

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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GELATINA — GELATIN.

When animal tissues, bones, tendons, ligaments, etc., are boiled for some hours in water, and the water allowed to stand sometime after becoming cold, a mass resembling jelly is obtained. The finer varieties of this jelly thus prepared are purified, evaporated to the proper consistence, spread into sheets, dried on nets, and are known as *Gelatin*. The coarser varieties, made from hoofs, hides and other refuse animal substances, are made into *Glue* of various grades. *Isinglass*, or *Fish-glue*, is a species of Gelatin prepared from the air bladders of certain fish; but common Gelatin is often called Isinglass.

Gelatin, prepared in various ways, is largely consumed as an article of food ; in the arts it is extensively used for adhesive purposes, for making Gelatin compositions, for making Gelatin plates for photography, etc.; in pharmacy it is employed for coating pills, making capsules, suppositories, etc., for fining wines and liquors, and for many other useful purposes.

1742. Gelatin Capsules.—A solution of 1 part of Cox's or French Gelatine in 4 parts of Water is made by first soaking the Gelatin for an hour or two in the Water, then heating until the Gelatin is dissolved, and straining the solution. Metal molds of the proper shape are then dipped in the solution, which is heated by a water-bath, and when cool, but still pliant, the Gelatin is removed from the molds, and may be filled with any liquid and the orifice closed with a drop of the Gelatin solution, or may be left empty (as they are now largely used) for filling with powdered substances, quinine, etc. For some purposes a small proportion — say 5 per cent.— of glycerin is added to the solution, making them more elastic. *Medicinal Pearls*, which contain ether, volatile oils, etc., are made of similar material but by different processes.

1743. Gelatin Coating.— For coating pills with Gelatin a solution may be made with Gelatin 2 parts. Gum Arabic 1 part. Water 9 parts. The Gum Arabic must first be dissolved in the Water, the Gelatin soaked with the solution, and the mixture then heated by water-bath and strained. The solution is kept heated by water-bath, and the pills, stuck on needles or pins, are dipped in the solution and revolved in the air until the coating is sufficiently firm to remove the pills from the pins. This makes a fine soluble coating for pills. Various Gelatin-coating pill

machines are in use.

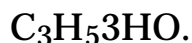
1744. Gelatin Suppositories.— For making medicated suppositories, bougies, etc., with elastic Gelatin, 3 parts of Gelatin are soaked in 2 parts of Water and then dissolved by heat and 7 parts of Glycerin added. The solution is then strained and the required medicinal substances added, thoroughly mixed, and the mixture poured into molds of suitable shape. If insoluble substances are added, the mixture must be stirred until the moment it is run into the molds, and the molds chilled with ice. Gelatin Suppositories are not so readily soluble as those made with a cacao butter base, and cannot be recommended as a good form of medication. Tannin is incompatible with Gelatin, forming an insoluble compound, therefore cannot well be used in Gelatin Suppositories.

1745. Liquid Glue.—Acids dissolve Glue, and acid solutions of Glue are used as Liquid Glue and Cement, being more convenient to apply in this form. The following formula; may be used :

Dissolve 4 ounces of good Glue or Gelatin in a pint of Acetic Acid, by the aid of gentle heat, and add 20 drops of Nitric Acid, 5 drops Oil of Cloves, and 1 ounce Glycerin. Or

Dissolve 5 ounces of good glue in a pint of Water, by the aid of heat, and add 1 ounce of Nitric Acid.

1748. GLYCERINUM—GLYCERIN.



Glycerin, as it is found in the market, is a sweet, viscid, colorless liquid, of about 125 sp. gr. and the consistence of thick syrup. It was first made known by Scheele, in 1779, and was formerly prepared as a by product of the manufacture of lead plaster and soap, being now sometimes called for as *Oil of Soap*. At present it is made commercially by distillation, the process consisting in decomposing fats by super-heated steam, under high pressure, the stearine of the fats (which is propenyl tristearate) uniting with the elements of water to form Glycerin and Stearic Acid.

Chemically, Glycerin is the hydrate of the radical *Glyceryl* or *Propenyl*,

C₃H₅, and is classed with the Alcohols, being known as *Glyceric Alcohol*, *Propenyl Alcohol*, or *Glycerol*.

Glycerin is extensively used in the arts for various purposes, and in pharmacy ranks next to Alcohol as a preservative of medicinal solutions and a solvent of medicinal agents. It is employed in making many fluid extracts, both as a preservative and a solvent; it is used as an addition to solid extracts, keeping them soft and pliable, and in making many solutions, syrups, tinctures, and like preparations. In medicine it is used to allay inflammation and irritation, both external and internal, and it is a familiar household application for chaps, sunburn, etc. It should be somewhat diluted before it is applied, because of its affinity for moisture. The dose internally is a teaspoonful or more.

GLYCERITA—GLYCERITES. U. S.

Glycerina — Glycerines. Br.

Glycerites or Glycerines are preparations in which Glycerin is used as the solvent of the medicinal agents, or the medium by which it is exhibited. Two Glycerites are official in the U. S. and eight Glycerines in the Br. Pharmacopoeia. Many more are supplied under various names, as *Glycerols*, etc., by manufacturing pharmacists. The following are those official in the U. S. and Br. Pharmacopoeias, most of them being intended for external application. Many of those official in the present Br. P. were official in the 1870 U. S. P., but have been deleted.

1757 Glycerinum Tragacanthae. Br.

Glycerine or Glycerite of Tragacanth.

Tragacanth, in powder,	110 grains or 3 parts.
Glycerin,	1 fl.ounce or 12 fl.parts.
Distilled Water,	1 ¹ / ₄ fl.drachm or 2 fl.parts.

Mix the Tragacanth with the Glycerin in a mortar, add the Water and rub until a translucent homogeneous jelly is produced.

Other Glycerites.

The following Glycerites are not official in any Pharmacopoeia, but some of them are considerably used.

1760. Glycerite of Arnica.

Fluid Extract of Arnica,	2 fl.ounces.
Glycerin,	6 fl.ounces.
Water,	4 fl.ounces.
Alcohol,	4 fl.ounces.

Mix the Fluid Extract, Alcohol, and Water and filter the mixture clear, then add the Glycerin.

1762. Glycerite of Calendula.

Calendula (Marigold Flowers).	3 ounces av.
Glycerin,	8 fl.ounces.
Water, sufficient to make	1 pint.

Mix the Glycerin with 8 ounces of Water, moisten the flowers with the mixture and make a tincture by water-bath percolation, adding Water to the drug sufficient to make a pint of the percolate.

1774. Glycerite of Yerba Santa Compound.

Fluid Extract of Yerba Santa,	2 fl.ounces.
Fluid Extract Grindelia,	1 fl.ounce.
Fluid Extract Wild Cherry,	1 fl.ounce.
Fluid Extract Liquorice,	1 fl.ounce.
Bromide of Potassium,	160 grains.
Salicylic Acid,	80 grains.
Tar,	80 grains.
Glycerin,	8 fl.ounces.
Water,	4 fl.ounces.
Carbonate of Magnesium,	1 ounce av.

Mix the Fluid Extracts and Tar and rub with the Carbonate of Magnesium in a mortar, mix the Glycerin and Water and rub with the mixture in the mortar, filter and dissolve the Bromide of Potassium and

Salicylic Acid in the filtrate. The dose is a teaspoonful or more for cough, asthma, etc.

INFUSA—INFUSIONS.

Infusions are preparations in which the medicinal strength of the drug is obtained by infusing or steeping it in hot Water without boiling. They were formerly much used, but on account of the superior convenience and greater reliability of fluid extracts and other modern galenicals are now but little employed except by the "old-time" physicians. The present U. S. P. contains but 5 of the 31 infusions that were formerly official. The Br. P. contains 28.

As infusions (with the exception of Infusion Digitalis) contain no Alcohol or other preservative, they will keep only for a short time, and must be freshly made when wanted.

It has become the custom in this country, when infusions are wanted for prescriptions, to mix the fluid extract of the drug directed, an equivalent quantity, with the Water directed to be used. This practice, although very convenient, is not to be commended.

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

1795. General Formula for Infusions.

The U. S. P. gives a general formula for infusions not specified in the Pharmacopoeia, from which they may be prepared as follows :

The substance coarsely comminuted,	10 parts or 1 ounce av.
Boiling Water,	100 parts or 10 fl.ounces.
Water, a sufficient quantity.	

Put the substance into a suitable vessel provided with a cover, pour upon it the boiling Water, cover the vessel tightly and let it stand for two hours. Then strain, and pass enough Water through the strainer to make the infusion weigh 100 parts or measure 10 fl.ounces.

BY WATER-BATH PERCOLATION.

It is evident from the nature of Infusions that the water-bath percolator is the most convenient vessel in which to make them.

This formula may be used for making all Infusions which may be prescribed or directed, except those for which formulae are given:

The substance, coarsely ground, 1 part or ounce.
Water, sufficient to make 10 parts or 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 two-thirds full of Water, heat to boiling, continue the heat moderately for half an hour and draw off the liquid by the stop-cock, adding enough Water through the percolator to make 10 parts of the preparation.

1796. *Infusum Brayerae.*

Infusion of Brayera (Konso).

Brayera, in No. 20 powder, 6 parts or 1 ounce av.
Boiling Water, 100 parts or 1 pint.

Pour the boiling Water upon the Brayera and let it macerate in a covered vessel until cool.

This is to be dispensed, powder and all, in doses of from 4 to 8 fl.ounces.

1799. *Infusum Pruni Virginianae.*

Infusion of Wild Cherry.

Wild Cherry, in No. 40 powder, 307 grains.
Water, sufficient to make a pint.

Moisten the powder with 6 fl.drachms of Water and macerate for one hour; then pack firmly in a conical glass percolator, and gradually pour Water upon it until a pint of the Infusion is obtained.

This Infusion is made with cold Water because the heat of boiling Water volatilizes the Hydrocyanic Acid, to which its flavor and value is due. The dose is 1 to 2 fl.ounces.

1800. Infusum Sennae Compositum.

Compound Infusion of Senna—Black Draught.

Senna,	6 parts or 1 ounce av.
Manna,	12 parts or 2 ounces av.
Sulphate of Magnesium,	12 parts or 2 ounces av.
Fennel, bruised,	2 parts or $\frac{1}{3}$ ounce av.
Boiling Water,	100 parts or 1 pint.
Water, a sufficient quantity.	

Pour the boiling Water upon the solid ingredients and macerate in a covered vessel until cold. Then strain and add enough Water through the strainer to make the Infusion weigh 100 parts.

The Compound Infusion of Senna, Black Draught, or *Vienna Draught* (Wiener Trank) of the German Pharmacopoeia is as follows: Senna, cut, 5 parts, boiling Water 30 parts. Heat them by means of a steam-bath for five minutes, when cold, strain and dissolve in the infusion Tartrate of Potassium and Sodium 5 parts. Manna 5 parts. The dose of Infusion of Senna Compound, as a laxative is from 1 to 2 fl.ounces, as a brisk purgative 4 to 6 fl.ounces.

Other Infusions.

The following are the official Infusions of the 1883 Br. P. Most of these were formerly official in the U. S. P. The dose of all the following, unless otherwise noted, is from 1 to 2 fl.ounces:

1801. Infusum Anthemidis—*Infusion of Chamomile.*—Chamomile Flowers $\frac{1}{2}$ ounce, boiling Distilled Water 10 fl.ounces. Infuse for 15 minutes in a covered vessel and strain.

1802. Infusum Aurantii—*Infusion of Orange Peel.*—Bitter Orange Peel cut small $\frac{1}{4}$ ounce, boiling distilled Water 10 fl.ounces. Infuse for

15 minutes in a covered vessel and strain.

1803. Infusum Aurantii Compositum—*Compound Infusion of Orange Peel*.—Bitter Orange Peel cut small $\frac{1}{4}$, ounce, Fresh Lemon Peel cut small, 56 grains, Cloves bruised 28 grains, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for 15 minutes and strain.

1804. Infusum Buchu — *Infusion of Buchu*.—Buchu Leaves, bruised $\frac{1}{2}$. ounce, boiling, distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

1805. Infusum Calumbae—*Infusion of Calumba*.—Calumba Root cut small $\frac{1}{2}$ ounce, cold distilled Water 10 fl.ounces. Macerate in a covered vessel (without heat) for half an hour and strain.

1806. Infusum Caryophylli—*Infusion of Cloves*.—Cloves bruised $\frac{1}{4}$ ounce, boiling distilled Water, 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

1807. Infusum Cascariillae—*Infusion of Cascarilla*.—Cascarilla Bark in No. 20 powder 1 ounce, boiling distilled Water 10 fl.ounces. Infuse for half an hour in a covered vessel and strain.

1808. Infusum Catechu—*Infusion of Catechu*.—Catechu in coarse powder 160 grains, Cinnamon Bark bruised 30 grains, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

1809. Infusum Chiratae—*Infusion of Chiretta*.—Chiretta, cut small $\frac{1}{4}$ ounce, distilled Water at 120° F. 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

1811. Infusum Cuspariae—*Infusion of Cusparia*.—Cusparia Bark in No. 40 powder $\frac{1}{2}$ ounce, distilled Water at 120° F. 10 fl.ounces. Infuse in a covered vessel for one hour and strain.

1812. Infusum Cusso—*Infusion of Kousso*.—Kousso in coarse powder $\frac{1}{2}$ ounce, boiling distilled Water 8 fl.ounces. Infuse in a covered vessel

for 15 minutes. Not to be strained. Dose 4 to 8 fl.ounces. This is similar to the U. S. Infusion of Koussou.

1813. Infusum Digitalis—Infusion of Digitalis.—Foxglove Leaves, dried 28 grains, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for 15 minutes and strain. Dose, 2 to 4 fl.drachms. This is only about half the strength of the U. S. Infusion of Digitalis.

1814. Infusum Ergotae — Infusion of Ergot.—Ergot crushed $\frac{1}{4}$ ounce, boiling, distilled Water, 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

1815. Infusum Gentianae Compositum—Compound Infusum of Gentian.—Gentian Root, sliced, Bitter Orange Peel cut small, of each, 55 grains, Fresh Lemon Peel, cut small $\frac{1}{4}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

The U. S. 1870 Compound Infusion of Gentian, which is still considerably used, was Gentian $\frac{1}{2}$ tr.ounce, Bitter Orange Peel, Coriander Seed, each 60 grains. Alcohol 2 fl.ounces. Water sufficient to make a pint. The Alcohol was mixed with 14 fl.ounces of Water and the drugs percolated with the mixture.

1816. Infusum Jaborandi—*Infusion of Jaborandi*.—Jaborandi, cut small $\frac{1}{2}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour and strain.

1817. Infusum Krameriae—*Infusion of Rhatany*.—Rhatany Root $\frac{1}{2}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour, and strain.

1818. Infusum Lini—*Infusion of Linseed*.—Linseed 150 grains. Dried Liquorice Root, in No. 20 powder 50 grains, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for two hours, and strain.

1819. Infusum Lupuli—*Infusion of Hop*.—Hop $\frac{1}{2}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for one hour, and strain.

1820. Infusum Maticae—*Infusion of Matico*.—Matico Leaves, cut small $\frac{1}{2}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour, and strain.

1821. Infusum Quassiae—*Infusion of Quassia*.—Quassia Wood, in chips 55 grains, cold distilled Water 10 fl.ounces. Macerate in a covered vessel (without heat), for half an hour, and strain.

1822. Infusum Rhei — *Infusion of Rhubarb*.—Rhubarb Root, in thin slices $\frac{1}{4}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour, and strain.

