumpet Creeper.....	Bark.....	40
1543	<i>Thea Chinensis</i>	Tea.....	Leaves.....	30
1544	<i>Theobroma Cacao</i>	Chocolate.....	Seeds.....	40
1545	<i>Thymus Vulgaris</i>	Thyme.....	Herb.....	30
1546	<i>Trifolium partense</i>	Red Clover.....	Flowers....	30
1547	<i>Triosteum perfoliatum</i> ...	Fever Wort.....	Herb.....	30
1548	<i>Tilia</i>	Linden.....	Flowers....	30
1549	<i>Tonga</i>	Mixed Fiji Island Barks	Barks.....	50
1550	<i>Tormentilla</i>	Tormentil.....	Rhizome....	30
1551	<i>Tussilago Farfara</i>	Coltsfoot.....	Leaves.....	40
1552	<i>Ulmus fulva</i>	Slippery Elm.....	Bark.....	30
1553	<i>Umbellaria</i>	California Laurel.....	Leaves.....	30
1554	<i>Urtica dioica</i>	Nettle... ..	Root.....	40
1555	<i>Ustilago Maydis</i>	Corn Smut or Ergot....	Fungus....	50
1556	<i>Verbascum thapsus</i>	Mullein.....	Flowers, l'v's	30
1557	<i>Verbena hastata</i>	Vervain.....	Herb.....	30
1558	<i>Viburnum dentatum</i>	Arrow Wood.....	Bark.....	40
1559	<i>Viola tricolor</i>	Wild Violet or Pansy...	Plant.....	30
1560	<i>Viscum Album</i>	Mistletoe.....	Plant.....	30
1561	<i>Vaccinum Crassifolium</i> ...	Creeping Huckleberry..	Plant.....	30

Other U. S. Official Fluid Extracts.

The following U. S. Official Fluid Extracts cannot well be included under the foregoing classes as they require a different menstruum or some special manipulation. The essential details only are given here. For full detailed formulas, see FENNER'S WORKING FORMULA. They should be made by water-bath percolation in a manner similar to those classed in A, B, C, or D.

1562. Extractum Castaneae Fluidum—*Fluid Extract of Castanea (Chestnut Leaves)*.—Castanea (Chestnut Leaves) in No. 12 powder $16\frac{2}{3}$ ounces av.. Water, Alcohol, each sufficient. Percolate the drug with hot Water till exhausted, evaporate the percolate, by water-bath, to 2 pints, add 5 fl.ounces Alcohol, let stand 24 hours for precipitate to subside, filter through calico, evaporate the filtered liquid to $12\frac{1}{2}$ fl.ounces, and add enough Alcohol to make a pint.

1563. Extractum Cinchonas Fluidum—*Fluid Extract Cinchona (Calisaya)*.—Yellow Cinchona (Calisaya Bark) in No. 50 powder $16\frac{2}{3}$ ounces av., Glycerin 5 fl.ounces, Alcohol, Water, each sufficient. Mix the Glycerin with $14\frac{1}{2}$ fl.ounces of Alcohol and percolate first with the mixture, then with a menstruum of 3 measures of Alcohol mixed with one measure of Water until the drug is exhausted. Reserve the first 13 fl.ounces. Distill the Alcohol from the remainder of the percolate and evaporate the residue to 3 fl.ounces, which add to the reserved portion.

Liquid Extract of Cinchona—The Br. P. directs an *Aqueous Fluid Extract of Cinchona* to be prepared from Cinchona Bark by the aid of a small quantity of Hydrochloric Acid. This is then to be assayed and the quantity of liquid so regulated that it shall contain 5 per cent. of total Alkaloids.

1564. Extractum Ergotae Fluidum—*Fluid Extract of Ergot (Spurred or Smut Rye)*.—Ergot recently ground in No. 50 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each sufficient, diluted Hydrochloric Acid 1 fl.ounce. Percolate first with 6 fl.ounces Alcohol mixed with 10 fl.ounces

of Water, then with Water. Reserve first 13 ounces that pass. Mix the dilute Hydrochloric Acid with the remainder of the percolate, evaporate to 3 ounces, and add to the reserved portion.

The Br. *Liquid Extract of Ergot* is similar to this but contains no acid.

1565. Extractum Frangulae Fluidum—Fluid Extract of Frangula (Buckthorn Bark).—Frangula (Buckthorn Bark) in No. 40 powder $16\frac{2}{3}$ ounces av, Alcohol, Water, each sufficient. Percolate first with 6 fl.ounces Alcohol mixed with 8 fl.ounces Water, then with Water until exhausted. Reserve the first 13 fl.ounces of percolate, evaporate the remainder to 3 fl.ounces, and add.

The Br. *Liquid Extract of Rhamnus Frangula* is similar to this Fluid Extract.

1566. Extractum Hamamelidis Fluidum—*Fluid Extract of Hamamelis (Witch Hazel)*.—Hamamelis (Witch Hazel Leaves) in No. 40 powder $16\frac{2}{3}$ ounces av.. Alcohol, Water. Percolate first with 6 fl.ounces Alcohol mixed with 12 fl.ounces of Water, then with Water until exhausted. Reserve the first 13 fl.ounces of percolate, evaporate the remainder to 3 fl.ounces, and add.

1567. Extractum Ipecacuanha Fluidum—*Fluid Extract of Ipecac.*—Ipecac in No. 60 powder $16\frac{2}{3}$ ounces av., Alcohol. Water, each sufficient. Percolate the drug with Alcohol until exhausted, distill off the Alcohol until only 4 fl.ounces remain, mix this with a pint of Water and evaporate by water-bath to 12 fl.ounces, let stand 48 hours, then filter and add Water through the filter until the washings are tasteless, evaporate the filtrate and washings to half a pint, and, when cool, add half a pint of Alcohol, and filter. This process removes all the resinous matter and makes an extract mixable with syrup without cloudiness.

1568. Extractum Lactucarii Fluidum—*Fluid Extract of Lactucarium.*—Lactucarium $16\frac{2}{3}$ ounces av. is first macerated and washed with gasoline, then dried and percolated with a menstruum of Alcohol 8 fl.ounces mixed with Water 20 fl.ounces. The first 12 fl.ounces of percolate are reserved and the remainder evaporated to 4 fl.ounces and added. This makes an extract that can be mixed with syrup to make Syrup of Lactucarium.