1823. Infusum Rosae Acidum—*Acid Infusion of Roses*.—Dried Red Rose Petals, broken up, $\frac{1}{4}$ ounce. Diluted Sulphuric Acid 1 fl.drachm, boiling distilled Water 10 fl.ounces. Add the Acid to the Water, infuse the petals in the mixture in a covered vessel for half an hour, and strain.

1824. Infusum Senagae—*Infusion of Senega*.—Senega Root in No. 20 powder $\frac{1}{2}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour, and strain.

1825. Infusum Sennae—*Infusion of Senna*.—Senna 1 ounce, Ginger, sliced 28 grains, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour, and strain.

1826. Infusum Serpentariae — *Infusion of Serpentry*.—Serpentry Root in No. 20 powder $\frac{1}{4}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for half an hour, and strain.

1827. Infusum Uvae Ursi—*Infusion of Bearberry*.—Uva Ursi Leaves, bruised $\frac{1}{2}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for one hour, and strain.

1828. Infusum Valerianae—*Infusion of Valerian*.—Valerian Rhizome, bruised $\frac{1}{4}$ ounce, boiling distilled Water 10 fl.ounces. Infuse in a covered vessel for one hour, and strain.

The foregoing Infusions include all that are at present official in the U. S., Br. and G. Pharmacopoeias, and all for which there is generally a demand; if others are desired, they may be made by the general directions in the beginning of this article.

LAC-MILK.

Milk obtained from the mammary glands of the cow, goat, or mare is the source of many important articles employed in pharmacy and medicine. It consists of about 85 per cent. of water and 15 per cent. of solid constituents, the most important of which are butter (327), casein, of which cheese is made, and milk-sugar. The following are the preparations used in pharmacy which are derived from milk:

1833. Condensed Milk.—Made by evaporating Milk in vacua at a low temperature until most of its water has been vaporized and it is reduced to the consistence of an extract. It is only made by large manufacturing establishments, and is usually put up in sealed cans. It may be used advantageously for making emulsions.

1834. Koumiss.— This is milk prepared as a beverage or nutritive drink for invalids. It was first introduced by the Russians, who made it by fermenting mare's milk, but is now made quite extensively in this country from cow's milk, by adding to one gallon of skimmed sweet Milk 4 ounces of white Sugar and a cake of Vienna Yeast. This is allowed to stand in a warm place for a few hours and is then transferred to pint or quart bottles, which are tightly stopped and set in a warm place for a few hours to ferment and then put on their sides in a cool cellar. In about three days it is ready for use. Koumiss does not keep a great while, and when opened, like champagne, loses its gas and becomes worthless. Small quantities, as wanted for use, may be drawn from the bottles by a champagne tap.

LINIMENTA—LINIMENTS.

Liniments in pharmacy are solutions or liquid mixtures intended for external application, and generally applied by rubbing on the skin with friction, for reducing swellings, relieving pain, etc. A great number of proprietary liniments are also recommended for internal use as well as

application. Under this heading only, the liniments which are official in the U. S., Br. or German Pharmacopoeias will be noticed. Those popular as proprietary remedies will be found under *The Standard Remedies*, etc.

The following are the formula; for liniments official in the U. S., Br. and German Pharmacopoeias:

1840. Linimentum Aconiti—*Aconite Liniment*.—Aconite Root in No. 40 powder 20 ounces av., Camphor 1 ounce av., Rectified Spirit, a sufficient quantity to make 30 fl.ounces (Imperial measure). Mix the Aconite with 20 fl.ounces of the spirit and macerate in a closed vessel for three days, agitating occasionally; then transfer to a percolator, and when the liquor ceases to pass continue the percolation with more of the spirit, allowing the liquor to drop into a receiver containing the Camphor, until the product measures the quantity above stated, Br.

1842. Linimentum Belladonnae—*Belladonna Liniment*.—The U. S. formula is. Fluid Extract of Belladonna (root) 95 parts or 9¹/₂ fl.ounces Camphor 5 parts or ¹/₂ ounce av. Dissolve the Camphor in the Fluid Extract.

The Br. P. directs a strong tincture of Belladonna Root to be made in the same manner and in the same proportion as is directed for making Linimentum Aconiti, and Camphor 1 ounce av. to be dissolved in the tincture thus prepared to make 30 flounces (Imperial measure).

1844. Linimentum Camphorae — *Camphor Liniment, Camphorated Oil*. — The U. S. formula is. Camphor 20 parts or 3 ounces av., Cotton Seed Oil 80 parts or 12 ounces av. The Camphor is to be dissolved in the Oil. The Br. P. directs Olive Oil in the same proportion in place of the Cotton Seed Oil. The G. P., under the name Oleum Camphoratum, directs 1 part of Camphor to be dissolved in 9 parts of Olive Oil, making a preparation only about two thirds the strength of Camphor as the U. S. or Br.

1849. Linimentum Crotonis—*Liniment of Croton Oil*.—This is official in the Br. P., the formula being Croton Oil 1 fl.ounce, Oil of Cajuput 3¹/₂ fl.ounces, Rectified Spirit 3¹/₂ fl.ounces.

1856. Linimentum Sinapis Compositum—*Compound Mustard Liniment*.— The U. S. formula is, Volatile Oil of Mustard 3 parts or 1 fl.drachm, Extract of Mezereum 2 parts or 40 grains, Camphor 6 parts or 120 grains, Castor Oil 15 parts or 6 fl.drachms, Alcohol, sufficient to make 100 parts or 5¹/₂ fl.ounces. Dissolve the extract in 70 parts or 4 fl.ounces of Alcohol, then add the Oil of Mustard and the Castor Oil, and, finally, enough Alcohol to make 100 parts or 5¹/₂ fl.ounces. The Br. formula is about the same.

MALTUM — MALT.

Grain, such as barley, oats, rye, maize, etc., in which a portion of the starch has become converted into sugar by molting is called malt. Barley and rye are the cereals usually employed for making malt, but other grains are sometimes used. The process of malting in brief consists in macerating the grain with just sufficient water to cover it, for 24 to 48 hours, during which time the water is mostly absorbed. The superfluous water is then drained off and the grain is deposited in heaps on the floor, where it is allowed to stand for 24 to 26 hours, during which time partial germination takes place, with a rise of temperature of about 10° F. It is then spread thickly on the floor and repeatedly turned with wooden shovels for some time. When the grain has germinated sufficiently (which it requires experience to determine) it is thrown into a kiln and kiln-dried until the water has evaporated and it is gradually heated to about 150° F. As thus prepared it constitutes the Malt used by brewers. The changes that occur in barley are shown by the following table. They are similar in other grains:

	Composition of Barley.	Composition of Malt.
Hordeine,	55	12
Starch,	32	56
Sugar,	5	15
Gluten,	3	1
Gum,	4	15
Resin,	1	1
	100	100

The chief changes that occur, therefore, are the transformation of the hordeine (a form of starch peculiar to barley) into starch, sugar, and gum.

2084. Extract of Malt.

The process of making Extract of Malt has previously been referred to (1038), the changes consisting in the conversion of starch, by the action of diastase, aided by heat, first into dextrin and then into grape sugar. It is a thick syrup similar to glucose.

The value of Extract of Malt, aside from its nutritive value as food, depends upon the quantity of *Diastase* which it contains, and which acts in the same manner as the *Ptyalin* of saliva to digest starch, one part being sufficient to dissolve 2,000 parts of starch. This Diastase is a ferment peculiar to the germination of grains and seeds, and is developed in the process of malting, its action of converting starch into sugar being cut short by the drying of the germinating grain.

In making Extract of Malt great care must be exercised to preserve the excess of Diastase for the reasons above stated. The coarsely-ground Malt is first dampened with water heated to about 150° F., then firmly packed in the water-bath percolator, which is surrounded with water at about the same temperature. It is then covered with water heated to about 150° F. and allowed to stand for two hours, the heat being maintained at the same temperature. The percolation is then begun and water, heated to the specified temperature, added to the Malt until the percolate has no longer a perceptibly sweet taste. As the percolate is received it must be at once placed in the evaporating apparatus, which should be a water-bath, by which the heat maybe maintained at about 130° F., and the evaporation is to be conducted at that temperature until the product is concentrated to a thick syrup of 36° Baume, or of which a pint will weigh 1½ pound av. As thus prepared Extract of Malt contains all its valuable properties unimpaired, and may be used as the basis for any of the various combinations which are called for.

Uses.— Extract of Malt is a valuable aid to digestion of amylaceous food, and is in itself a nutritive and tonic. It is given in doses of a tablespoonful or more.

Maltine.—Maltine is a proprietary Malt Extract, made by the Maltine

Manufacturing Co., Yonkers, on the Hudson. It is claimed to be made of malted barley, wheat, and oats, equal parts, in the same general manner as has been described for making Extract of Malt. It is used for the same purposes and in the same manner as the foregoing. The formulas which are given for Malt Extract combinations apply to Maltine as well.

2085. Liquid Malt Extract.

The thick Extracts of Malt which have previously been described are inconvenient for some forms of medication, a more limpid extract being much more desirable. In the thick Malt Extracts, also, a great portion of the Diastase has been required to convert the starchy matters into sugar, the excess, which was not required for that purpose, only being available. In the Liquid Malt Extracts it is aimed to retain the diastase and valuable extractive matter of the Malt without the conversion of its starch into sugar (as that only serves as a food which may be more cheaply supplied from other sources), and a consequent saving of Diastase. The following formula is designed, to secure this result:

Barley Malt, coarsely ground,	2 pounds av.
Hops (new crop), coarsely ground,	2 ounces av.
Alcohol,	2 pints.
Water, a sufficient quantity.	

2117. Malt Extract with Cascara Sagrada.—This may be made by mixing 1 fl.ounce of Fluid Extract Cascara Sagrada with 15 fl.ounces of Malt Extract. It is best combined with Liquid Malt Extract. It is a valuable laxative, in doses of a tablespoonful or more.

2118. Malt Extract with Viburnum.—Mix 1 fl.ounce Fluid Extract of Black Haw with 15 fl.ounces Liquid Extract of Malt. Dose, a tablespoonful as a tonic for female difficulties, etc.

2119. Malt Extract with Wafer Ash.—Mix 1 fl.ounce Fluid Extract Ptelea or Wafer Ash Bark with 15 fl.ounces Malt Extract. Used for a tonic, dyspepsia, etc. Dose, a dessertspoonful or more. Many other combinations of Malt Extract or Liquid Malt Extract with fluid extracts of tonics, laxatives, etc., may be used to advantage.

2120. Malt Extract with Yerba Santa.—Mix 1 fl.ounce Fluid Extract

Yerba Santa with 15 fl.ounces of Malt Extract. As a carrier for Quinine and other bitter medicines this preparation cannot be excelled.

The following combinations of Malt Extract have a popular sale as proprietary medicines, and may be readily and profitably put up by druggists :

2121. Malt Bitters.

Bitter Orange Peel,	4 ounces av.
Wahoo Bark,	2 ounces av.
Cardamom Seeds,	1 ounce.
Cinnamon Bark,	1 ounce.
Good Whisky,	3 pints.
Water,	2 ¹ / ₂ pints.
Liquid Malt Extract,	3 pints.

Grind the drugs to a coarse powder and percolate in the water-bath percolator with the mixed Whisky and Water, then add the Liquid Malt Extract to the percolate, and filter or strain. The dose is a tablespoonful to a wine-glassful.

MELITA—HONEYES.

Honey is a saccharine secretion deposited by the Honey Bee, *Apis Mellifica*, in honey comb. In pharmacy strained or drawn Honey only is employed as a basis of Honey preparations and sold or dispensed in medicine. The following preparations of Honey are official. They are thick, syrupy preparations, used chiefly for their local effect or as carriers for medicinal substances.

2141. Mel Despumatum. U. S.

Clarified Honey.

Honey, a convenient quantity. Heat by means of a water-bath, remove the scum, and strain.

The Br. and German Pharmacopoeias, under the title of *Mel*

Depuratum, direct similar methods of preparing it.

This is used for making confections, oxymel, etc.

2142. Mel Boracis. Br.

Borax Honey.

Borax, in fine powder,	60 grains or 2 parts.
Glycerin,	30 grains or 1 part.
Clarified Honey,	480 grains or 16 parts.

Mix them. This is used for cankered mouth and throat.

2143. Mel Rosae. U. S.

Honey of Rose.

Red Rose, in #40 powder,	8 parts or 2 ounces av.
Clarified Honey,	92 parts or 23 ounces av.
Diluted Alcohol,	a sufficient quantity.

Moisten the powder with 2 parts or $\frac{1}{2}$ fl.ounce of diluted Alcohol, pack it firmly in a conical glass percolator and gradually pour diluted Alcohol upon it until 33 parts or 8 fl.ounces of percolate are obtained. Reserve the first 3 parts or 6 fl.drachms of the percolate, evaporate the remainder by means of a water-bath to 5 parts or 10 fl.drachms, add the reserved portion, and mix the whole with the clarified Honey. The German formula produces-a similar preparation. This is used in making several washes and confections.

The following Oxymels, official in the Br. P., may quite properly be included under this heading:

2144. Oxymel. Br.

Clarified Honey,	40 ounces or 8 parts.
Acetic Acid,	5 fl.ounces or 1 fl.part.
Distilled Water,	5 fl.ounces or 1 fl.part.

Liquefy the Honey by heat and mix with the Acetic Acid and Water.

The dose is i to 2 fl.drachms for coughs, etc.

2145. Oxy mel Scillae. Br.

Oxymel of Squill.

Vinegar of Squill,	1 pint or 5 fl.parts.
Clarified Honey,	2 pounds or 8 parts.

Mix and evaporate by a water-bath until the product, when cold, shall have a specific gravity of 1.32.

This is used for coughs, in doses of 1/2 to a teaspoonful.

MISTURAE — MIXTURES.

The term Mixture is applied in Pharmacy to aqueous liquid preparations which contain insoluble substances suspended or precipitated, and are intended for internal use or administration. In a popular sense the name Mixture is applied to a great variety of preparations, many of which are emulsions, solutions, syrups, tinctures, etc. Under this heading the Mixtures official in the U. S. and Br. Pharmacopoeias will first be given and then the more important unofficial Mixtures which are not more naturally included under other headings. See, also, Proprietary Medicines, the Standard Remedies, etc.

2147. Mistura Amygdalae.

Almond Mixture.

The U. S. formula is:

Sweet Almonds,	6 parts or 240 grains.
Acacia, in fine powder,	1 part or 40 grains.
Sugar,	3 parts or 120 grains.
Distilled Water,	100 parts or 9 fl.ounces.

Having blanched the Almonds, add the Acacia and Sugar and beat

them in a mortar until thoroughly mixed; then rub the mixture with the distilled Water, gradually added, and strain.

The Br. formula is compound powder of Almonds 2 ounces, distilled Water 16 fl.ounces, rubbed together and strained.

This is a bland mixture, used for irritable stomach, coughs, etc. Dose 1 to 2 fl.ounces.

2148. Mistura Asafoetidae. U. S.

Asafetida Mixture.

Asafetida,	4 parts or 18 grains.
Water,	100 parts or 1 fl.ounce.

Rub the Asafetida with the Water, gradually added, until they are thoroughly mixed, and strain.

The dose is a dessertspoonful to a tablespoonful, as an anti-spasmodic, for worms, etc.

2156. Mistura Guaiaci. Br.

Guaiacum Mixture.

Guaiacum Resin,	1/2 ounce av. or 1 part.
Refined Sugar,	1/2 ounce av. or 1 part.
Gum Arabic, powdered,	1/4 ounce av. or 1/2 part.
Cinnamon Water,	20 fl.ounces or 40 fl.parts.

Triturate the Guaiacum with the Sugar and the Gum, adding gradually the Cinnamon Water.

Uses.—This is a favorite remedy for rheumatism, in doses of 1/2 to 2 fl.ounces.

2159. Mistura Rhei et Sodae. U. S.

Mixture of Rhubarb and Soda.

Bicarbonate of Sodium,	30 parts or 1/2 ounce av.
Fluid Extract of Rhubarb,	30 parts or 3 fl.drachms.
Spirit of Peppermint,	30 parts or 5 fl.drachms.
Water, sufficient to make	1000 parts or a pint.

Dissolve the Bicarbonate of Sodium in 500 parts or half a pint of Water, add the Fluid Extract and Spirit and then enough Water to make 1000 parts or a pint.

This is used as an antacid and laxative, in doses from 1/2 to 2 fl.ounces.

2160. Mistura Scammonii. Br.

Scammony Mixture.

Scammony, in powder,	6 grains or 1 part.
Milk,	2 fl.ounces or 146 parts.

Triturate the Scammony with the Milk until a uniform emulsion is obtained. This should be freshly made when wanted for use. The dose is from 1 to 3 fl.ounces, as a purgative.

2161. Mistura Sennae Composita. Br.

Compound Mixture of Senna—Black Draught.

Sulphate of Magnesium,	4 ounces av. or 4 parts.
Liquid Extract of Liquorice,	1 ounce av. or 1 fl.part.
Tincture of Senna,	2 1/2 fl.ounces or 2 1/2 fl.parts.
Compound Tincture of Cardamoms,	1 1/2 fl.ounce or 1 1/2 fl.part.
Infusion of Senna,	15 fl. ounces or 15 fl.parts.

Dissolve the Sulphate of Magnesium in the Infusion of Senna with the aid of a little heat, then add the Liquid Extract and the Tinctures.

This is the familiar *British Black Draught*, quite similar to the U. S. and German Infusion of Senna Compound, but stronger.

Uses.—This is used as a purgative, in doses of 1 to 1½ fl.ounces, and as a laxative in smaller doses.

2162. Mistura Spiritus Vini Gallici. Br.

Mixture of French Brandy.

French Brandy,	4 fl.ounces. Cinnamon
Water,	4 fl.ounces.
The Yolks of two Eggs.	
Refined Sugar,	¼ ounce.

Rub the Yolks and the Sugar together, then add the Cinnamon Water and the Spirit.

Uses.—Although our British friends call this a pharmaceutical preparation, it is more familiarly known in this country as *Egg-Nogg*, but is somewhat improved by more Sugar.

Other Mixtures.

The foregoing official Mixtures are all that are recognized in the U. S. and Br. Pharmacopoeias, but a great many others have been introduced by popular physicians as their favorite mixtures, and their formulae have been preserved, and are here repeated. Other formulas for Mixtures will be found under other headings:

2165. Hoffmann's Balsamic Mixture—*Mixtura Oleoso-Balsamica, G.P.* — *Hoffmanns Balsam of Life.* — Oil of Lavender, Oil of Cloves, Oil of Cinnamon, Oil of Thyme, Oil of Lemon, Oil of Mace, Oil of Orange Flowers, each 1 part. Balsam of Peru 3 parts. Alcohol 240 parts. Mix them and set the mixture aside for several days in a cool place, shaking occasionally, then filter.

2167. Paris' Carminative Mixture.— Calcined Magnesia ½ ounce av., Peppermint Water 2½ fl.ounces, Compound Tincture of Lavender ½ fl.ounce, Spirit of Caraway 4 fl.ounces, Syrup of Ginger 2 fl.ounces. Mix. Dose, 2 to 4 fl.drachms.

2174. Alkaline Copaiba Mixture.—Copaiba 4 fl.drachms, Acacia 240 grains. Sugar 240 grains. Solution of Potassa 4 fl.drachms, Spearmint Water sufficient to make 8 fl.ounces. Mix the Copaiba and Solution of Potassa and rub with the Water. Acacia, etc.

2175. Copaiba, Santal, and Cubeb Mixture — *Nesbit's Specific.*—Oil of Santal 5 fl.drachms. Oil of Copaiba 4 fl.drachms. Oil of Cubeb 4 fl.drachms, Oil of Pimenta 1 fl.drachm. Oil of Cassia 1 fl.drachm. Alcohol sufficient to make 16 fl.ounces. Mix and dissolve. Dose, a teaspoonful in water or syrup.

2176. Pancoast's Cough Mixture.—Wild Cherry Bark 240 grains, Senega 240 grains, Ipecac 120 grains. Extract of Conium 15 grains, Compound Tincture of Cardamom 1 fl.ounce. Compound Spirit of Juniper 1 fl.ounce, Water sufficient to make 10 fl.ounces. Percolate the Bark and Roots with sufficient Water to make 8 fl.ounces. Rub the Extract of Conium with the percolate and add the other ingredients. The dose is 1 to 2 teaspoonfuls.

MUCILAGINES—MUCILAGES.

Mucilages, as they are understood in pharmacy, are thick viscid liquids, prepared by dissolving gums or other vegetable substances, containing mucilage, in water, either cold or by the aid of heat. They are used in medicine chiefly for suspending more active medicinal substances, for soothing irritated internal or external surfaces and for their local action as palliatives.

In pharmacy they are used for making pill masses, troches, emulsions, mixtures, etc.

The gum mucilages are also extensively used as adhesives for labels, papers, etc., and some of the other mucilages are employed as a base for toilet preparations, such as bandoline, fragrant cream, etc.

The Mucilages official in the U. S., Br. and German Pharmacopoeias are as follows:

2184. Mucilago Acacia.

Mucilage of Acacia.

The U. S. formula is: Acacia in small fragments, 34 parts or 4 ounces av., Water, sufficient to make 100 parts or 9 fl.ounces. Wash the Acacia with cold water, then add to it 66 parts or 7¹/₂ fl.ounces of Water, and agitate occasionally until it is dissolved, and strain.

The Br. P. directs Acacia 4 ounces, and Distilled Water 6 fl.ounces. The G. P. directs 1 part of the Gum to 2 parts of Water.

In making Mucilage of Acacia for medicinal use the best quality of Gum Arabic should be selected; for making "Mucilage " for adhesive purposes inferior Gum is used.

Uses.—In pharmacy Acacia Mucilage is used for making emulsions, many masses, mixtures and compounds. In medicine it is employed as a vehicle for suspending powders and other kinds of medicine.

2185. Mucilago Amyli. Br.

Mucilage of Starch.

Starch,	120 grains or 24 parts.
Distilled Water,	10 fl.ounces or 875 fl.parts.

Triturate the Starch, with the Water gradually added ; then boil for a few minutes, constantly stirring.

Uses.—This is a bland Mucilage, which may be used for the administration of irritating medicines.

2186. Mucilago Cydonii. U. S.

Mucilage of Cydonium or Quince.

Cydonium (Quince Seed),	2 parts or 72 grains.
Distilled Water,	100 parts or 16 fl.ounces.

Macerate the Cydonium for half an hour in a covered vessel with the Distilled Water, agitating frequently, then drain the liquid through

muslin without pressure.

Uses.—In pharmacy this Mucilage is frequently used as a bland vehicle for the administration or application of other medicines, for which it is well fitted, especially for applications to the eye. Made with double the quantity of the Seeds and longer maceration it forms an admirable base for several popular toilet preparations, as fragrant cream, bandoline, etc., which see.

2187. Mucilago Salep. G. P.

Mucilage of Salep.

Salep, in fine powder, 1 part.
Water, 100 parts.

Shake the Salep with 10 parts of cold Water, and add 90 parts of boiling Water, mixing them well together. This is similar to Starch Mucilage.

2188. Mucilago Sassafras Medullee. U. S.

Mucilage of Sassafras Pith.

Sassafras Pith, 2 parts or 72 grains.
Water, 100 parts or 8 fl.ounces.
Macerate for three hours and strain.

Uses.—This Mucilage has the flavor of Sassafras, and is used chiefly in cough mixtures.

2189. Mucilago Tragacanthae.

Mucilage of Tragacanth.

The U. S. formula is :

Tragacanth, 6 parts or 190 grains.
Glycerin, 18 parts or 1 fl.ounce.
Water sufficient to make 100 parts or 8 fl.ounces.

Mix the Glycerin with 76 parts or 5¹/₂ fl.ounces of Water; heat the

mixture to boiling, add the Tragacanth and let it macerate for 24 hours, stirring occasionally; then add enough Water to make 100 parts or 8 fl.ounces; beat it to a uniform consistence and strain forcibly through muslin.

The Br. formula is Tragacanth, in powder, 60 grains, distilled Water 10 fl.ounces, rectified Spirit 2 fl.drachms. Mix the Tragacanth with the Spirit, then pour in the Water with constant agitation.

Uses.—Tragacanth Mucilage is used chiefly as an excipient for pills and to mix with troches and other substances required to be made into a mass. It is also employed as an adhesive for labels, etc.

2190. Mucilago Ulmi. U. S.

Elm, sliced and dried, 6 parts or 216 grains.
Boiling Water, 100 parts or 8 fl.ounces.

Macerate for two hours in a covered vessel and strain.

Uses.— Elm Mucilage is a favorite domestic remedy for coughs and irritation of the throat, taken as a drink ad libitum.

Other Mucilages.

Mucilages are sometimes made from other mucilaginous substances, the principal ones being as follows :

2191. Mucilage of Fenugreek.— Digest 1 part of Fenugreek Seed in 10 parts of Water for 12 hours, then boil and strain.

2192. Mucilage of Linseed.—Digest 1 part of Linseed (Flaxseed) in 6 parts of warm Water for 6 hours, stirring occasionally, and strain.

2193. Mucilage of Liquorice.—Pour 6 parts of boiling Water on 1 part of Liquorice Root, cut in fine pieces, and, after a few hours, strain.

2194. Mucilage of Marsh Mallow.—Make in the same proportion and manner as the preceding.

OLEA—OILS.

Under this heading is classed a great variety of substances ranging from liquids to solids, and obtained from the mineral, animal, and vegetable kingdoms. They are very properly divided pharmaceutically into Fixed Oils, which are obtained by expression from fatty bodies, and Volatile Oils, which are mainly obtained by distillation, and these again may be arranged in several groups according to their characteristics, manner of making, etc. To these classes may be added the *Mineral Oils*, which, though not officially recognized, are considerably used in pharmacy, and many *Mixed and Medicated Oils*, which have their uses in the art.

Fixed Oils.

Fixed Oils are fatty bodies either liquid or solid, obtained, usually by expression, from vegetable or animal substances of a fatty nature. They differ from Volatile Oils by having a greasy feeling to the touch, while Volatile Oils do not, and by leaving a permanent oily spot on paper, while Volatile Oils do not. Volatile Oils are also vaporized by a degree of heat which will boil water, while the Fixed Oils remain unchanged.

In the arts, the Fixed Oils, both of vegetable and animal origin, are extensively used for many industrial purposes, but in pharmacy no animal oils, except lard oil and cod liver oil, are officially recognized.

The Fixed Oils and fats are, chemically, oxides of glyceryl or compound ethers, produced by the union of the fatty acids peculiar to each substance with glycerin (glyceric alcohol). They consist generally of the neutral principles, *Olein*, $C_3H_5(C_{18}H_{33}O_2)_3$, which is liquid, combined with *Palmatin* or *Stearin*, which, when separate, are solids at ordinary temperatures, but when combined with Olein are soluble in it at ordinary temperatures, but are congealed at lower temperatures, making many of the Fixed Oils solid in winter and fluid in summer. Margarin is considered a mixture of Stearin with other like principles. These neutral principles may be decomposed into Glycerin and *Oleic Acid*, $C_{18}H_{34}O_2$, *Stearic Acid*, $C_{18}H_{36}O_2$, and *Palmetic Acid*, $C_{16}H_{32}O_2$.

Fixed Oils are obtained by pressing the fatty substances, either with or without the aid of heat, in strong layer presses, by which the oily liquids are separated from the more solid fatty matters, or from the solid constituents of seeds, etc. Some of the Fixed Oils (especially flaxseed oil)

are also obtained by solution in naphtha, which is afterwards evaporated, leaving the Fixed Oil.

The following are the Fixed Oils official in the U. S., Br., and German Pharmacopoeias:

2210. Oleum Adipis—*Lard Oil*.—A Fixed Oil obtained by expression from lard at a low temperature. This is known on the market as summer-strained and winter-strained Lard Oil, the winter-strained being pressed at a much lower temperature and therefore remaining fluid at lower temperatures than the former. Lard Oil is used as a lubricant and in pharmacy for making citrine ointment, hair oil, etc.

2211. Oleum Amygdalae Expressum—*Expressed Almond Oil*.—A Fixed Oil expressed from sweet or bitter Almond. The Almonds are deprived of the colored powder adhering to them, by rubbing together, or are blanched, then ground in a mill and the meal enclosed in strong linen bags and pressed between warmed iron plates. The yield is 35 to 40 per cent. The sp. gr. 0.915 to 0.920. Used for making rose-water ointment and whenever a fine bland Oil is required.

2212. Oleum Cocos. G. P.—*Coco-Nut Oil*.— A Fixed Oil expressed from the seed-kernels of *Coca Nucifera*, having a white color and the consistence of butter. This is considerably used as a lubricant and emollient. It has the odor of coconut.

2213. Oleum Gossypii Seminis — *Cotton Seed Oil, U. S.*—A Fixed Oil expressed from the seed of *Gossypium herbaceum* and subsequently purified. The kernels of Cotton Seed are separated from their testa, ground, and the oil expressed by powerful pressure. It is then purified by treating and filtering, and put upon the market under various names, and for various purposes. The ordinary Cotton Seed Oil is largely used to adulterate Linseed Oil and Olive Oil, and is sold as cheap Paint Oil and Sweet Oil. The finer grades are known as Salad Oil, Union Salad Oil, etc. Although directed for making several liniments, etc., in the U. S. P., it has not proven very satisfactory. It is considerably used as a base for hair oil.

2214. Oleum Lauri—*Expressed Oil of Laurel, G. P.*—An oil expressed from the fruit of *Laurus Nobilis*, of the consistence of lard, and consisting both of fixed and volatile oils. It is dark-green and aromatic.

2215. Oleum Lini—*Flaxseed Oil, Linseed Oil*.—A Fixed Oil expressed from flaxseed without the use of heat. This Oil is now mostly made by treating or percolating the ground flaxseed with naphtha, and then distilling off the naphtha, the Linseed Oil being left in the boiler of the still and subsequently purified. Linseed Oil is extensively used for painting and other industrial purposes, and in pharmacy for making liniments, etc., and internally as a laxative.

2216. Oleum Morrhuæ—*Cod Liver Oil*.—A Fixed Oil obtained from the fresh livers of *Gadus Morrhuæ*, or other species of *Gadus*, This Oil is prepared in the cod-fishing districts by heating the fresh livers in a wooden tank by means of steam. The oils and other matters are drained off and separated by standing, and the Oil filtered, then cooled or frozen that it may deposit the heavier fats, then pressed in linen bags to obtain the pure light oil. Cod Liver Oil is extensively used in medicine, plain and combined in many ways. The dose is a teaspoonful to a tablespoonful. This is often prescribed by the name *Oleum Jacoris Aselli*, its German-Latin title.