1569. Extractum Pruni Virginianae Fluidum— *Fluid Extract of Wild Cherry*.—Wild Cherry in No. 20 powder $16\frac{2}{3}$ ounces av., glycerin $2\frac{1}{4}$ fl.ounces, diluted Alcohol, Water, each sufficient. Mix the Glycerin with 6 ounces of Water and moisten the drug, macerate 48 hours, pack in percolator and percolate with diluted Alcohol until 13 fl.ounces have passed, which reserve, then with Water until exhausted. Evaporate the last portion to 3 fl.ounces and add to the reserved portion.

1570. Extractum Sarsaparilla Fluidum—*Fluid Extract of Sarsaparilla*.—Sarsaparilla in No. 30 powder $16\frac{2}{3}$ ounces av., Glycerin $1\frac{1}{4}$ fl.ounce, Alcohol, Water, each sufficient. Mix the Glycerin with 6 fl.ounces Alcohol and 10 fl.ounces of Water and percolate first with this mixture, then with a mixture of 1 measure of Alcohol to 2 measures of Water until the drug is exhausted. Reserve the first 13 fl.ounces and evaporate the remainder to 3 fl.ounces, and add to the reserved portion.

The Br. *Liquid Extract of Sarsaparilla* is similar to this but contains a little sugar.

1571. *Extractum Scutellariae Fluidum — *Fluid Extract of Scutellaria (Skullcap)*.—Scutellaria (Skullcap) in No. 30 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each sufficient. Mix Alcohol and Water in the proportion of 10 fl.ounces of Alcohol to 16 fl.ounces of Water and percolate the drug with the mixture until exhausted, reserve the first 13 fl.ounces of percolate, distill the Alcohol from the remainder, and evaporate the residue to 3 fl.ounces and add to the reserved portion.

1572. Extractum Sennae Fluidum—*Fluid Extract of Senna*.—Senna in No. 20 powder $16\frac{2}{3}$ ounces av.. Alcohol, Water, each sufficient. Mix Alcohol and Water in the proportion of 13 fl.ounces Alcohol to 16 fl.ounces of Water, and percolate, reserving- the first 13 fl.ounces, distilling the Alcohol from the remainder and evaporating the residue to 3 fl.ounces, which add to the reserved portion.

1573. Extractum Taraxaci Fluidum—*Fluid Extract of Taraxacum (Dandelion)*.—Taraxacum (Dandelion Root) in No. 20 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each sufficient. Mix Alcohol and Water in the proportion of 9 fl.ounces of Alcohol to 12 fl.ounces of Water and

percolate with the mixture, reserving the first 14 fl.ounces of percolate and distilling the Alcohol from the 'remainder, evaporating the residue to 2 fl ounces, which add to the reserved portion.

The Br. *Liquid Extract of Dandelion* is similar to this Fluid Extract.

Other Unofficial Fluid Extracts Requiring Special Treatment.

The following are unofficial Fluid Extracts requiring special treatment, which cannot well be included in Classes A, B, C and D :

1574. Fluid Extract of Cinchona, Detannated — Mix 6 ounces of freshly precipitated, washed, moist Hydrated Peroxide of Iron (Ferric Hydrate) with a pint of Fluid Extract of Cinchona, and allow to stand for 4 days, shaking frequently; then filter, adding through the filter enough Diluted Alcohol to make the measure a pint. If the filtered extract still shows traces of Tannin when tested with Tincture of Chloride of Iron, add an ounce more of the moist Ferric Hydrate, and proceed as before, until it is detannated.

1575. Fluid Extract Garlic — *Allium Sativum*.—Garlic, crushed, 16 ounces av., Alcohol 10 fl.ounces. Water, a sufficient quantity. Mash the Garlic to a pumice in a mortar, pour the Alcohol upon it and macerate for twenty-four hours in a covered vessel in a warm place; transfer to the water-bath percolator, pack moderately, pour upon it sufficient Water to cover the drug, heat very moderately at once, and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until a pint of the fluid extract has passed. Although this fluid extract does not properly come in this class, it is placed here for want of a more convenient place.

1576. Fluid Extract of Hydrastis, Purified—*Fluid Hydrastis*.—Hydrastis in No. 50 powder 16²/₃ ounces av., Glycerin 5 fl.ounces. Alcohol, Water, each a sufficient quantity. Moisten the powder with 8 ounces of Alcohol, and pack firmly in the water-bath percolator, pour upon it a pint of Alcohol and set in a warm place for two days; then heat very moderately and after one hour begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until it is exhausted. Distill the Alcohol from the percolate until it is reduced to a soft extract. To this add the Glycerin and 6 ounces of Water, and agitate; then filter and add through the filter enough Water to make a

pint of the fluid extract. The resinous matter remains on the filter. This makes a preparation similar to "Fluid Hydrastis," containing the valuable principles of the drug which are soluble in an aqueous menstruum, and omitting the objectionable ones that are obtained when Water or Alcohol alone is used as a menstruum.

1577. Fluid Extract Ignatia Bean. — Ignatia Bean in No. 60 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each a sufficient quantity. This Fluid Extract is made with the same menstruum and in precisely the same manner as Fluid Extract of Nux Vomica, which see.

1578. Fluid Extract of Senna, Alcoholized — *Purified Fluid Extract of Senna.*—Senna in No. 20 powder $16\frac{2}{3}$ ounces av.. Alcohol, Water, each a sufficient quantity. Pack the Senna moderately in the water-bath percolator, pour upon it enough Alcohol to saturate and cover it and set in a warm place for twenty-four hours ; then heat very moderately and after one hour begin to percolate, adding a pint and a half of Alcohol to the drug and continuing the percolation until it will no longer drop. [The object of this proceeding is to remove from the Senna the principles which cause it to "gripe" when taken. The Alcohol which is used may be distilled.] Then pour Water upon the Senna and percolate until exhausted. Reserve the first 12 fl.ounces that pass, evaporate the remainder to 4 fl.ounces and add to the reserved portion to make a pint of the Purified Fluid Extract.

1579. Fluid Extract Vanilla—[One half strength.]—Vanilla 8 ounces av.. Alcohol, Water, each a sufficient quantity. Mix three measures of Alcohol with two measures of Water, and having cut the Vanilla in fine pieces and reduced it to a coarse powder by thoroughly beating in a mortar, moisten it with 6 ounces of the menstruum, pack firmly in the water-bath percolator, pour upon it 10 ounces of menstruum and set in a warm place for seven days; then heat moderately and after one hour begin to percolate slowly, adding menstruum to the drug and continuing the heat and percolation until $14\frac{1}{2}$ fl.ounces have passed, which reserve. Continue the percolation with the menstruum until the drug is exhausted, then distill the Alcohol from this last portion, evaporate the residue to a soft extract, add to the reserved portion, and afterward sufficient menstruum to make a pint of the fluid extract. After standing a few days filter through muslin.