2217. Oleum Myristicæ Expressum—*Expressed Oil of Nutmeg. Br.*— A concrete Oil obtained by means of expression and heat from Nutmeg. This is of the consistence of lard and is called *Myristicæ Adeps*, also *Butter of Nutmeg*. The German-Latin title is *Oleum Nucistæ*. It is used as a vehicle for other medicines.

2218. Oleum Olive — *Olive Oil*.—A Fixed Oil expressed from the ripe fruit of *Olea Europœa*. This Oil has been extensively used in pharmacy in all countries, and is an important article of commerce. The finer grades, which are obtained from the first expression of choice fruit, are called Virgin Oil; the cheaper grades are made after the Virgin Oil has been expressed by heating the cake with boiling water and strong expression. Imported Salad Oil is a fine quality of Olive Oil. In pharmacy it is used in liniments, plasters, and ointments, and for many other purposes. The color of Olive Oil is from a light straw to a greenish yellow. It sp. gr. is about 0.917.

2219. Oleum Papaveris—*Poppy Oil. G. P.*—A Fixed Oil expressed from the seeds of *Papaver somniferum*. This is a very bland Oil, free from irritating qualities and albuminous matter. It is sometimes employed in medicine and is used for fine painting and to oil watches,

etc. It is frequently sold as Watchmakers' Oil.

2220. Oleum Rapae —*Oil of Rape Seed. G. P.*— A Fixed Oil obtained by expression from the seeds of the cultivated varieties of *Brassica* or Rape. This is a bland Oil, used for the same purposes as Oil of Cotton Seed or Mustard.

2221. Oleum Ricini —*Castor Oil.*— A Fixed Oil expressed from the seed of *Ricinus Communis*. The seeds or beans of the Castor Oil plant are crushed and subjected to powerful pressure, and then purified by heating with water to remove albuminous matter. The clear Oil is then filtered and constitutes the cold-pressed Castor Oil of Commerce. An inferior quality is made by pressing the cake between heated plates. Castor Oil is a well-known cathartic in doses of a teaspoonful to a fl.ounce. It is much more effective in the form of an emulsion. It mixes with alcohol in all proportions and is considerably used as a base for hair oil, mixed 2 parts of Oil with 1 part of alcohol.

2222. Oleum Sesami—*Oil of Sesamum—Oil of Benne.* U. S.—A Fixed Oil expressed from the seeds of *Sesamum Indicum*. This is a bland, odorless Oil, similar to Oil of Almond or Olive Oil, and may be used for similar purposes. It is highly esteemed as a base for hair oil.

2223. Oleum Sinipis Expressum — *Expressed Oil of Mustard.*— A Fixed Oil obtained by expression from the seeds of *Sinapis alba* or *nigra*. This Oil very much resembles Cotton Seed Oil. It is made chiefly in California, and is used as a base for hair oil and other similar purposes.

2224. Oleum Theobromae —*Oil of Theobroma, Butter of Cacao.*—A Fixed Oil expressed from the seeds of *Theobroma Cacao*. This Oil resembles tallow, and is made by pressing the kernels or nibs of the chocolate nut between hot iron plates and running the Oil into moulds. It is used in pharmacy for making suppositories, for which it is best adapted of any substance having a low melting point (86° to 95° F.), and a firm consistence when cold. It is sometimes used in ointments, and is a favorite requisite for the toilet for rubbing over the face, hands, lips, etc.

2225. Oleum Tiglii, U. S. Oleum Crotonis, Br. P. and G. P.—A Fixed Oil expressed from the seed of *Croton Tiglium*. This Oil is

employed externally as a rubefacient and vesicant. Internally it is a powerful purgative in doses of i drop. It is sometimes combined in pills, but seldom given in any other form on account of its irritating effect.

The following are official formulae for preparations containing a Fixed Oil as a solvent of medicinal agents.

2226. Oleum Cantharidatum — *Cantharides Oil*. G. P.—
Cantharides 3 parts, Oil of Rape Seed 10 parts. Digest for 10 hours on a steam-bath, express and filter. This is applied as a vesicant and rubefacient.

2227. Oleum Hyoscyami —*Hyoscyamus Liniment*. G. P.—
Hyoscyamus, cut, 4 parts. Alcohol 3 parts. Macerate for a few hours, then add Olive Oil 40 parts, and digest on a steam-bath, stirring occasionally, until the Alcohol is evaporated. Finally, express and strain. This is used as a sedative soothing application. Other medicated Oils prepared in a similar manner are classed as OLEA COCTA. Either green or dried plants are used, and they may be prepared either with or without alcohol to aid in extracting the properties of the drugs. Oil of Belladonna, Capsicum, Colocynth, Elder leaves, also called Green Oil or Oil of Swallows, Digitalis, Conium, etc., are made as above.

2227. Oleum Phosphoratum —*Phosphorated Oil*.— The U. S. formula is : Phosphorus 1 part, Stronger Ether 9 parts, expressed Oil of Almond sufficient to make 100 parts. Introduce a sufficient quantity of the Almond Oil into a flask, heat it on a sand-bath to 250° C. (482° F.) and keep it at that temperature for 15 minutes, then allow to cool and filter it. Put 90 parts of the filtered Oil together with the Phosphorus, previously well dried by blotting paper, into a dry bottle capable of holding somewhat more than loo parts, insert the stopper and heat the bottle in a water-bath until the Phosphorus melts, agitate it until the Phosphorus is dissolved and allow it to cool, then add the Ether.

The Br. formula directs 16 grains of. Phosphorus to be dissolved in 4 fl.ounces of Oil of Almonds, in a similar manner, but Ether is not used.

Phosphorated Oil contains 1 per cent. of Phosphorus, and is given in doses of 3 to 5 minims, usually in the form of an emulsion.

Other Fixed Oils.

Besides the official Fixed Oils which have been mentioned, quite a number which have no official recognition are used in pharmacy. The following are the most important:

Animal Oils.

2228. Oleum Animale Æthereum—*Dippel's Animal Oil*,—This was formerly official in the P. G. It is obtained by dry distillation from bones and animal substances, and is known as *bone oil*. It has a very fetid odor, which is removed by rectifying, the purified oil being used in smelling salts, etc.

2229. Bear's Oil or *Bear's Grease*.—This is obtained by "trying out" the internal fat of the bear. It resembles lard, and is much esteemed as a base for hair pomade, a popular article of this kind being known as "*Ursina*." *Goose Oil*, *Hen's Oil*, *Rattlesnake Oil*, *Skunk Oil*, and *Woodchuck Oil*, are all made in a similar manner, and are used in domestic medicine externally for swellings, rheumatism, etc., and sometimes internally for croup, etc.

Angleworm Oil.—This may be made by putting a quantity of Angleworms in a bottle, covering them with Olive Oil and keeping them exposed to sunshine for several days until a sediment has separated. The Oil is then decanted and filtered or strained. This may also be made by "trying out" the Oil by heat. It is a domestic remedy for rheumatism, stiff joints, etc.

Lanolin is a fatty Oil obtained from the washings of wool, and now considerably used as an ointment base. It is more readily absorbed than other fats. It is also known by other names, as *Oleum Lanas*, *Agnine*, etc.

2230. Neatsfoot Oil.—This is made by boiling the feet of cattle, deprived of their hoofs, in water and removing the Oil which rises to the surface, and after it has stood sometime in warm water straining it. This is used for softening leather, for stiff joints, etc., and in some liniments.

2231. Sperm Oil.— This is obtained from cavities in the head of the Sperm Whale, and is the source of Spermaceti. Sperm Oil when purified

is extensively used as a lubricating oil for fine machinery. It constitutes the best *Sewing Machine Oil*. It is best purified by heating to coagulate any albuminous matter, then filtering, and then chilling with ice and pressing out in linen bags.

2232. Whale Oil.— An Oil obtained by "trying out" the "blubber" of the Whale. It is chiefly used for dressing leather. Many other Fish Oils are used for similar purposes, as *Menhaden Oil*, *Porpoise Oil*, *Seal Oil*, *Shark Oil*, *Walrus Oil*, etc. *Dugong Oil* and *Eulachon Oil* have been proposed as substitutes for Cod Liver Oil, but are not used in this country.

Vegetable Oils.

2233. Nut Oils.— These are prepared, as a rule, by grinding the kernel or "meat" of the nuts to a coarse meal and expressing the Oil, either by cold expression or between heated iron plates. The Oils from nuts are generally bland and have an odor somewhat resembling the nuts from which they are obtained.

Beech-Nut Oil, Brazil-Nut Oil, Ground-Nut Oil, Hazle-Nut Oil, Hickory-Nut Oil, Walnut Oil, Peach-Pit Oil, and other similar Oils are obtained in this manner. Coco-Nut Oil, Candle-Nut Oil, Bayberry Oil, and other solid Oils are obtained by boiling the nuts or fruit in water, expressing while hot, and collecting the oil when cold from the surface.

2234. Oils from Seeds.—The Oils from seeds are prepared either by expression or by percolating the ground seeds with Naphtha, Ether, or some other solvent of the Oils and then evaporating the light substance by distillation, leaving the Oil in the boiler of the still, the latter process being usually preferred as it insures a larger yield of the Oil at a less expense. The following unofficial Oils are made in this manner:

Oil of Cardamom,	Oil of Melon Seed,
" Chaulmoogra,	" Niker Seed,
" Cucumber Seed,	" Pumpkin Seed,
" Ergot,	" Stramonium Seed,
" Hemp,	" Sunflower Seed,
" Hyoscyamus Seed,	" Tonka.
" Larkspur Seed,	

2235. Oils from Fruit.— The Oils from fruit are usually obtained by making the fruit into a pulp and steeping in water, then pressing and collecting the Oil which rises to the surface. *Palm Oil* is the most used of any unofficial Oil of this kind, large quantities being consumed in the manufacture of soap. *Mangosteen Oil*, *Behn Oil* and *Tucum Oil* are sometimes used.

Volatile Oils.

Volatile Oils are obtained from plants mainly by the process of distillation. They consist generally of the odorous principles of the plants from which they are obtained, and are therefore called *Essential Oils*. The term *Otto* instead of *Oil* is used in perfumery to designate the Essential Oils, as being less liable to mislead when there are Fixed and Essential Oils from the same substance.

The Volatile Oils are divided chemically into several classes:

Hydrocarbons or *Terpenes*, which consist of carbon and hydrogen (usually $C_{10}H_{16}$), of which Oil of Turpentine is the type.

Oxygenated Oils, which contain oxygen combined with the hydrocarbon radical, and of which Cinnamon Oil is an example.

Sulphurated Oils, which contain Sulphur combined with a hydrocarbon radical, of which Volatile Oil of Mustard is an example.

Nitrogenized Oils, which contain Hydrocyanic Acid, or Nitrogen combined with a Hydrocarbon radical, of which Essential Oil of Almond and its associates are all that are known.

Many of the Volatile Oils which have chemically the same composition are entirely different in odor and other characteristics. For example, Oil of Turpentine, Oil of Orange, Oil of Lemon, and Oil of Bergamot, are all terpenes, having the chemical formula $C_{10}H_{16}$, their difference consisting only in the arrangement of the Carbon and Hydrogen atoms in the molecule.

Volatile Oils consist generally of two parts, which volatilize or congeal at different temperatures, as would a mixture of alcohol and water. The

lighter or more ethereal portion may be separated by distillation at a moderate temperature, and is much more soluble than the heavier portion which remains behind. By congealing or freezing many of the Oils a solid matter is obtained, which is called *Stearopten*. This may be collected and separated from the Oil by pressure.

The *terpenes* are designated by the termination *ene*, as thymene and the *stearoptens* by the termination *ol*, as thymol.

The methods employed for obtaining the Essential Oils of plants are such as experience has shown to be best suited to the nature of the substance from which the Oil is obtained and the character of the product required.

Distillation by Steam is the most approved method for obtaining the Volatile Oils of most plants. It consists in forcing steam through the mass of green or partly dried plants contained in a suitable chamber with a perforated bottom to properly distribute and admit the steam, and collecting the vapor which rises in a suitable condenser, and afterward separating the Oil from the surface of the water by means of woolen blankets, or by dipping off into a separating funnel.

Distillation with Water.—Some Oils are volatilized at a temperature lower than that of boiling water, and may be obtained by heating in water to nearly its boiling point, and condensing the vapor which rises. Most of the Volatile Oils may be obtained by distilling the plants with water, but the yield is not so large as by steam distillation. In distilling many of the Oils with water, salt should be added to produce a higher degree of heat, and thereby more completely volatilize the heavier portions of the Oil. Sufficient water should be added, as a rule, to cover or nearly cover the substances from which the Oil is to be distilled, and a false bottom or rack should be used to keep the plants from burning on the bottom of the boilers.

Distillation from Substances.—Pitch, tar, resins, the balsams, gum-resins, and other substances are distilled without the aid of water or steam by simply heating them in the boiler and condensing the vapor which rises. Oil of Turpentine, Oil of Copaiba, and Oil of Tar, are

examples of this class. Petroleum Oils are refined in this manner, and the volatile products of coal and other substances are made by dry or destructive distillation of the crude substances.

Mechanical Means.—The Citrine Oils, Orange, Lemon, and Bergamot, are best obtained by pricking the rinds of the fruit and thus liberating the Oil contained in the oil cells. This is most conveniently done by means of the *Ecuelle*, which consists of a large number of sharp-pointed nails arranged in a shallow disc or cup. The fruit is rotated over these points, thereby rupturing the oil cells and liberating the Oil, which is collected in the *ecuelle*. These Oils, and also the Volatile Oils of some other fruits and seeds, are also obtained by grinding and expressing and subsequently separating the Oils from the other liquid matter. These Oils may also be obtained by distillation, but their flavor is thereby impaired.

Other Methods.—The foregoing methods of obtaining the Essential Oils of plants are all that are generally employed, but some odorous principles of substances are so volatile, or so prone to decomposition, that they cannot be obtained by the processes described. The fresh plants are therefore *macerated* in some bland Oil, as Almond Oil, or *digested* by the aid of gentle heat in the same, imparting to the bland Oil their odorous principles. These are known as *Fatty Oils*, as Fatty Oil of Jasmine. When digested in deodorized alcohol or cologne spirit in the same manner, or when the Oils thus perfumed are digested with cologne spirit, the product is known as *Spiritous Oil*. The process of *Enfleurage* is also extensively employed for obtaining the odorous principles of delicate flowers. It consists of spreading fresh flowers on thin layers of purified lard or other fat and changing them as frequently as their odor has been absorbed for fresh flowers of the same kind. The products are called *Flower Pomades*, and are known as No. 24 or No. 30, according to the number of times the flowers have been changed. These pomades are used for making the *Extracts* or *Extraits* which are employed in perfumes, their spiritous solutions being sometimes called Spiritous Oils.

The odors of flowers are sometimes obtained by percolating or macerating with Bisulphide of Carbon or Ether and afterward distilling the percolate, leaving the heavier odorous substances in the boiler.

Official Volatile Oils.

The following are the Volatile Oils official in the U. S., Br., and German Pharmacopoeias. They are but a small portion of the Essential Oils that are used, but are all that are used to any extent in medicine :

2236. Oleum Amygdalae Amarae — *Oil of Bitter Almond*.— This is a nitrogenized Volatile Oil obtained from bitter Almond by moistening with water the cake left after expressing the Fixed Oil, and, after standing, distilling by means of steam. The substance obtained is *Benzyl-Aldehyd*, which is formed by the action of *Emulsin* on *Amygdalin* in the presence of water.