It will be observed that this is but half the strength of ordinary fluid extracts. It is thus made because a fluid extract of full strength cannot be obtained without impairing the flavor of the preparation by the heat required to evaporate it.

To make Flavoring Extract of Vanilla from this Fluid Extract, use from 1 to 2 fl.ounces, with enough Alcohol and Water mixed in the proportion of three measures of Alcohol to two of Water to make a pint.

To make Tincture of Vanilla, U. S., 1880, use 3 ounces of this fluid extract with enough Alcohol and Water, mixed as above, to make a pint.

1580. Fluid Extract Wild Cherry, Detannated.— Mix 6 ounces freshly precipitated, washed, moist, Hydrated Peroxide of Iron (Ferric Hydrate) with a pint of Fluid Extract of Wild Cherry and allow to stand for four days, shaking frequently; then filter, adding through the filter enough Diluted Alcohol to make the measure a pint.

If the filtered extract still shows traces of tannin, when tested with Tincture of Chloride of Iron, add an ounce more of the moist Ferric Hydrate and proceed as before until it is detannated.

Compound Fluid Extracts.

Under this heading are included all fluid extracts that are made from two or more powdered drugs combined. As only two of them are official, they are called by their ordinary commercial or trade names as they are known and quoted in the market.

Compound fluid extracts may be conveniently made by mixing the fluid extracts of the drugs which compose them in the same proportion as they are directed to be used in the formulas. The prescribing and use of compound fluid extracts should be discouraged, for the reason that there is no official standard for them, and as made by different manufacturers they represent varying proportions of the drugs composing them, and are therefore indefinite.

The following formulae contain the essential directions for making the fluid extracts, but detailed formulas are given in full in FENNER'S WORKING FORMULA :

1581. Fluid Extract Blackberry Compound.—Blackberry Root 12¹/₂ ounces av., Cinnamon 2 ounces av., Nutmeg, Coriander, each 1 ounce av., all in No. 40 powder, Glycerin 2 fl.ounces, Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1582. Fluid Extract Black Cohosh Compound.—Black Cohosh in No. 40 powder, 6 ounces av.. Wild Cherry in No. 20 powder 4 ounces av., Liquorice Root in No. 30 powder 4 ounces av., Ipecac, Senega, each, in No. 40 powder, 1 ounce av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1583. Fluid Extract Blue Cohosh Compound.—Blue Cohosh in No. 40 powder 8²/₃ ounces av., Cramp Bark in No. 30 powder 3 ounces av., Unicorn Root in No. 40 powder 3 ounces av.. Celery Root in No. 40 powder, 2 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1584. Fluid Extract of Buchu and Juniper with Acetate of Potassium. — Buchu Leaves in No. 40 powder 8 ounces av., Juniper Berries in No. 40 powder 4 ounces av., Acetate of Potassium 5 ounces av.. Alcohol 2, Water 1. a sufficient quantity. Make 13 ounces of fluid extract from the Buchu and Juniper and add the Acetate of Potassium.

1585. Fluid Extract Buchu and Pareira Brava.—Buchu Leaves in No. 40 powder, Pareira Brava in No. 50 powder, each 8 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1586. Fluid Extract Buchu Compound.—Buchu Leaves, Juniper Berries, Cubeb, Uva Ursi, each in No. 50 powder 4 ounces av.. Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1069).

1587.—Fluid Extract of Cardamom Compound.—Cardamom, Cinnamon, each 6¹/₂ ounces av.. Caraway 2 ounces av., Cochineal 1¹/₂ ounce av.. all in No. 50 powder. Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1588. Fluid Extract Chinchona Aromatic.—Cinchona Bark 8¹/₂ ounces av.. Cinnamon 3 ounces av., Nutmeg, Bitter Orange, each 2

ounces av., all in No. 50 powder, Glycerin 2 fl.ounces, Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1589. Fluid Extract Cinchona Compound.—Red Cinchona Bark in No. 50 powder $8\frac{1}{2}$ ounces av.. Bitter Orange Peel in No. 20 powder $6\frac{1}{2}$ ounces av., Serpentaria in No. 50 powder $1\frac{1}{2}$ ounces av., Glycerin 2 fl.ounces, Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1590. Fluid Extract Colocynth Compound.—Purified Aloes, Colocynth Pulp, each in coarse powder $6\frac{1}{2}$ ounces av.. Liquorice Root in coarse powder, Resin of Scammony, Cardamom Seed, each in fine powder 1 ounce av., Carbonate of Potassium $\frac{1}{2}$ ounce av., Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1591. Fluid Extract Dandelion and Rhubarb.—Dandelion, Rhubarb, each in No. 20 powder $8\frac{1}{3}$ ounces av., Diluted Alcohol, a sufficient quantity. Make a pint of fluid extract as directed (1330).

1592. Fluid Extract Dandelion and Senna.—Dandelion, Senna, each in No. 20 powder $8\frac{1}{3}$ ounces av.. Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1593. Fluid Extract Dandelion Compound.—Dandelion in No. 20 powder $14\frac{2}{3}$ ounces av., Mandrake in No. 40 powder, Conium Leaves in No. 30 powder, each 1 ounce av., Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1594.— Fluid Extract Gentian Compound. — Gentian in No. 20 powder 10 ounces av.. Bitter Orange Peel in No. 20 powder 4 ounces av., Cardamom in No. 50 powder $2\frac{2}{3}$ ounces av., Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1595. Fluid Extract of Grindelia Compound.—Grindelia Robusta in No. 30 powder $8\frac{2}{3}$ ounces av., Jaborandi in No. 30 powder 4 ounces av., Cubeb in No. 40 powder, Conium Leaves in No. 30 powder, each 2 ounces av., Alcohol, a sufficient quantity. Make a pint of fluid extract as

directed (1069).

1596. Fluid Extract Helonias Compound.— Helonias in No. 40 powder 9 ounces av., Buchu, Gentian, Golden Seal, each in No. 30 powder $2\frac{1}{2}$ ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1597. Fluid Extract Hoarhound Compound.— Hoarhound in No. 20 powder, Red Root, Elecampane, Spikenard, Comfrey, Wild Cherry, Blood-root, each in No. 30 powder $2\frac{1}{3}$ ounces av., Alcohol 3, Water 2, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1598. Fluid Extract Ipecac and Senega.— Ipecac, Senega, each in No. 50 powder $8\frac{1}{3}$ ounces av.. Diluted Alcohol, a sufficient quantity. Make a pint of fluid extract as directed (1330).