Nitrobenzol (293) or *Oil of Myrbane* has been extensively manufactured as an artificial Oil of Bitter Almond, but only used for flavoring cheap soaps and coarse products, but now an artificial benzyl-aldehyd, which is identical with Oil of Bitter Almond, is made by the action of chlorine upon toluol (C_7H_8), the benzyl-chloride which is formed is distilled with nitrate of lead and water in an atmosphere of carbonic acid gas, and benzyl-aldehyd results.

Uses.—This Oil is used chiefly as a flavoring. It is sedative and poisonous except in very small quantities. The true Oil of Almonds usually contains hydrocyanic acid.

2237. Oleum Anethi — *Oil of Dill*. Br.— An Oil distilled from dill fruit and used for flavoring. It contains a terpene *Anethene*, $C_{10}H_{16}$, having a lemon flavor and an oxygenated substance similar to carvol.

2238. Oleum Anisi — *Oil of Anise*.— This Oil is distilled in Europe from Aniseseed, *Pimpinella Anisum*, the Russian Oil being most esteemed, and in China from star anise, *Illicium Anisatum*, the great majority of the commercial Oil being from the latter. It consists mainly of Anethol, $C_{10}H_{12}O$, of which one portion, *Anise Camphor*, congeals at ordinary temperature and is heavier than water, and the other, *liquid Anethol*, is lighter than water and remains liquid at a much lower temperature than the former. It also contains a small percentage of hydrocarbon $C_{10}H_{16}$. Anise is used as a flavoring, sedative, and

carminative. The dose is 2 to 5 minims.

2239. Oleum Anthemidis — *Oil of Chamomile*. Br.—This Oil is distilled from chamomile flowers, and has their characteristic odor. It is stimulant and antispasmodic. The dose is 1 to 5 minims.

2240. Oleum Aurantii Corticis —*Oil of Orange Peel*.— Several varieties of orange yield a Volatile Oil from their peel, which is generally obtained by puncturing it with the ecuelle. The most common variety is obtained from the sweet orange and known as Oil of Orange or *Oil of Sweet Orange*. The common varieties of bitter orange yield an *Oil of Bitter Orange*, and a choice variety yields the *Oil of Curaçoa*. These Oils have the same composition as terpene, $C_{10}H_{16}$, and are prone to change when exposed to light and air, acquiring a terebinthine odor. These Oils are extensively used for flavoring and in making elixirs, colognes, etc.

2241. Oleum Aurantii Florum—*Oil of Orange Flowers, Oil of Neroli*. — This is a Volatile Oil distilled from orange flowers, and consisting of a fragrant terpene, $C_{10}H_{16}$. The choicest variety is distilled from the flowers of the sweet orange, and is known commercially as Oil of Neroli, *Petale*. The next best is obtained from the blossoms of the bitter orange, and known as Oil of Neroli, *Bigarade*, and an inferior kind is made from the leaves and unripe fruit, known as Oil of Neroli, *Petit grain*.

Oil of Neroli is used for preparing orange flower water and in cologne and other perfumes.

2242. Oleum Bergamii — *Oil of Bergamot*.—This Oil is prepared from the fresh rind of the fruit of citrus Bergamia in the same manner as Oil of Orange Peel previously described. It is, like it, a terpene, $C_{10}H_{16}$, and develops a terebinthine odor when exposed. It is used extensively in cologne and perfumery, and is a popular flavor for hair oils, etc.

2243. Oleum Cajuputi — *Oil of Cajuput*.— A Volatile Oil distilled from the leaves of *Melaleuca Cajuputi*, In composition it is a hydrate of the terpene *Cajuputene*, its formula being $C_{10}H_{16}H_2O$. It is a warm aromatic, having an odor like camphor, and is used internally in cholera mixtures and externally in liniments.

2244. Oleum Calami — *Oil of Calamus*.— A Volatile Oil, distilled from

the rhizome of *Acorus Calamus*. It is a warm aromatic, possessing the odor and properties of the root. It is used for flavoring and as an addition to stomachics, etc.

2245. Oleum Cari, U. S., Oleum Carui, Br., Oleum Carvi, G. P. — *Oil of Caraway*.— A Volatile Oil, distilled from Caraway, consisting of a terpene *Carvine*, $C_{10}H_{16}$, and *Carvol*, $C_{10}H_{14}$. In the market are found two kinds. *Oil of Caraway Seed*, and *Oil of Caraway Chaff*; the former being much finer and more expensive than the latter, and should always be used for flavoring. It is an aromatic oil used for flavoring, and in making elixirs and some liquors, syrups, etc.

2246. Oleum Carophylli — *Oil of Cloves*.— A Volatile Oil, distilled from Cloves, and consisting of a light oil or terpene, $C_{10}H_{16}$, and another heavier than water, called *Eugenol*, $C_{10}H_{12}O_2$ in which the odor and taste of Cloves is concentrated. It is a warm aromatic, much used for toothache and neuralgic pain, and is given internally in painkillers, etc.

2247. Oleum Chenopodii—*Oil of Chenopodium, Oil of American Worm-seed*.—A Volatile Oil, distilled from *Chenopodium*, and consisting of a terpene, $C_{10}H_{16}$, and an oxidized terpene, $C_{10}H_{16}O$. It is a peculiar very disagreeably flavored Oil, used as an anthelmintic. Some of the popular Vermifuges are made chiefly of this oil, mixed with some bland oil and aromatics. The dose is 5 to 10 drops.

2248. Oleum Cinnamomi—*Oil of Cinnamon*.—The U. S. P. recognizes two varieties of Cinnamon Oil, *Oil of Ceylon Cinnamon* and *Oil of Chinese Cinnamon* or *Cassia*. Their composition and properties are similar, both containing *Cinnamic Aldehyd*, C_9H_8O . When old this is converted by oxidation into *Cinnimic Acid*, $C_9H_8O_2$, and it may be still further oxidized by the addition of Nitric Acid yielding Benzyl Aldehyd (*Oil of Bitter Almonds*) and Benzoic Acid, $C_7H_6O_2$. Oil of Cinnamon is extensively used as a flavoring, and in medicine as a quick stimulant. The dose is 1 or 2 drops.

2249. Oleum Copaibae—*Oil of Copaiba*.—A Volatile Oil distilled from *Copaiba*, and consisting of Hydrocarbons $C_{10}H_{16}$, and $C_{15}H_{24}$. It is used for the same purposes as *Copaiba*, but has no advantages over it. The

dose is 10 to 15 drops.

2250. Oleum Coriandri—*Oil of Coriander*.—A Volatile Oil, distilled from Coriander, and containing an oxygenated terpene, $C_{10}H_{18}O$. It is an agreeable aromatic, and is considerably used in elixirs, syrups, and carminative preparations. The dose is 1 to 5 minims.

2251. Oleum Cubebae—*Oil of Cubeb*.—A Volatile Oil, distilled from Cubeb, and consisting mainly of two oils, with different characteristics. It is a warm aromatic and stimulant, especially for the mucous membrane, and is much used in medicines for Catarrh and bronchitis, and in catarrh of the bladder, etc. Dose, 5 to 15 minims.

2252. Oleum Erigerontis — *Oil of Erigeron, Oil of Fleabane*.—A Volatile Oil distilled from the fresh flowering herb of *Erigeron Canadense*, and consisting of a terpene and an oxygenated portion. It has a peculiar disagreeable odor, and is used in gonorrhoea and, in the form of an ointment or lotion, for piles, etc.

2253. Oleum Eucalypti — *Oil of Eucalyptus*.— A Volatile Oil distilled from the leaves of *Eucalyptus Globulus*. It consists chiefly of *Eucalyptol*, $C_{10}H_{10}O$ and is an aromatic stimulant, having a spicy taste. The dose is 5 to 10 minims for bronchial troubles, catarrh, etc.

2254. Oleum Foeniculi — *Oil of Fennel*.— A Volatile Oil distilled from fennel and having much the same properties and composition as Oil of Anise. The dose is 1 to 5 minims.

2255. Oleum Gaultheriae — *Oil of Wintergreen*.— A Volatile Oil, heavier than water, distilled from Gaultheria, and containing about 90 per cent. of *Methyl Salicylate* and 10 per cent. of the terpene *Gaultherilene*. A great portion of the Oil of Wintergreen found in the market is distilled from birch twigs. It is also prepared artificially from methyl alcohol and salicylic acid. A *Gaultherio-Salicylic Acid* is prepared from Oil of Wintergreen which is much different in appearance from the commercial salicylic acid prepared from phenol.

Oil of Wintergreen is much used as a flavoring, which is also known as *Chickerberry*.

2256. Oleum Hedomae — *Oil of Pennyroyal*.— A Volatile Oil distilled

from pennyroyal herb, similar in composition to the other mint Oils. It is used as a stimulant and flavoring and in mixtures for preventing the bite of flies, mosquitos, etc. It is given in doses of 1 to 3 minims.

2257. Oleum Juniperi — *Oil of Juniper.*— The official Oil of Juniper should be distilled from the berries, and consists mainly of a terpene $C_{10}H_{16}$. It is used as a flavoring for some preparations and in medicine as a diuretic and a stimulant. The dose is from 5 to 15 drops.

Oil of Juniper Wood has more of a terebinthene odor and is inferior.

Empyreumatic Oil of Juniper or *Oil of Cade* is a tar-like liquid obtained from juniper by destructive distillation. It is frequently directed as Juniper Tar.

2258. Oleum Lavendulae — *Oil of Lavender.*— A Volatile Oil distilled from the flowering tops or whole herb of *Lavandula Vera*, and consisting of terpene and oxygenated compounds. A great difference exists in the Lavender Oil found in the market, its fragrance varying with the part of the plant used, the Oil of Lavender flowers being the finest. It is much used in perfumery and somewhat employed in medicine.

The U. S. P. recognizes two Oils of Lavender, the Oil of Lavender as above described and the *Oil of Lavender Flowers* distilled from fresh Lavender (flowers). The Br. P. directs only the latter, the best quality of which is distilled from cultivated lavender, at Mitcham, England.

2259. Oleum Limonis — *Oil of Lemon.*— A Volatile Oil obtained from fresh lemon peel. usually by means of the ecuelle, and consisting of a terpene $C_{10}H_{16}$. It is extensively used as a flavoring and in cologne, etc. This Oil soon develops a terebinthine odor when exposed to the light and air. It, as well as Oils of Orange and Bergamot, should be kept in a cool, dark place, closely stopped in full bottles or cans. They may be somewhat restored when changed by washing repeatedly with hot water in which a few grains of permanganate of potassium are dissolved. When freshly received, if practicable. these Oils should be put up in small bottles, full, and put away, or be mixed with one fourth their weight of Alcohol.

Oleum Limetta or *Oil of Limes* is prepared from limes, and is similar to Oil of Lemon. It is used in flavoring confectionery, syrups, etc.

2260. Oleum Macidis —*Oil of Mace. G. P.*— A Volatile Oil distilled from Mace, and having the same properties as Oil of Nutmeg, which see.

2261. Oleum Menthe Piperitae — *Oil of Peppermint.*—A Volatile Oil distilled from peppermint, and consisting of a light hydrocarbon and Menthol, $C_{10}H_{20}O$, to which it owes its odor and properties. It is extensively used in medicine and for flavoring. The dose of the Oil is 1 to 3 drops.

2262. Menthol—*Peppermint Camphor.*— $C_{16}H_{20}O$. A stearopten obtained from Peppermint Oil by chilling it with ice, separating the solid portion, pressing, purifying, and crystallizing. The variety of Menthol obtained from *Mentha Arvensis* is official in the Br. P. It is known as *Japanese Menthol* or *Camphor*, and is most esteemed. A Menthol is obtained from the ordinary Peppermint Oil, which is called *Pip-Menthol*, and is extensively used in this country. In the form of *Menthol Cones* Menthol has become a popular proprietary application for pain, neuralgia, etc. These cones are moulded and fastened into suitable holders of wood, horn or other substance.

2263. Oleum Menthae Viridis —*Oil of Spearmint.*— A Volatile Oil distilled from spearmint and consisting of a terpene, $C_{10}H_{16}$, and an oxygenated portion, $C_{10}H_{14}O$, in which the characteristic odor resides. It is somewhat used as a flavoring and a little used in medicine as a carminative and stimulant. The dose is 2 to 5 drops.

2264. Oleum Myricae —*Oil of Bay.*— A Volatile Oil distilled from the leaves of *Myrcia Acris* and consisting of a terpene, $C_{10}H_{16}$, and *Eugenol*, $C_{10}H_{12}O_2$. It is chiefly used for making "Bay Rum," and in perfumery.

2265. Oleum Myristicae — *Oil of Nutmeg.*— A Volatile Oil distilled from nutmeg, consisting of a terpene and oxygenated portion, which represents the flavor of the nutmeg. It is used chiefly for flavoring and in some elixirs, etc. Oil of Mace is similar.

2266. Oleum Picis Liquidae — *Oil of Tar.*— A Volatile Oil distilled from tar, containing a variety of constituents. It is preferable for many medicinal purposes to tar and is used in making several official syrups, etc., and in cough remedies. The dose is 1 to 3 minims in emulsion or

syrup. An *Oil of Birch Tar* is made from birch tar by distillation.

2267. Oleum Pimentae—*Oil of Pimento*.—A Volatile Oil distilled from Pimento and containing a terpene and eugenol. It is similar in characteristics to Oil of Cloves, and is considerably used in flavoring.

2268. Oleum Pini Sylvestris — *Fir-Wood Oil*. Br.—An Oil distilled from the fresh leaves of *Pinus Sylvestris*, having the characteristic odor of pine leaves and consisting mainly of terpenes. It may be used in making cough preparations, etc.

2269. Oleum Rosae—*Oil of Rose*.—Also called Otto of Rose, and Attar of Rose. A Volatile Oil distilled from the fresh flowers of *Rosa Damascena*. This Oil consists of a liquid portion and a stearopten and is solid or semi-solid at ordinary temperatures. The best Otto of Rose is obtained from Turkey, Kizanlic being the chief collecting centre. Oil of Rose is used in pharmacy for many purposes and extensively employed in perfumes.

2270. Oleum Rosmarini — *Oil of Rosemary*.— A Volatile Oil distilled from rosemary and containing terpene and Oxygenated compounds. It is stimulant and aromatic and is used to some extent in pharmacy and medicine.

2271. Oleum Rutae—*Oil of Rue*.—Volatile Oil distilled from *Ruta Graveolens*, the most soluble in water of all the official Oils. It is given for colic, female disorders, etc., in doses of 2 to 5 minims.

2272. Oleum Sabinae—*Oil of Savin*.—A Volatile Oil distilled from Savine. It is a terpene and has the same general properties as Savine, acting as a stimulant to the organs of generation. It is sometimes given as an abortive.

2273. Oleum Santali — *Oil of Santal*.— A Volatile Oil distilled from santal wood, and consisting of oxygenated compounds. It is similar in its action to copaiba and is used as a stimulant for the mucous membrane, for gonorrhoea, and catarrhal conditions. It is also used in perfumery to give permanence to odors. The dose is from 5 to 15 minims.

2274. Oleum Sassafras — *Oil of Sassafras*.— A Volatile Oil distilled from the bark of sassafras root and consisting of a terpene, *Safrene*,

$C_{10}H_{16}$, and an oxygenated portion, *Safrol*, $C_{10}H_{10}O_2$, which constitutes about 90 per cent. of the Oil. This Oil is an agreeable aromatic, largely used in liniments and pain-killers, also as a flavoring. When compounded with winter-green and anise it makes the sarsaparilla flavoring so much used. The dose of Oil of Sassafras is 2 to 10 minims.

2275. Oleum Sinapis Volatile— *Volatile Oil of Mustard*— A Volatile Oil distilled from black mustard, after the expression of the Fixed Oil, and maceration with water. This is a sulphurated Oil, known chemically as *Sulphocyanide of Allyl*. It is heavier than water and has a very pungent, acrid odor. Mixed with alcohol or oils in liniment it is used as a counter-irritant and rubefacient.

2276. Oleum Succini — *Oil of Amber*.—A Volatile Oil, obtained by the destructive distillation of Amber and subsequently purified by rectification. This is called Rectified Oil of Amber, the unpurified oil being the crude. It is considerably used in liniments as an irritant and stimulant, and has the same composition as Oil of Turpentine.

2277. Oleum Terebinthinae — *Oil of Turpentine*— A Volatile Oil, distilled from Turpentine, and having the composition $C_{10}H_{16}$ It is a type of the terpenes. It is familiarly known as "Turpentine" or "Spirits of Turpentine," and is extensively used in the arts and in medicine. It is an ingredient of most of the proprietary liniments, and is a valuable stimulant and rube-facient. It is also given internally in various forms in doses of 2 to 10 minims. It is much employed as a solvent for resins, etc.

Terebene is a light hydrocarbon obtained from Oil of Turpentine, by mixing it with one-twentieth of its weight of Sulphuric Acid, and distilling over at 160° F. It is used for coughs, etc.

An Oil is distilled from *Strassburg Turpentine* and also from *Venice Turpentine*.

2278. Oleum Terebinthinae Rectificatus—*Rectified Oil of Turpentine*, G. P.—This is the ordinary Oil of Turpentine, rectified by shaking with 6 times its weight of lime-water, and then distilling about three-fourths of the Oil of Turpentine which was used. It is employed in medicine for the same purposes as Oil of Turpentine.

2279. Oleum Thymi — *Oil of Thyme*.—A Volatile Oil, distilled from *Thymus Vulgaris*, and commercially known as *Oil of Origanum*. It is composed of *Cymene*, $C_{10}H_{14}$, *Thymene*, $C_{10}H_{26}$, and *thymol*, $C_{10}H_{14}O$, a stearopten, which crystallizes. This Oil is extensively used in liniments as a stimulant and rubefacient. As found in the market, it is adulterated with Oil of Turpentine or other dilutents. Red Oil of Thyme is known as Pure Origanum Oil, and White Oil of Thyme is used in perfumery.

2280. Thymol— $C_{10}H_{13}HO$.—A stearopten obtained from various species of Oil of Thyme by saponifying with Caustic Soda, separating the saponaceous substance and decomposing with Hydrochloric Acid, washing the crystalline mass with Water, dissolving it in hot Alcohol, and recrystallizing. It is used as an antiseptic, and also for neuralgia, toothache, etc.

2281. Oleum Valerianae— *Oil of Valerian*.—A Volatile Oil, distilled from Valerian, consisting of a terpene and an oxygenated compound, having the characteristic odor and taste of Valerian. It is employed for making Valeri-anic Acid, and is sometimes used in medicine.

Unofficial Volatile Oils.

The foregoing official Volatile Oils embrace the greater part of those used in pharmacy, but several that are not recognized by the pharmacopoeias are considerably used, and, as nearly all odorous plants yield Volatile Oils in some form, it is obvious that the list of such Oils must be very large, and only the more important ones can be mentioned here. The methods employed for obtaining them have been previously mentioned.

UNOFFICIAL VOLATILE OILS.

No.	Commercial Name.	Distilled From.	Part Used.	Chief Composition.
2285	Oil of Angelica	Angelica, varieties	Root or seed	Oxygenated.
2286	Angustura	Angustura	Bark	Oxygenated.
2287	Arnica	Arnica Montana	Flowers	Oxygenated.
2288	Asafetida	Asafetida	Gum-resin	Sulphurated.
2289	Balm Mint	Melissa or Balm	Leaves and tops	Oxygenated.
2290	Balsam Fir	Canada Turpentine	Oleo-resin	Terpene.
2291	Birch	Betula	Young twigs	Oxygenated.
2292	Birch Tar	Betula	The tar	Terpene.
2293	Buchu	Buchu	Leaves	Oxygenated.
2294	Burgundy Pitch	Abies Excelsa	Prepared pitch	Terpene.
2295	Camphor	Camphora Officinarum	Crude camphor	Oxygenated.
2296	Canada Snake Root	Asarum Canadense	Root	Oxygenated.
2297	Canella	Canella Alba	Bark	Oxygenated.
2298	Capsicum	Capsicum	Fruit (pods)	Oxygenated.
2299	Cardamom	Elettaria Cardamomum	Fruit (seed)	Oxygenated.
2300	Carrot	Daucus Carota	Fruit (seed)	Oxygenated.
2301	Cascarilla	Croton Eluteria	Bark	Oxygenated.
2302	Catmint	Nepeta Cataria	Flowering tops	Oxygenated.
2303	Cedar	Juniperus Virginiana	Leaves	Oxygenated.
2304	Cedarwood	Juniperus Virginiana	Wood	Oxygenated.
2305	Cedrat	Citrus Medica	Fruit rind	Terpene.
2306	Celery	Apium Graveolens	Fruit (seed)	Oxygenated.
2307	Cherry Laurel	Laurocerasus	Leaves	Nitrogenat'd
2308	Citronella	Andropogon Schœnanthus	Leaves	Oxygenated.
2309	Cognac	Fermented Grapes	Wine	Oxygenated.
2310	Coto	Coto	Bark	Oxygenated.
2311	Cress	Lepidium Sativum	The seeds	Sulphurated.
2312	Cumin	Cuminum Cyminum	Fruit (seed)	Hydrocarb'n
2313	Cuscus	Vitiver	Rhizome	Oxygenated.
2314	Cyna	Artemisia Martima	Flowering tops	Oxygenated.
2315	Dahlia	Dahlia Pinnata	Tubers	Oxygenated.
2316	Elder	Sambucus, varieties	Flowers	Oxygenated.
2317	Elemi	Canarium Commune	Gum-resin	Terpene.
2318	Feverfew	Pyrethrum Parthenium	Plant	Oxygenated.
2319	Galangal	Alpinia Officinarum	Rhizome	Oxygenated.
2320	Garlic	Allium Sativum	Bulb	Sulphurated.
2321	Geranium Rose	Pelargonium odoratissima	Leaves	Oxygenated.
2322	Ginger	Zingiber Officinale	Rhizome	Oxygenated.
2323	Ginger Grass	Andropogon Schœnanthus	Flowers	Oxygenated.
2324	Golden Rod	Solidago Odora	Leaves and tops	Oxygenated.
2325	Gurjun Balsam	Dipterocarpus	Oleo-resin	Terpene.
2326	Hedge Garlic	Alliaria Officinalis	Bulb	Sulphurated.
2327	Heliotrope	Heliotropium	Flowers	Oxygenated.
2328	Hemlock	Abies Canadensis	Leaves	Terpene.
2329	Hops	Humulus Lupulus	Strobiles	Terpene.
2330	Hoarhound	Marrubium Vulgare	Leaves and tops	Terpene.
2331	Horsemint	Monarda Punctata	Leaves and tops	Terpene.
2332	Horseradish	Cochlearia Armoracia	Root	Sulphurated.
2333	Hungarian Turpentine	Pinus Pumilio	Oleo-resin	Terpene.
2334	Hyssop	Hyssopus Officinalis	Herb	Oxygenated.
2335	Indian Cannabis	Cannabis Sativa	Flowering tops	Oxygenated.
2336	Inula	Inula Helenium	Root	Oxygenated.
2337	Jaborandi	Pilocarpus Pennatifolius	Leaflets	Terpene.
2338	Lemon Grass	Andropogon Citratis	The plant	Oxygenated.
2339	Limette or Limes	Citrus Limetta	Fruit rind	Terpene.
2340	Lilac	Syringa Vulgaris	Flowers	Oxygenated.
2341	Lily of the Valley	Convallaria Majalis	Flowers	Oxygenated.
2342	Linden	Tilia	Flowers	Oxygenated.
2343	Lobelia	Lobelia Inflata	Herb	Oxygenated.
2344	Lovage	Levisticum Officinal	Root	Oxygenated.
2345	Marjoram	Origanum Marjorana	Flowering plant	Oxygenated.
2346	Marrubium	Marrubium Vulgare	Flowers	Oxygenated.

UNOFFICIAL VOLATILE OILS — Continued.

No.	Commercial Name.	Distilled From.	Part Used.	Chief Composition.
2347	Oil of Marsh Tea.....	Ledum Palustra.....	Leaves.....	Oxygenated.
2348	Masterwort.....	Heracleum Lantanum....	Leaves.....	Oxygenated.
2349	Matricaria.....	Matricaria Chamomile....	Flowers.....	Oxygenated.
2350	Matico.....	Artanthe Elongata.....	Leaves.....	Oxygenated.
2351	Melissa.....	Melissa Officinalis.....	Leaves and tops	Oxygenated.
2352	Mountain Balm.....	Eriodictyon Californica..	Leaves.....	Oxygenated.
2353	Myrrh.....	Balsamodendron Myrrha..	Gum-resin....	Oxygenated.
2354	Olibanum.....	Boswellia Carterii.....	Gum-resin....	Oxygenated.
2355	Parsley.....	Petroselinum Saturni....	Fruit, seed....	Oxygenated.
2356	Patchouly.....	Pogostemon Patchouly ...	Flowers.....	Oxygenated.
2357	Phellandrium.....	Phellandrium.....	Fruit, seed....	Oxygenated.
2358	Rhodium.....	Convolvulus Scoparius ...	Root.....	Oxygenated.
2359	Sage.....	Salvia Officinalis.....	Leaves.....	Terpene.
2360	Saffron.....	Crocus Sativum.....	Flowers.....	Oxygenated.
2361	Sagapanum.....	Ferula Persica.....	Plant.....	Sulphurated.
2362	Serpentaria.....	Aristolochia Serpent.....	Roots.....	Oxygenated.
2363	Spruce or Hemlock....	Abies Canadense.....	Leaves.....	Terpene.
2364	Spike Lavender.....	Lavandula Spica.....	Herb.....	Oxygenated.
2365	Smartweed.....	Polygonum Punctatum....	Herb.....	Oxygenated.
2366	Stillingia.....	Stillingia Sylvania.....	Root.....	Oxygenated.
2367	Sweet Basil.....	Ocimum Basilicum.....	Herb.....	Oxygenated.
2368	Sweet Cicely.....	Osmorhiza Longistylus...	Herb.....	Oxygenated.
2369	Sweet Marjoram.....	Origanum Marjorina.....	Herb.....	Oxygenated.
2370	Sweet Violet.....	Viola Odorata.....	Flowers.....	Oxygenated.
2371	Summer Savory.....	Satureja Hortensis.....	Herb.....	Oxygenated.
2372	Tansy.....	Tanacetum Vulgare.....	Leaves.....	Oxygenated.
2373	Tea.....	Thea Chinensis.....	Leaves.....	Oxygenated.
2374	Thuja.....	Thuja Occidentalis.....	Twigs.....	Oxygenated.
2375	Tobacco.....	Nicotiana Tabacum.....	Leaves.....	Oxygenated.
2376	Verbena (Lemon Grass)	Andropogon Citratis.....	Flowering herb	Oxygenated.
2377	Water Plantain.....	Alisma Plantago.....	Plant.....	Oxygenated.
2378	Wild Ginger.....	Asarum Canadense.....	Rhizome.....	Oxygenated.
2379	Wormwood.....	Artemisia Absinthium ...	Leaves and tops	Oxygenated.
2380	Yarrow.....	Achillea.....	Plant.....	Oxygenated.
2381	Ylang Ylang.....	Onona Odoratissima.....	Flowers.....	Oxygenated.
2382	Zedoary.....	Curcuma Zedoaria.....	Rhizome.....	Oxygenated.

Mixed Oils.

Under this heading are included such preparations of Oils as cannot well be classified elsewhere, but for which there is a demand and use:

2383. Acoustic Oil.— Oil of Almonds 6 parts, Oil of Turpentine 1 part. Mix. Used for deafness, etc.

2384. British Oil.—Oil of Origanum 1 drachm. Oil of Rosemary i drachm, Barbadoes Tar 2 fl.ounces. Oil of Turpentine 5 fl.ounces. Mix them. Used as an application and also internally.

2385. Haarlem Oil.—Oil of Amber, crude, 1½ drachm. Crude

Petroleum 1 drachm, Sulphurated Oil, Balsam of Sulphur (276), 3 drachms, Linseed Oil 4 drachms, Oil of Turpentine 1 ounce. Mix them. This celebrated Oil is used externally and internally for everything.

2386. Oil of Spike.— The Oil of Spike which is usually sold and dispensed for liniments is a mixture composed of Barbadoes Tar and Oil of Turpentine, the proportions varying somewhat as made by different houses. Oil of Turpentine 3 pints, Barbadoes Tar 1 pint, makes about the average mixture. This Mixed Oil should not be confounded with the Oil distilled from *Lavendula Spica*, which is sold as Oil of Origanum.

2387. Oil of Rhodium, factitious.—The true Oil of Rhodium is distilled from Rhodium Wood, but what appears in the market is generally made by mixing Otto of Rose with Oil of Santal Wood or Balsam of Copaiba, about 1 part of the former to 20 of the latter. It is considerably sold as a scent for hunting bees, and is used in perfumes.

2388. Oil of Ambergris and Oil of Musk are made by digesting 2 drachms of Ambergris or Musk for some time in 20 fl.ounces of Purified Almond Oil.

2389. Oil of Benzoin and Oil of Styrax, and other Oils of gums, balsams or resins, are made by digesting i ounce of the substance with a pint of Purified Oil, either Almond, Benne or Olive.

2390. Fatty Oils.—Oil of Jasmine, Hyacinth, Jonquil, Tuberose, Violet and many other delicate flowers, may be made by digesting the fresh flowers with the purified oil, and changing the flowers several times for fresh ones, until the Oil is highly perfumed with the odors of the flowers.

Mineral Oils.

The name "Mineral Oils " is intended to apply to the Hydrocarbons Oils, which are obtained from the distillation of coal and the oils obtained from the earth by drilling or otherwise. The Mineral Oil formerly used for illuminating, and obtained by distillation from coal and other bituminous substances was known as *Coal Oil* or *Kerosene*, but the discovery of *Petroleum Oil* revolutionized that industry, and our illuminating oils are now almost entirely obtained by distillation from Crude Petroleum, which is obtained from oil wells in various parts of the

world. The Illuminating Oil is obtained by fractional distillation, and is familiarly known as *Carbon Oil*. The crude oil is used in liniments and as an application for rheumatism, etc.

Lubricating Oils are also made from the heavier portions of Petroleum, and are frequently mixed with Animal or Vegetable Oils.

Paraffin Oils are obtained from Petroleum after the distillation of the illuminating oil by pressing the solid paramnes obtained from the residue. They are used extensively for lubricating, and, when purified, for various pharmaceutical purposes, making a good body for an oil liniment, for hair oil, etc.

Seneka Oil.—This is a variety of Crude Petroleum Oil which was formerly obtained from the surface of some streams by the Seneka Indians, who absorbed it with woolen blankets and then obtained it by wringing them out. Crude Petroleum Oil, which has stood exposed in shallow vessels for some time, is very similar to it, and is now used altogether when Seneka Oil is required.

Rock Oil and Oil of Stone are very similar, and Old Crude Petroleum is altogether sold for them now.