1599. Fluid Extract Jalap and Rhubarb.—Jalap in No. 40 powder, Rhubarb in No. 20 powder each $8\frac{1}{3}$ ounce av., Carbonate of Potassium $\frac{1}{2}$ ounce av , Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1600. Fluid Extract Jalap and Senna.—Jalap in No. 40 powder, Senna in No. 30 powder, each $8\frac{1}{3}$ ounces av.. Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1601. Fluid Extract of Liquorice Compound—*For Quinine Mixtures.* — Liquorice Root 7 ounces av., Wild Cherry 6 ounces av.. Anise, Coriander, Caraway, each 1 ounce av.. all in No. 30 powder, Alcohol 3 fl.ounces, Water, sufficient to make 13 fl.ounces of aqueous fluid extract, and add the Alcohol.

1602. Fluid Extract Lobelia Compound.— Lobelia Herb in No. 30 powder, Bloodroot, Skunk Cabbage in No. 40 powder, each $5\frac{1}{2}$ ounces av., Alcohol 2. Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1603. Fluid Extract of Mandrake Compound.—Mandrake in No. 50 powder, Leptandra in No. 40 powder. Senna in No. 30 powder, each 5

ounces av., Canella in No. 40 powder $1\frac{2}{3}$ ounce av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1604. Fluid Extract of Matico Compound.— Matico, Buchu, Cubeb, each in No. 40 powder, $5\frac{1}{2}$ ounces av., Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1069).

1605. Fluid Extract Mitchella Compound.— Mitchella (Squaw Vine) $9\frac{1}{2}$ ounces av., Helonias Root, Blue Cohosh, each $2\frac{1}{2}$ ounces av., Cramp Bark 2 ounces av., all in No. 40 powder, Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1606. Fluid Extract Pink Root and Senna.— Pink Root in No. 40 powder $9\frac{1}{3}$ ounces av.. Senna in No. 30 powder $5\frac{1}{3}$ ounces av., Caraway, Anise, each in No. 50 powder 1 ounce av., Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1607. Fluid Extract Poke Root Compound.—Poke Root (Phytolacca), Black Cohosh (Cimicifuga), each in No. 40 powder, $6\frac{3}{4}$ ounces av., Prickly-Ash Berries, Juniper Berries, each in No. 30 powder 2 ounces av., Alcohol, a sufficient quantity. Make a pint of fluid extract as directed (1069).

1608. Fluid Extract of Rhubarb and Senna.— Rhubarb in No. 20 powder 10 ounces av., Senna in No. 20 powder 3 ounces av., Coriander, Fennel and Liquorice, each in No. 50 powder, $1\frac{1}{4}$ ounce av., Alcohol 2. Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1609. Fluid Extract of Rhubarb, Aromatic.— Rhubarb in No. 20 powder 10 ounces av.. Cloves, Cinnamon, each in No. 50 powder 2 ounces av., Nutmeg in No. 50 powder 1 ounce av., Carbonate of Potassium $\frac{1}{2}$ ounce av., Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1069).

1610. Fluid Extract of Rumex Compound.—*Compound Fluid Extract of Yellow Dock.*—Yellow Dock Root in No. 20 powder $8\frac{1}{3}$ ounces av., False Bitter-Sweet Bark in No. 30 powder $4\frac{1}{2}$ ounces av., American

Ivy Bark, Figwort, each in No. 30 powder 2 ounces av.. Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1611. Fluid Extract Sarsaparilla and Dandelion.— Sarsaparilla, Dandelion, each in No. 30 powder, $8\frac{1}{3}$ ounces av.. Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1612. Extractum Sarsaparillae Compositum Fluidum, U. S.— *Compound Fluid Extract of Sarsaparilla.*— Sarsaparilla in No. 30 powder $12\frac{1}{2}$ ounces av., Liquorice Root in No. 30 powder 2 ounces av.. Sassafras Bark in No. 30 powder $1\frac{3}{4}$ ounces av., Mezereum in No. 30 powder $\frac{1}{2}$ ounce av., Glycerin $1\frac{1}{4}$ fl.ounce, Alcohol, Water, each a sufficient quantity. Mix the Glycerin with 6 fl.ounces of Alcohol and 10 fl.ounces of Water, and having moistened the mixed powders with 8 ounces of the mixture, macerate for 24 hours in a close vessel; transfer to the water-bath percolator, pack firmly. pour upon them the remainder of the mixture and set in a warm place for two days ; then heat very moderately and after one hour begin to percolate slowly, adding to the drugs, after the liquid has ceased to drop. Alcohol and Water mixed in the proportion of one part of Alcohol to two parts of Water, and continuing the heat and percolation until the drugs are exhausted. Reserve the first 13 fl.ounces that pass, evaporate the remainder to a soft extract, which dissolve in the reserved portion, and add enough of the menstruum last used to make a pint of the fluid extract. Lastly, after standing a few days filter through muslin.

1613. Fluid Extract Skullcap Compound.— Skullcap in No. 20 powder $6\frac{2}{3}$ ounces av., Cypripedium in No. 40 powder 4 ounces av., Hops, Wild Lettuce, each in No. 20 powder 3 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1614. Fluid Extract Senna Compound.—Senna in No. 30 powder $8\frac{2}{3}$ ounces av., Rhubarb in No. 20 powder 4 ounces av., Jalap, Mandrake, each in No. 50 powder 2 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1615. Fluid Extract Spikenard Compound — *Compound Fluid Extract of Aralia.*—Spikenard Root, Yellow Dock Root, Burdock Root,

Guaiac Wood, Sassafras Bark, each in No. 20 powder 2¹/₂ ounces av., Southern Prickly-Ash, Elder Flowers, Blue Flag Root, each in No. 30 powder 2 ounces av., diluted Alcohol a sufficient quantity. Make a pint of Fluid Extract as directed (1330).

1616. Fluid Extract Squill, or Scilla Compound.— Squill in No. 20 powder, Senega in No. 40 powder, each 8¹/₃ ounces av., Water of Ammonia 1/2 fl.ounce, Alcohol 2, Water 1, a sufficient quantity. Make a pint of Fluid Extract as directed (1221), and add the Water of Ammonia.

1617. Fluid Extract Stillingia Compound.—Stillingia, Turkey Corn, each 4 ounces av.. Elder Flowers, Blue Flag, Pipsissewa, each 2 ounces av., Coriander Seed, Prickly-Ash Bark, each 1 ounce av., all in No. 30 powder, Alcohol 2, Water 1, a sufficient quantity. Make a pint of Fluid Extract as directed (1221).

1618. Fluid Extract Wild Cherry Compound.—Wild Cherry in No. 20 powder 8²/₃ ounces av., Hoarhound, Wild Lettuce, each in No. 20 powder 3 ounces av., American Hellebore, Bloodroot, each in No. 40 powder i ounce av.. Alcohol 2, Water 1, a sufficient quantity. Make a pint of Fluid Extract as directed (1221).

Other Compound Fluid Extracts. — The foregoing formula; for Compound Fluid Extracts represent nearly all that are at present quoted by manufacturers, but other combinations will, no doubt, be added, and it is only necessary for the intelligent druggist to follow the data here given to prepare any Compound Fluid Extract that may be desired.

Green Plant Fluid Extracts.

Fluid Extracts prepared from recently gathered herbs, barks, flowers, roots, etc., have been extensively advertised by manufacturing houses, and some of them are deservedly popular with physicians. Although they cannot have the same uniformity of strength as Fluid Extracts prepared from dry drugs, yet many of them are stronger and better, especially such as depend for their medicinal value upon volatile principles, which would be lost by the process of drying. As there is no

standard of strength established for green plant Fluid Extracts except that the liquid shall be saturated with the medicinal properties of the drug, the following general formula, which is adapted for making all of them, is given. These Fluid Extracts are called by some manufacturers concentrated or specific tinctures:

1619. General Formula for Green Plant Fluid Extracts.

The fresh drug, cut, bruised, crushed, dessicated, or otherwise reduced to proper fineness for macerating and percolating, a convenient quantity, Alcohol a sufficient quantity. Having reduced the drug to the proper fineness, pack it in the water-bath percolator, pour sufficient Alcohol upon it to saturate and cover it, and set in a warm place for 2 days; then heat very moderately, and after one hour begin to percolate slowly, and continue until the liquid ceases to drop. Reserve this portion and continue the percolation with Alcohol until the drug is exhausted. Distill the Alcohol from this last portion until the residue is reduced to the consistence of thin syrup, which add to the reserved portion to complete the fluid extract. The Alcohol remaining in the drug after percolation may be recovered by distillation. The following are the drugs from which Green Plant Fluid Extracts are usually prepared. The * denotes that the drug should be macerated as soon as gathered, the † denotes that it should be partly dried before macerating, and the ‡ denotes that the recently gathered drug should be dried or nearly dried before making up. Herbs should be gathered when in flower, roots and barks in the autumn or early spring:

No.	LATIN NAME.	COMMON NAME.	PART USED.
1620	<i>Ailanthus Glandulosa</i> . . .	Chinese Sumac	Root bark, crushed. †
1621	<i>Aletris Farinosa</i>	Star Grass, Unicorn . . .	Root, crushed. †
1622	<i>Amygdalus Persica</i>	Common Peach	Leaves, bruised. *
1623	<i>Arum Triphyllum</i>	Indian or Wild Turnip.	Cormus, mashed.*
1624	<i>Asclepias Tuberosa</i>	Pleurisy or White Root.	Root, crushed. †
1625	<i>Baptisia Tinctoria</i>	Wild Indigo	Root, crushed. †
1626	<i>Berberis Aquifolium</i>	Oregon Grape,	Root, crushed. †
1627	<i>Cimicifuga Racemosa</i>	Black Cohosh	Root, crushed. †
1628	<i>Cactus Grandiflora</i>	Fresh Plant, or	Fresh flowers, bruis'd.*
1629	<i>Cannabis Sativa</i>	American Hemp	Plant, bruised. *
1630	<i>Cereus Bonplandi</i>	Cactus	Plant, mashed. *
1631	<i>Chelidonium Majus</i>	Garden Celandine	Leaves, bruised. *
1632	<i>Chionanthus Virginicus</i>	Fringe Tree	Bark, crushed. †
1633	<i>Collinsonia Canadensis</i>	Stone Root, Ox Balm . . .	Root, crushed. †
1634	<i>Corydalis Formosa</i>	Turkey Corn or Pea . . .	Root, crushed. †
1635	<i>Cypripedium Pubescens</i>	Lady's Slipper	Root, cut and crushed. †
1636	<i>Datura Stramonium</i>	Stramonium	Leaves, bruised. *
1637	<i>Epilobium Paulustre</i>	Wickup	Herb, bruised. *
1638	<i>Eridiction Glutinosum</i>	Yerba Santa	Leaves, bruised. *
1639	<i>Eryngium Aquaticum</i>	Water Eryngo	Root, crushed. *
1640	<i>Euonymus Atropurpureus</i>	Wahoo	Bark, crushed. †
1641	<i>Euphorbia Hipericifolia</i>	Large Spotted Spurge . . .	Leaves, bruised. *
1642	<i>Frankenia Grandifolia</i>	Yerba Rheuma	Plant, cut.
1643	<i>Gelsemium Sempervirens</i>	Yellow Jasmine	Root, crushed. †
1644	<i>Gossypium</i>	Cotton Root	Bark, crushed. †
1645	<i>Grindelia Robusta</i> . . . . .	. . . . .	Herb, bruised. *
1646	<i>Grindelia Squarrosa</i> . . . . .	. . . . .	Herb, bruised. *
1647	<i>Helonias Diocia</i>	False Unicorn	Root, crushed. †
1648	<i>Iris Versicolor</i>	Blue Flag	Root, crushed. †
1649	<i>Juglans Cineria</i>	Butternut	Root bark, crushed. †
1650	<i>Leptandra Virginica</i>	Culver's or Black Root.	Root, crushed. †
1651	<i>Lobelia Inflata</i>	Lobelia	Herb, bruised. *
1652	<i>Lycopus Virginicus</i>	Bugleweed	Herb, bruised. *
1653	<i>Macrotys Racemosa</i>	Black Cohosh	Root, crushed. †
1654	<i>Oenothera Biennis</i>	Evening Primrose	Plant, bruised. *
1655	<i>Penthorum Sedoides</i>	Virginia Stone Crop . . .	Herb, bruised. *
1656	<i>Phytolacca Decandra</i>	Poke, Skoke or Garget.	Root, crushed. †
1657	<i>Polygonum Punctatum</i>	Water Pepper	Herb, bruised. †
1658	<i>Polymnia Uvedelia</i>	Bearsfoot, Leaf Cup . . .	Root, bruised. *
1659	<i>Populus Candicans</i>	Balm or Balsam Gilead.	Buds, bruised. *
1660	<i>Ptelia Trifoliata</i>	Wafer Ash	Bark, crushed. †
1661	<i>Rhus Toxicodendon</i>	Poison Oak or Ivy	Leaves, bruised. †
1662	<i>Rhus Aromatica</i>	Aromatic Sumach	Root bark, crushed. *
1663	<i>Scutellaria Laterifolia</i>	Skullcap	Herb, bruised. *
1664	<i>Senecio Aureus</i>	Liferoot, Lifewort	Herb, bruised. *
1665	<i>Stillingia Sylvatica</i>	Stillingia, Queen's Root	Root, crushed. †
1666	<i>Symplocarpus Foetidus</i>	Skunk Cabbage	Root, crushed. †
1667	<i>Thuja Occidentalis</i>	Arbor Vitæ	Leaves, bruised. *
1668	<i>Veratrum Viride</i>	American Hellebore . . .	Root, crushed. *
1669	<i>Vibunum Prunifolium</i>	Black Haw	Root bark, crushed. †