Barbadoes Tar is a thick Petroleum, resembling thin tar, exuding from the earth, and obtained from Barbadoes and other countries. Its properties are similar to other heavy Petroleums. It is used as an application for rheumatism, and in liniments, etc.

OLEORESINÆ — OLEO-RESINS.

Considered as galenicals, Oleo-resins are preparations made from vegetable drugs containing oleo-resinous principles by exhausting the drug of these principles with some ethereal solvent and then concentrating by distillation or evaporation until only the Oleo-resin remains. There are also natural Oleo-resins, exudates from trees, which are known as turpentine, balsams, and gums. In the earlier pharmacopoeias of this country some of the preparations now known as Oleo-resins were called fluid extracts. The prepared Oleo-resins are used in pharmacy in pills, tablets, capsules, and other forms when concentrated principles of the kind are desired.

2415. General Process of the U. S. P.

From the formula given in the U. S. P. for Oleo-resins a general formula may be deduced as follows:

The substance, in No. 60 powder, 100 parts.
Stronger Ether, a sufficient quantity.

Put the substance into a cylindrical glass percolator, provided with a cover and a receptacle suitable for volatile liquids, press it firmly and gradually pour stronger Ether upon it until 150 parts have slowly passed or until the drug is well exhausted of its Oleo-resin. Recover the greater part of the Ether by distillation on a water-bath and expose the residue in a capsule until the remaining Ether has evaporated. Keep the Oleo-resin in a well-stopped bottle, and shake when using.

2416. General Process by Water-Bath Percolation.

The substance, in No. 60 powder, 100 parts.
Stronger Ether (or Gasoline), a sufficient quantity.¹

Put the substance in a water-bath percolator and cover it with stronger Ether or Gasoline; surround the percolator with hot water, by pouring in the outer vessel, and after standing one hour begin to percolate, adding- stronger Ether or Gasoline to the drugs in the percolator and continuing the percolation until 150 parts have passed, or until the drug is exhausted. Recover the greater portion of the stronger Ether or Gasoline by distillation and expose the residue in a capsule until all traces of the volatile liquid has evaporated. This may be hastened by the gentle heat of a water-bath.

In the point of economy Gasoline (Petroleum Ether) is infinitely cheaper, and (in our opinion) if the process is properly conducted, the product is just as good.

The following are the Oleo-resins now official and known in pharmacy :

¹ I have used 95% ethanol with success instead of ether or gasoline in making many of these oleoresins. I percolate using a percolation cone, with tightly controlled slow drip. In honor of all low-tech solutions, reduce the ethanol extract in the top of a double boiler, on an electric burner, OUTSIDE on a moderately breezy day. The endproduct may not be quite as strong, but you will spare your home and neighborhood from conflagration- MM

2417. Oleoresina Aspidii — *Oleo-resin of Aspidium*.—Aspidium (male Fern) 100 parts or 16 ounces av., stronger Ether or Gasoline a sufficient quantity. Make as directed. The product is about 2 fl.ounces. The dose is 30 to 60 minims for tape worm, etc.

2418. Oleoresina Capsici—*Oleo-resin of Capsicum*.—Capsicum 100 parts or 16 ounces av., stronger Ether or Gasoline a sufficient quantity. Make as directed, separating and rejecting the fatty matter which is obtained with the Oleo-resin, by passing through a strainer. The product is about $\frac{3}{4}$ of an ounce and the dose $\frac{1}{2}$ to 1 minim. This is often called *Oil of Capsicum*.

2419. Oleoresina Cubebae—*Oleo-resin of Cubeb*.—Cubeb 100 parts or 16 ounces av., stronger Ether or Gasoline a sufficient quantity. Make as directed, and after standing separate the Oleo-resin from the sediment which subsides. The product is about 4 ounces, and the dose 5 to 20 minims for the same purposes as other preparations of Cubebs.

2420. Oleoresina Lupulini—*Oleo-resin of Lupulin*.—Lupulin 100 parts or 16 ounces av., stronger Ether or Gasoline a sufficient quantity. Make as directed. The product is about 8 fl.ounces or 50 per cent. The dose 2 to 5 minims as a nervine and tonic.

2421. Oleoresina Piperis—*Oleo-resin of Pepper*.—Pepper 100 parts or 16 ounces av., stronger Ether or Gasoline a sufficient quantity. Make as directed, and after standing separate the liquid portion from the crystallized Piperine by straining through muslin. The product is about $1\frac{1}{2}$ ounce and the dose $\frac{1}{4}$ to 1 minim. This was formerly called Oil of Black Pepper.

2422. Oleoresina Zingiberis—*Oleo-resin of Ginger*.—Ginger 100 parts or 16 ounces av., stronger Ether or Gasoline a sufficient quantity. Make as directed. The product is about 1 fl.ounce. The dose is $\frac{1}{2}$ to 1 minim, used for the same purposes as other preparations of ginger.

Other Oleo-resins.

Besides the foregoing official Oleo-resins many others may be obtained from plants containing oleo-resinous principles, as Allspice, Canada

Snake Root, Horse Chestnut, Lobelia, Savin, etc., but they are seldom used. They may be made in the same manner as the official preparations. Asclepidin, Cyripedin, Iridin, Senecin, and Xanthoxylin are Oleo-resins prepared by eclectic manufacturing pharmacists.

Natural Oleo-resins.

Although these are not classed in the pharmacopoeias with Oleo-resins it seems proper that they should be, as they are natural oleo-resinous exudates. The following are official under the titles as given :

2423. Copaiba.

Balsam of Copaiba.

The Oleo-resin of Copaiba of different species is obtained by tapping the trees. It contains a volatile oil, which may be separated by distillation (Oil of Copaiba), a resin which is chiefly Copaivic Acid, $C_{20}H_{30}O_2$, and which is known as solidified Copaiba, and a bitter principle.

Copaiba is known commercially as "Balsam of Copaiba," two varieties being generally sold: Para, which is thin, containing a larger proportion of oil, and Angostura, thicker, containing more resin. The former is generally preferred.

Uses.—Copaiba is used in medicine as a stimulant to mucous surfaces and is the popular remedy for gonorrhoea. It is much used for catarrh of the bladder and other troubles of the urinary organs. It is also used extensively in stimulating ointments. In the arts it is used in some kinds of varnishes, printers' ink, etc.

2424. Terebinthina.

Turpentine—Gum Turpentine—White Pine Turpentine.

A concrete Oleo-resin obtained from *Pinus Australis* and other species of *Pinus* by tapping the trees and collecting the exudate. . It contains 25 per cent. of volatile oil (Oil of Turpentine), which is obtained by distillation, leaving the residue, *Resin* or Colophony, which consists of Abietic Anhydride.

Uses.—White Pine Turpentine, as it is known in the market, is used in making plasters, and its solution in alcohol is employed in cough remedies.

2425. Terebinthina Canadensis.

Canada Turpentine—Balsam Fir.

A liquid Oleo-resin obtained from *Abies Balsamea* by puncturing the resin-ducts in the bark.

It contains a turpene, which maybe obtained by distillation, and is known as Oil of Balsam Fir or Fir Oil, and a resin.

Uses.—Balsam of Fir, as it is most commonly called, is used in making stimulating ointments and plasters and in liniments. It is also used for making transfer varnishes, transparent or tracing paper, and for mounting microscopic objects, for which it is admirably adapted.

Other Oleo-resinous Substances.

Besides the foregoing official natural Oleo-resins, a few others, which are known commercially as balsams, gums, and turpentines, are mentioned.

2426. Bdellium.—A balsamic exudation from *Balsamodendron Mukul*, containing a volatile oil and resin, and some gum.

2427. Chian Turpentine.—A Oleo-resin or Turpentine obtained from incisions made in the bark of *Pistacia Terebinthus*, and recently considerably used in medicine.

2428. Elemi.—A concrete Oleo-resin obtained from *Canarium Commune* and containing about 10 per cent. of a volatile oil and 25 per cent. of resin.

2429. Gurjun Balsam. — An Oleo-resin consisting of volatile oil and resin, obtained from *Dipterocarpus Turbinatus*, somewhat similar to Copaiba, and used for similar purposes. It is also called *Wood Oil*.

2430. Hungarian Turpentine or Balsam.— An Oleo-resinous

exudation from the branches of *Pinus Pumilia*. Its composition and uses are similar to Balsam of Fir.

2431. Strassburg Turpentine.—An Oleo-resin obtained, like Balsam of Fir, by puncturing the ducts of the bark of *Abies pectinata*. Its composition and uses are similar to Balsam of Fir.

2432. Venice Turpentine.—An Oleo-resinous exudation from the heart-wood of *Larix Europoea*. Its composition and uses are similar to Balsam of Fir. *Factitious Venice Turpentine* may be prepared from common Resin 3 parts, Oil of Turpentine 1 part.

PILULÆ—PILLS.

Since the general introduction of sugar and gelatine-coated pills, their manufacture has been almost entirely monopolized by manufacturing houses. The pill business has come to be a great nuisance to druggists, for the reason that so many manufacturers urge their claims for superiority upon the physicians, that a large stock of many different makes must be kept on hand in order to supply the demand.

It is not only unprofitable, but very annoying to be obliged to keep so many manufacturers' pills on hand, but as yet there seems to be no way of avoiding it.

The pills that are included in the Pharmacopoeia constitute but a very small portion of those in use, and as manufacturers' pills are nearly always coated with sugar or gelatine, it may be said that scarcely any pills made by the Pharmacopoeia formulae are dispensed by druggists.

The making and coating of pills to any great extent is impracticable for the mass of druggists, because it requires considerable apparatus and some experience and skill; and further, because there are so few of any but the leading or special pills used that it does not pay to make the small quantity required for the retail trade. Many druggists, however, prefer to make their own pills as a matter of reliability. We give, therefore, the general processes for making and coating pills, and such formulae as may seem expedient for those who wish to prepare their own pills.

The recent introduction of reliable powdered extracts of American manufacture, has very much simplified the making of pills, as the ingredients may be readily and accurately mixed before combining into a pill mass.

Many of the old solid extracts were very difficult to work evenly into a pill mass, and required much preparation before they were ready for use.

This is now happily done away with by the introduction of powdered extracts of all dangerous drugs, and by the use of which a thorough distribution of the medicinal agents may be secured.

Not only are the powdered extracts better on this account, but the mass can be much more readily prepared; as, with the old solid extracts it was often necessary to soften them, so that an extra amount of drier had afterwards to be used, which increased the bulk of the pill. Small pills are now the fashion in medicine, and a pill without some kind of coating is looked upon with great disgust by the great American stomach. Upon the nicety of the pill depends the nicety with which it can be coated, so we will first consider the pill itself, and afterwards its outer covering. This is the reverse of the view taken by the pill-taker, as he usually is more concerned as to the character of the covering than the character of the pill; but the *pill-maker* and the *pill-taker* can hardly be expected to take the same view of the subject.

The directions which follow are intended for the use of the ordinary druggists, with such conveniences as they all have, to make and coat pills in small quantities, suitable for the retail trade, and for extemporaneous and prescription business.

Conveniences for Pill Making.

Pill Machines are only adapted to making certain sizes of pills. For the manufacturer who is making large quantities of certain sizes they are a great assistance, but for the retail druggist but little use can be made of them. Those who have them can use them for such sizes as their material will properly make, but it is hardly advisable for those who do not have them to buy them, as there are so few pills for which they can be used.

Materials vary so much that it is almost impossible for the druggist to so regulate the mass as to get the desired amount of material in each pill, when working with a machine. Take, for instance, Calomel and Quinine, a two-grain pill of one would be much smaller than a two-grain pill of the other, but the pill machine would make them both of the same size.

They are very convenient for marking and dividing the pill, and those who have them can use them for that purpose, but a simple, inexpensive pill marker and divider is more serviceable. The ordinary pill tile will answer every purpose. This, with a pill roller, a pill rounder, and the ordinary mortars and pestles completes the necessary outfit for ordinary pill making, and experience does the rest.

The Excipients.

Many Excipients have been proposed for making pills, with which druggists are already familiar, as mucilage, syrup, glucose, honey, soap, glycerin, etc., and all of them have their uses, but nothing has been found so good for general purposes as the *Starch Plasma*, or, as we shall call it here, *Excipient*.

It is tenacious without being elastic, readily mixable, free from odor or objectionable taste, does not mould or spoil, keeps without change, keeps the pills soft and pliable, is inexpensive, and readily made as follows :

2456 Excipient.

Starch, in fine powder,	1 drachm.
Glycerin, by weight,	1 ounce

Mix and heat, with constant stirring, to boiling (240° F.), or until it has assumed a uniform gelatinous mass. Too high a degree of heat must not be used, as it will burn the Starch on the bottom, and it must be constantly stirred to prevent this result. It can be made best on a sand-bath.

In making pills with this Excipient, use only a small quantity, well worked in with the pestle, and then if more is required it may be added.

The Driers.

The chief use of the Drier is to dust the tile and roller and the pills after they are made, to prevent sticking together.

It is also sometimes necessary to use it with the mass when the extracts used are too soft or when oils or other liquids enter into the composition.

A great many substances are used as Driers, as Powdered Liquorice Root, Lycopodium, Flour, Starch, etc., but the best dryer to meet all the requirements for which it is needed, is made thus:

2457. Drier.

Starch, in very fine powder,
Elm Bark, in very fine powder
equal parts, mixed.

This will be found much better than powdered Liquorice, Lycopodium, or other substances usually used for this purpose.

Finely powdered Starch or Wheat Flour alone is better for white pills than the above Drier, as it does not color them. Dextrine also makes a good Drier for colored pills.

They are best applied as a dusting, with an ordinary salt sprinkler or pepper-box, such as are used on the dining table.

This completes the list of requisites for making pills, except, of course, the drugs that enter into their composition.

Making Pills.

The Mass should always be made in a mortar, proportionate to the amount required, and with a long-handled pestle, not too large. It is best to observe the following order in making the mass, so as to secure the best results in the least time.

First.— Reduce all crystals or pulverizable masses to a very fine powder by rubbing in the mortar. Powerful drugs like Strychnine, Atropia, Morphia, etc., should be mixed with a small quantity of Sugar of Milk in

powdering, so as to secure a thorough distribution of their particles. When the crystals or other drugs are thoroughly powdered, add any powdered extracts, resinoids, or other powdered drugs that may be directed, and mix thoroughly and intimately in the mortar.

Second.—Add any solid extracts, confections or other masses that may be directed, taking great care to have them in such condition that they can be readily worked up with the other ingredients. Most extracts can be softened by warming a little; some require a little Water or Alcohol. Mix these thoroughly with the powders in the mortar by working them in with the pestle.

When this is done, if it requires to be softened (which is generally the case), add enough of the Excipient to make into a pilular mass, or, if too soft, add enough of the Drier to harden it.

In using the Excipient but a small amount is necessary, but it must be well worked in.

Never add Alcohol, Water, or Syrup to a pill mass if it can be avoided.

If any oils are directed in the formula, they should be mixed in a mortar with the Excipient before it is added to the mass. They are thus emulsified and the oily particles broken up, so that a thorough distribution is effected. Do not add oils to the powders in the mortar, as a portion of the powder absorbs the oil and the distribution is much retarded. It is also much more difficult to work the mass than when the oils are first combined with the Excipient.

If too much Excipient has been used, Drier may be added to bring it to the requisite temper, but it is better to be careful and not add too much, as the Drier increases the bulk and size of the pill.

The Pill. Having now prepared the mass, the Pill is next in order.