Acetic Fluid Extracts.

A few Fluid Extracts made with Acetic Acid, instead of an Alcoholic menstruum, have some merit and reputation; as they are all made by the same general formula and with the same menstruum it is unnecessary to repeat the formula for each.

1670. General Formula for Acetic Fluid Extracts.

To complete the formula for any Acetic Fluid Extract, substitute the name of the drug- and the required fineness of powder in the following general formula :

The Drug in No. powder, 16²/₃ ounces av.
 Acetic Acid, 16 fl.ounces.
 Water, a sufficient quantity.

Moisten the powder with the Acetic Acid, and macerate in a closed earthenware, or glass vessel, for twenty-four hours; transfer it to the water-bath percolator, pack moderately, pour upon it a pint of water, and heat at once; after one hour begin to percolate adding water to the drug and continuing the heat and percolation until 14 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with Water until the drug is exhausted. Evaporate the last portion to two fl.ounces and add to the reserved portion to make a pint of the Fluid Extract. After standing a few days filter through muslin.

The following drugs are those from which Acetic Fluid Extracts are usually prepared. They may be made from any other drugs which yield their virtues to Acetic Acid.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1671	Digitalis.....	Foxglove.....	Leaves.....	40
1672	Ergota.....	Ergot.....	Fungus.....	50
1673	Lobelia.....	Indian Tobacco.....	Herb.....	40
1674	Sanguinaria.....	Bloodroot.....	Root.....	50
1675	Scilla.....	Squill.....	Bulb.....	20

To make the 1870 Vinegars of these Fluid Extracts mix two fl.ounces with 14 fl.ounces of water.

To make the 1880 Vinegars, mix $1\frac{2}{3}$ fl.ounces of these Extracts with enough water to make a pint.

To make Syrup of Squill, mix 1 fl.ounce of the Acetic Fluid Extract of Squill with 15 fl.ounces of Syrup.

Aqueous Fluid Extracts.

In this class of Fluid Extracts are included all those in which water is mainly employed for extracting their medicinal virtues, and in which Alcohol would be objectionable, either as a menstruum, or for the uses required. In some, however, Alcohol is added as a preservative.

But few Aqueous Fluid Extracts are used, but it is evident that a larger variety might be employed with advantage by the profession. Any drug which yields its medicinal value to water may very properly be exhibited in an Aqueous Fluid Extract, and the formulas which follow will be sufficiently explicit for making any preparation of this kind that may be desired.

Several Aqueous Fluid Extracts are given in the Br. P. under the name of Liquid Extracts,

1676. Fluid Extract Bael Fruit—*Bela Fructus, Bengal Quince, Ægle Marmelos, Indian Bael.*—Bael Fruit, cut in pieces, 16 ounces av., Water, 12 pints, Alcohol, 3 fl.ounces. Put the Bael Fruit loosely in the water-bath percolator, pour upon it 4 pints of Water and macerate in a warm place for 12 hours, then draw off the liquid by the stop-cock and reserve. Pour on the drug again 4 pints of Water, macerate for two hours and draw off as before. Mix the liquids, evaporate them by gentle heat to 14 fl.ounces, and after straining add 3 fl.ounces of Alcohol to preserve the extract and complete the measure. This is an astringent aromatic demulcent, officinal in the British Pharmacopoeia under the name Liquid Extract of Bael, but little used in this country.

1677. Fluid Extract of Broom Tops, Aqueous—*Sarothamnus Scoparius*.—Broom Tops, in No. 20 powder, $16\frac{2}{3}$ ounces av.. Glycerin, 5 fl.ounces, Water, a sufficient quantity. Moisten the drug with 10 ounces of Water and macerate for 24 hours in a warm place; then pack moderately in the water-bath percolator, pour upon it a pint of Water, heat moderately, and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate to 10 fl.ounces, filter and add through the filter enough Water to make n fl.ounces, then add the Glycerin to make a pint of the fluid extract.

1678. Fluid Extract Cascara Sagrada, Aqueous—*Rhamnus Prushiana*.—Cascara Sagrada Bark in No.30 powder $16\frac{2}{3}$ ounces av., Glycerin 5 fl.ounces, Water, a sufficient quantity. Mix the Glycerin with a pint of Water and having moistened the powder with 10 ounces of the mixture, macerate for 24 hours in a warm place; then pack moderately in the water-bath percolator, pour upon it the remainder of the mixture, heat moderately, and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate, by means of a water-bath to a pint; and after standing a few days filter through muslin. The Br. P. directs *Liquid Extract of Cascara Sagrada* to be made by boiling 1 pound av. of the bark in successive quantities of Water till exhausted, then evaporating the strained liquors to 12 ounces and adding 4 ounces Alcohol. A fluid extract of Cascara Sagrada is also made with Diluted Alcohol as a menstruum, but the Aqueous Extract seems to contain all the valuable medicinal properties of the drug.

1679. Fluid Extract Golden Seal, Aqueous—*Hydrastis without Alcohol. Fluid Hydrastis*.— Golden Seal (*Hydrastis*) in No. 30 powder, $16\frac{2}{3}$ ounces av., Glycerin 6 fl.ounces, Water, a sufficient quantity. Mix the Glycerin with 10 ounces of Water, moisten the powder with 8 ounces of the mixture, and macerate for 24 hours in a warm place; transfer to the water-bath percolator, pack moderately, pour the remainder of the liquid upon it and set in a warm place for two days, then heat moderately and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until 13 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with Water until the drug is exhausted. Evaporate this last portion to 3 fl.ounces, which add to the reserved portion to make a pint of the fluid

extract, and after standing a few days filter through muslin.

1680. Fluid Extract Ipecac, Aqueous.—Ipecac in No. 30 powder $16\frac{2}{3}$ ounces av.. Glycerin 6 fl.ounces, Water, a sufficient quantity. Moisten the powder with 12 ounces of Water and macerate for 24 hours, then pack moderately in the water-bath percolator, pour upon it a pint of Water and heat moderately at once. After one hour begin to percolate slowly, adding Water to the drug, and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate to 10 fl.ounces, filter, and add enough Water through the filter to make 10 fl.ounces; then add the Glycerin to make a pint of the fluid extract. This formula makes a preparation which is essentially the same as the officinal fluid extract; but it is much easier and less complicated to prepare. To make Syrup of Ipecac, mix 1 fl.ounce of this extract with 15 fl.ounces of Syrup.

1681. Fluid Extract Liquorice, Aqueous—*For Quinine Mixtures, etc.*
— Liquorice Root in No. 20 powder $16\frac{2}{3}$ ounces av., Glycerin 5 fl.ounces, Water of Ammonia 3 fl.ounces, Water, a sufficient quantity. Mix the Water of Ammonia with 8 ounces of Water, moisten the drug with the mixture and set in a warm place for one day, then pack moderately in the water-bath percolator, pour upon it a pint of Water, heat at once, and after one hour begin to percolate slowly, adding Water and continuing the heat and percolation until the drug is exhausted. Reserve the first $\frac{1}{2}$ pint that passes, evaporate the remainder to 3 fl.ounces; mix it with the reserved portion, and add the Glycerin to make a pint of fluid extract. After standing a few days filter through muslin. This is an excellent adjuvant for quinine and other bitter medicines. *Liquid Extract of Liquorice* of the Br. P. is made by exhausting 1 pound av. of Liquorice Root with Water by successive maceration and pressures, straining the liquors, evaporating to a sp. gr. of 1.160 when cold, and adding $\frac{1}{6}$ of its volume of rectified spirit.

To make Elixir of Liquorice for quinine mixtures, mix two fl.ounces of this Fluid Extract with six fl.ounces of Syrup of Wild Cherry and half a pint of simple elixir. To make Syrup of Liquorice, mix two fl.ounces of the Fluid Extract with 14 fl.ounces of Syrup.

1682. Fluid Extract of Opium, Aqueous.—Powdered Opium, 4 ounces av., Glycerin, 5 fl.ounces. Water, a sufficient quantity. Pour 8

ounces of Boiling Water upon the Opium, and after macerating for 2 hours, having covered the perforated diaphragm of the water-bath percolator with a coarse piece of muslin, pour the mixture upon it, heat to about 185° F. and begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate by means of a water-bath until it is reduced to 10 fl.ounces, filter and add enough Water through the filter to make the measure 11 fl.ounces, then add the Glycerin to make a pint of the Fluid Extract. Each minim of this Extract represents about 1/4 grain Opium. Manufacturers have no definite standard for Fluid Extract of Opium, many of them making it only the same strength as the Tincture.

The Br. P. directs *Liquid Extract of Opium* to be made so that the finished product shall contain 5 per cent. of Opium.

1683. Fluid Extract Senega, Aqueous — *For making Syrup of Senega.* — Senega Root in No. 20 powder, 16²/₃ ounces av., Glycerin, 5 fl.ounces, Water of Ammonia, 10 fl.ounces. Water, a sufficient quantity. Moisten the powder with 10 ounces of Water and macerate for 24 hours, then pack moderately in the water-bath percolator; pour upon it a pint of Water, heat very moderately and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate to 10 fl.ounces, add the Ammonia and strain through muslin, adding through the strainer enough Water to make the measure 11 fl.ounces, and then add the Glycerin to make a pint of the Fluid Extract. In evaporating this Extract quite a precipitate of albuminous and starchy matter is formed; when the Water of Ammonia is added the valuable portion of this precipitate, *Polygalic Acid*, is dissolved, and the remainder, which is worthless, is retained on the filter.

To make Syrup of Senega mix 2 fl.ounces of this Extract with 14 fl.ounces of Syrup.

1684. Fluid Extract Senna, Aqueous.—Senna, in No. 12 powder, 16²/₃ ounces av., Glycerin, 5 fl.ounces, Water, a sufficient quantity. Pour upon the Senna 4 pints of hot Water and steep with gentle heat for two hours, pour off the Liquid, press the drug gently, and reserve the liquid; pour two pints more of hot water upon it, steep for half an hour, pour off and press as before, adding the liquid to the reserved portion. Again

pour on two pints of Water, steep, pour off and press as before, adding the liquid to the reserved portion. Evaporate the liquid to 10 fl.ounces, strain, add through the strainer enough Water to make 11 fl.ounces, and then add the Glycerin to make a pint of the Fluid Extract.

Aqueous Fluid Extract of Senna does not "gripe" as does that made with a partly Alcoholic menstruum. Senna leaves may be percolated first with Alcohol, to remove the principles which produce griping, and a fluid extract may then be made with Water or Diluted Alcohol, in the ordinary manner.

Fluid Extracts of Gums, Resins, Etc.

Liquid Extracts.

This class of preparations (which are not in fact Fluid Extracts as the term is generally applied, but which might much more properly be called Liquid Extracts) seem superfluous, and would not here be given but for the reason that they are quoted and supplied by many manufacturers and will therefore be demanded by many druggists.

They are seldom used except to prepare tinctures or other preparations which would be much better made from the substances themselves. They generally represent about 50 per cent. of the drug from which they are prepared, although it cannot be said for all of them that they represent as much as is claimed for them.

1690. Fluid Extract of Aloes—*Liquid Extract of Aloes.*—Socotrine Aloes in No. 50 powder 8¹/₃ ounces av., diluted Alcohol a sufficient quantity.

Mix the Aloes with 10 fl.ounces of diluted Alcohol and heat moderately in a tightly-stopped, wide-mouth bottle on a water-bath, for three hours; then strain through muslin and add enough diluted Alcohol through the strainer to make a pint of the Fluid Extract.

To make the 1880 U. S. tincture, mix 3 fl.ounces each of the Fluid Extract of Aloes and the Fluid Extract of Liquorice Extract with 10 fl.ounces of diluted Alcohol.

1691. Fluid Extract Aloes and Myrrh—*Liquid Extract of Aloes and Myrrh.*—Socotrine Aloes in No. 50 powder 4 ounces av., Myrrh in No. 50 powder 4 ounces av., Alcohol a sufficient quantity. Mix the powders with 12 fl.ounces of Alcohol and macerate them for seven days in a warm place, then heat moderately on a water-bath for two hours and strain through muslin, adding through the strainer enough Alcohol to make a pint of the Fluid Extract.

To make Tincture of Aloes and Myrrh mix 6 fl.ounces of this Extract with 10 fl.ounces of Alcohol.

1692. Fluid Extract Asafetida—*Liquid Extract of Asafetida.*—Asafetida in coarse powder $8\frac{1}{3}$ ounces av., Alcohol a sufficient quantity. Mix the Asafetida with an equal bulk of rice chaff and pack moderately in the water-bath percolator; pour upon it sufficient Alcohol to saturate and cover the drugs, and set in a warm place for seven days; then heat very moderately and after one hour begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until a pint of the Fluid Extract has passed. This preparation seems entirely unnecessary, and would not be given here except that several manufacturers quote such a Fluid Extract for making Tincture of Asafetida.

To make Tincture of Asafetida mix 6 fl.ounces with 10 fl.ounces of Alcohol.

1693. Fluid Extract Benzoin—*Liquid Extract of Benzoin.*—Benzoin in No. 50 powder, $8\frac{1}{3}$ ounces av., Alcohol, a sufficient quantity. Mix the powder with a pint of Alcohol and macerate in a warm place for 3 days, then, having covered the perforated diaphragm of the water-bath percolator with a piece of coarse muslin or burlap, pour the mixture upon it, heat moderately for two hours ; then begin to percolate slowly, adding Alcohol to the drug after the percolate has ceased to drop, and continuing the heat and percolation until a pint of the Fluid Extract is obtained.

To make Tincture of Benzoin mix 6 fl.ounces of this Fluid Extract with 10 fl.ounces of Alcohol.

1694. Fluid Extract Benzoin Compound—*Liquid Extract of Benzoin Compound.* — Benzoin, in No. 50 powder, $6\frac{1}{2}$ ounces av.,

Purified Aloes, No. 50 powder, 1 ounce av., Storax, 4¹/₂ ounces av., Balsam Tolu, 2¹/₄ ounces av., Alcohol, a sufficient quantity. Mix the gums with a pint of Alcohol and macerate in a warm place for 3 days, then, having covered the perforated diaphragm of the water-bath percolator with a piece of coarse muslin or burlap, pour the mixture upon it, heat moderately for two hours ; then begin to percolate, adding Alcohol to the drugs when the percolate has ceased to drop, and continuing the heat and percolation until a pint of the Fluid Extract is obtained.

To make Compound Tincture of Benzoin mix 4 fl.ounces of this Fluid Extract with 12 fl.ounces of Alcohol.

1695. Fluid Extract of Catechu — *Liquid Extract of Catechu.* — Catechu, in coarse powder, 8¹/₃ ounces av., Alcohol, 4 fl.ounces, Water, a sufficient quantity. Mix the Catechu with a pint of Water, and heat it on a water-bath until the Catechu is dissolved; strain through coarse muslin and evaporate the liquid to 12 fl.ounces; when cool add the Alcohol, strain through muslin and add enough Water through the strainer to make a pint of the Fluid Extract.

To make Compound Tincture of Catechu mix 3¹/₄ fl.ounces of this Extract with 2¹/₂ fl.ounces of Fluid Extract of Cinnamon and enough Diluted Alcohol to make a pint.

1696. Fluid Extract of Guaiac — *Liquid Extract of Guaiac.* — Guaiac Resin, in coarse powder, 8¹/₃ ounces av., Alcohol, a sufficient quantity. Mix the Guaiac with 12 fl.ounces of Alcohol in a wide mouth bottle, and heat moderately on a water-bath for 3 hours, then strain through muslin; add enough Alcohol through the strainer to make a pint of the Fluid Extract.

To make the Tincture, mix 5¹/₂ fl.ounces with 10¹/₂ fl.ounces of Alcohol.

1697. Fluid Extract Kino — *Liquid Extract of Kino.* — Kino in No. 40 powder, 6 ounces av.. Glycerin, 4 fl.ounces, Alcohol, a sufficient quantity. Mix the Glycerin with 8 fl.ounces of Alcohol and, having mixed the Kino with the liquid in a wide mouth bottle, stop tightly, and

heat gently on a water-bath until the Kino is dissolved, then strain through muslin and add through the strainer enough Alcohol to make the measure a pint.

Two fl.ounces of this Extract mixed with n fl.ounces of Alcohol and 3 fl.ounces of Water makes the officinal tincture.

1698. Fluid Extract Liquorice Extract — *Liquid Extract of Liquorice.* — Extract Liquorice, in No. 50 powder, 8 ounces av., Alcohol, 4 fl.ounces, Water, a sufficient quantity. Mix the Liquorice with a pint of Water and heat it on a water-bath until the Liquorice is dissolved : strain through muslin and evaporate to 12 fl.ounces; when cool add the Alcohol; strain through muslin, and add through the strainer enough Water to make a pint of the fluid extract.

1699. Fluid Extract Myrrh—*Liquid Extract of Myrrh.*—Myrrh in moderately fine powder $8\frac{1}{3}$ ounces av., Alcohol, a sufficient quantity. Mix the Myrrh with an equal bulk of rice chaff, pack it moderately in the water-bath percolator, pour upon it a pint of Alcohol and set in a warm place for seven days; then heat very moderately, and after one hour begin to percolate slowly, adding Alcohol to the drug and continuing the heat and percolation until 14 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with the reserved portion to make a pint of fluid extract. To make Tincture of Myrrh, mix $5\frac{1}{2}$ fl.ounces of this fluid extract with enough Alcohol to make a pint.

1703. Fluid Extract Tolu—*Liquid Extract of Tolu.*—Balsam of Tolu $8\frac{1}{3}$ ounces av., Alcohol, a sufficient quantity. Mix the Balsam with 8 ounces of Alcohol in a wide mouth bottle, and, having stopped it tightly, heat on a water-bath until the Balsam is dissolved ; then strain through muslin and add enough Alcohol through the strainer to make a pint of the fluid extract.

To make the 1870 Tincture of Tolu, mix $3\frac{1}{4}$ fl.ounces of this extract with enough Alcohol to make a pint.

To make the 1880 Tincture, mix $2\frac{3}{4}$ ounces with enough Alcohol to make a pint.