First.— Weigh the mass carefully and then (if for more than 24 Pills) divide it into portions that will make as many Pills as the Pill machine, tile, or divider indicates— 12, 18 or 24 is the usual number. For instance, if 100 Pills are to be made, and the whole mass weighs 316 grains, each Pill will be 3.16 grains. If the Pill tile, divider or machine is marked for 18 Pills, $3.16 \times 18 = 56.88$, or 57 grains, should be the weight

of each portion, and you will have as many portions as 18 is contained in 100, or $5\frac{1}{2}$ portions.

Second.— Dust the tile or machine with the drier, and roll each portion out to the length indicated for the number of Pills. Several portions may be rolled out together at the same time, side by side, if the mass is of proper consistence, and drier is properly used. They should be rolled evenly from end to end, with a slanting motion of the roller.

When rolled to the proper length, divide as indicated by the tile, divider or machine, and roll into Pills. Complete the rolling at last by rolling the rounded Pills gently with a circular motion of the roller on the slab. Put in a shallow tin, or other convenient dish, in a cool place to harden.

A jelly-cake tin is very convenient for this purpose. A scale pan may also be used. The Pills, thus prepared, are ready for coating.

Coating Pills.

Pills are coated chiefly to render them tasteless while being taken; but the coating serves the further important office of protecting them from the atmosphere.

Sugar Coating.— The apparatus for coating Pills advantageously with sugar is quite expensive, and the experience required to coat them artistically is considerable. They may, however, be coated in a small way by revolving the Pills after they are made in a little albumen or mucilage, to give them a thin coating, then transferring to another dish, dusting them well with finely powdered sugar, and rolling them in a shallow evaporating dish, thus giving them an even coating.

This method is only used for extemporaneous work. To coat Pills with sugar as they are found in the market requires large copper revolving globes, of which the upper third is cut off, and which are revolved at an angle (the same as are used by confectioners). The best apparatus of this sort is also arranged for an oscillating motion, which prevents the Pills from adhering to the side. They are also arranged with heating apparatus, so that the heat may be maintained at any desired degree.

The Pills are first partially dried, then coated over with Tincture of Tolu or a Solution of Shellac. Then put in the coating apparatus, add a little

keep warm with a water-bath while using.

The pills, stuck on pins or needles, are to be dipped into the solution and dried by revolving in the air.

This makes the best and smoothest coating for pills. It may with propriety be called Gelatin Coating. Apparatus of various kinds may be obtained for Gelatin-Coating pill, but without experience it proves generally unsatisfactory in the hands of druggists.

Pills may also be coated with a solution of Shellac, 90 grains to 1 ounce of Alcohol, which does very well for extemporaneous work. They may be dipped in the solution or revolved in an evaporating dish with a very small quantity of it.

2460. Silvering and Gilding Pills.

Pills are sometimes coated with silver or gold leaf. This is done simply by moistening the pills with a thin coating of Albumen or Acacia solution and then revolving in a small globe in which leaves of silver or gold have been placed. The process is familiar to most druggists and many already have the small globes for silvering or gilding.

Besides the substances already mentioned for coating pills, French Chalk or Starch are sometimes used, the pills being first rolled in a solution of Acacia and then transferred to another dish containing the coating substance, which adheres sufficiently for the purpose. Paraffin and Cacao Butter are also used for coating pills.

Formulae for Pills.

In the formulae which follow it is not intended to give working formulas for definite quantities of Pills, but only the composition of those most used, with such hints as may be necessary for making them. The composition is mostly given for one Pill only, and it is obvious that any number may be calculated by multiplying the ingredients of the formula by the number of Pills desired.

2463. Abernethy's Pills.— Aloes Socotrine, Extract Hyoscyamus, each

2 grains. Pill Hydrarg., 1 grain, Ipecac $\frac{5}{6}$ grain.

2467. Aloes Pills.—The U. S. formula is equal parts of purified Aloes and Soap, to make a 4-grain Pill. The Br. P. directs these to be made both from Barbadoes and Socotrine Aloes, containing about one-half Aloes, one-fourth each Soap and Confection of Roses, and $\frac{1}{33}$ part Oil of Caraway.

2468. Aloes and Asafetida Pills.—The U. S. P. directs purified Aloes, Asafetida and Soap, each $1\frac{1}{3}$ grains. The Br. P. directs the same proportions, with the addition of about the same quantity of Confection of Roses, the dose being 5 to 10 grains.

2469 Aloes and Iron Pills.—The U. S. P. directs purified Aloes, dried Sulphate of Iron and Aromatic Powder, each one grain, with sufficient Confection of Roses to make a mass. The Br. formula is Sulphate of Iron $1\frac{1}{2}$ part, Barbadoes Aloes 2 parts. Compound Powder of Cinnamon 3 parts. Confection of Roses 4 parts, the dose being 5 to 10 grains. Some manufacturers add $\frac{1}{2}$ grain Extract Conium to each Pill.

2470. Aloes and Mastic—*Lady Webster's Dinner Pill.*—Purified Aloes 2 grains, Mastic, Red Rose, each $\frac{1}{2}$ grain in each Pill. This is a favorite Dinner Pill.

2471. Aloes and Myrrh Pills.—The U. S. formula is purified Aloes 2 grains, Myrrh 1 grain, Aromatic Powder $\frac{1}{2}$ grain, mixed with syrup, in each pill. The Br. is about the same.

2472. Aloes, Myrrh and Iron Pills.—Socotrine Aloes, Myrrh, each 2 grains, dried Sulphate of Iron 1 grain, in each pill.

2473. Aloes and Nux Vomica Pills.—Socotrine Aloes $1\frac{1}{2}$ grains, Extract Nux Vomica $\frac{1}{2}$ grain, in each pill.

2474. Aloes, Nux Vomica and Belladonna Pills.—Add $\frac{1}{8}$ grain Extract of Belladonna to the former formula.

2475. Aloin Pills.—These Pills are made $\frac{1}{10}$ grain, $\frac{1}{5}$ grain, $\frac{1}{2}$ or 1 grain of Aloin in each, with Extract of Gentian as an excipient.

2476. Aloin Compound Pills.— Aloin $\frac{1}{8}$, grain, Podophyllin $\frac{1}{8}$ grain, Extract Belladonna $\frac{1}{4}$ grain, in each pill. Many other compounds are made with Aloin and Podophyllin.

2480. Anderson's (Scot's) Pills.—These are generally prepared in this country from Aloes 24 parts, Castile Soap 4 parts, Colocynth and Gamboge, each 1 part, Oil Anise $\frac{1}{2}$ part, made into 3 grain pills.

2481. Anti-bilious Pills—Compound Extract of Colocynth $2\frac{1}{2}$ grains, Podophyllin $\frac{1}{4}$ grain in each. Many other similar formulas may be used.

2488. Aperient Pills.—Extract Colocynth Compound 2 grains, Extract Nux Vomica $\frac{1}{3}$ grain, Extract Hyoscyamus $\frac{1}{2}$ grain in each pill. Many other pills may be put up under this name.

2489. Aphrodisiac Pills.— Extract Damiana 2 grains, Extract Nux Vomica $\frac{1}{3}$ grain, Phosphorus $\frac{1}{100}$ grain, in each pill

2491. Asafetida Pills.—Asafetida, in powder $1\frac{1}{2}$ grain, Castile Soap $\frac{1}{2}$ grain in each, well rubbed together to form a mass. This makes a 2-grain pill. Double the quantities for 4-grain pill. Asafetida Pills should be well coated with Tolu or Shellac.

2492. Asafetida Pills Compound, or Compound Galbanum Pills.—The Br. P. directs Asafetida, Galbanum, Myrrh, each 2 parts, Treacle 1 part to make a mass, of which 5 to 10 grains is a dose.

2493. Asafetida and Iron Pills.— Asafetida 2 grains, dried Sulphate of Iron 1 grain, in each pill.

2494. Asafetida and Nux Vomica Pills.—Asafetida 3 grains, Extract Nux Vomica $\frac{1}{4}$, grain, in each pill.

2496. Belladonna Extract Pills. — Pills of Extract of Belladonna are

made $\frac{1}{20}$, $\frac{1}{8}$, $\frac{1}{4}$, and $\frac{1}{2}$ grain, in each pill.

2515. Cannabis Indica Extract Pills. — These are made $\frac{1}{4}$, $\frac{1}{2}$ and 1 grain of the Extract in each pill.

2516. Capsicum Pills.—Capsicum 1 grain, with Extract Gentian as an excipient in each pill.

2517. Cascara Sagrada Extract.—Cascara Sagrada Extract 2 grains, in each pill.

2521. Cathartic Compound Improved Pills.—Extract Colocynth Compound 1 grain, Extract Jalap $\frac{1}{4}$ grain, Resin Podophyllin $\frac{1}{8}$ grain, Resin Leptandrin $\frac{3}{8}$ grains, Extract Hyoscyamus $\frac{1}{4}$ grain, Extract Gentian $\frac{1}{2}$ grain, Oil Peppermint $\frac{1}{40}$ minim, in each pill.

Several other similar formulas are in use.

2522. Cathartic Vegetable Pills. —3 Grains.—Compound Extract Colocynth $1\frac{1}{2}$ grains, Podophyllin $\frac{1}{3}$ grain, Leptandrin $\frac{1}{8}$ grain, Extract Jalap $\frac{1}{4}$ grain, Socotrine Aloes $\frac{1}{2}$ grain, Extract Hyoscyamus $\frac{1}{4}$ grain, Oil Peppermint $\frac{1}{20}$ minim, in each pill.

2524. Charcoal Pills.— Willow Charcoal 3 grains in each.

2544. Copaiba Pills.—Solidified Copaiba is made up into pills of 3 grains each.

2545. Copaiba and Cubeb Pills. — Solidified Copaiba 2 parts and Oleo-resin Cubeb 1 part is made up into pills of 3 to 5 grains each. It is necessary to use some drier, as Magnesia, in making this pill.

2550. Cubeb, Rhatany, and Iron Pills.— Extract Cubeb $1\frac{1}{2}$ grains, Extract Rhatany $\frac{1}{2}$ grain, Sulphate of Iron, 1 grain, in each pill.

2551. Damiana Extract Pills.— These are made 3 to 5 grains of the

extract in each pill.

2556. Dinner Pills (Chapman's).— Aloes, Mastic, each $1\frac{1}{2}$ grain, Ipecac 1 grain, Oil Fennel $\frac{1}{40}$ grain, in each pill.

2559. Dinner Pill (Lady Webster's). — Aloes 2 grains, Mastic $\frac{1}{2}$ grain, Rose Leaves $\frac{1}{2}$ grain, beat together, in each pill.

2566. Eucalyptus Extract Pills. — These are made 2 to 4 grains in each pill.

2567. Extract Pills.—Any extract can be made up into pills as desired, the quantity in the pill being regulated according to the medium dose usually given of the extract.

2569. Gelsemium Extract Pills.— These are made 1 grain each of Gelsemium Extract.

Gelsemin Pills are made $\frac{1}{8}$ grain with Extract Gentian excipient.

2570. Gentian Extract Compound Pills.—Extract Gentian, Aloes, each $\frac{2}{3}$ grain, Rhubarb $1\frac{1}{3}$ grain, in each pill.

2572. Grindelia Robusta Extract Pills.—These are made 3 grains Extract Grindelia, in each pill.

2573. Guarana Extract Pills.— Extract of Guarana or Paullinia 1 or 3 grains in each pill.

2574. Helonias Compound Pill.— Helonias $\frac{1}{7}$ grain, Caullophyllin $\frac{1}{4}$ grain, Vibernin $\frac{1}{8}$ grain, Extract Mitchella $1\frac{1}{2}$ grain, in each pill.

2576. Hooper's Pills.—Barbadoes Aloes 1 grain, Sulphate Iron Exsic. $\frac{1}{3}$ grain, Extract Hellebore, Gum Myrrh, Castile Soap, each $\frac{1}{4}$ grain, Jamaica Ginger $\frac{1}{8}$ grain, Canella Alba $\frac{1}{8}$ grain in each pill.

2583. Ipecac Pills.— Ipecac $\frac{1}{2}$, $\frac{1}{4}$ or 1 grain in each pill with

excipient.

2609. Lupulin and Lettuce Pills.—Lupulin 1 grain, Extract of Lettuce 2 grains, in each pill.

2610. Mandrake Extract Pills.— These are made 1 grain of Extract of Mandrake in each pill.

2638. Podophyllin Pills.—These are made $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$ and 1 grain of Podophyllin Resinoid in each pill with Extract of Mandrake or Gentian as an excipient.

2639. Podophyllin Compound Pills. — Podophyllin $\frac{1}{2}$ grain. Extract Hyoscyamus $\frac{1}{8}$ grain, extract Nux Vomica $\frac{1}{16}$ grain, in each pill.

2641. Podophyllin, Capsicum and Belladonna Pills. — Podophyllin $\frac{1}{4}$ grain, Extract Belladonna $\frac{1}{4}$ grain, Capsicum $\frac{1}{2}$ grain, in each pill.

2643. Podophyllin and Leptandrin Pills.—Podophyllin $\frac{1}{4}$ grain, Lep-tandrin 1 grain, in each pill.

2653. Rhubarb Pills.—These are made either of Powdered Rhubarb or of Rhubarb Extract, of various sizes from 2 to 5 grains each. The U. S. official pill is made 3 grains Powdered Rhubarb, 1 grain soap in each.

2654. Rhubarb Compound Pills,—The U. S. formula is Rhubarb 2 grains, purified Aloes $1\frac{1}{2}$ grains, Myrrh 1 grain. Oil Peppermint $\frac{1}{10}$ grain, in each pill. The Br. formula is very similar.

2661. Sandal Wood Extract Pills.— These are made 1 grain or 2 grains of Extract of Sandal Wood in each pill.

2662. Sandal Wood Extract Compound Pills.— Extract Sandal Wood, Pil. Copaiba, each 1 grain, Extract Cubebs, Extract Matico, each $\frac{1}{2}$ grain.

2673. Sumbul Extract Pills.— Extract of Sumbul 1 grain in each pill.

2677. Taraxacum Extract Pills.— Extract of Dandelion 2, 3, or 5 grains in each pill.

2680. Valerian Extract Pills. — These are made 3 grains in each pill.

PIX—PITCH.

Several preparations, consisting of resinous or bituminous substances, prepared in various ways, are known as Pitch. They are similar to but more plastic than resins.

2688. Pix Burgundica — *Burgundy Pitch.*—A prepared concrete resinous exudation from *Abies Excelsa*, containing a small quantity of terpene, $C_{10}H_{16}$, a little water, but composed mainly of resin. It is used chiefly in making plasters and chewing gum.

2689. Pix Canadensis—*Canada Pitch, Hemlock Pitch.*—The prepared resinous exudation of *Abies Canadensis*, consisting mainly of resins, with a little terpene and water. The resinous exudate from hemlock trees is collected and boiled in water, and the mass which rises to the surface strained while hot, the strained product being Hemlock Pitch or Hemlock Gum, which is used chiefly for making plasters.

2690. White Pine Pitch.—The pitchy substance which exudes from pine trees when cut or tapped. When first obtained it is soft and semi-liquid, and commonly known as Pitch. When exposed it hardens, and is known in pharmacy as Turpentine or White Pine Turpentine or Gum. The soft pitch is frequently used in making plasters and ointments.

2691. Pix Liquida—*Liquid Pitch or Tar.*—The empyreumatic Oleo-resin obtained by the destructive distillation of the wood of *Pinus Palustris*, is known as *Pine Tar*, which is official. Many other varieties of tar are obtained from the destructive distillation of other wood, as *Birch Tar, Juniper Tar*, etc. Tar is usually obtained as a by-product of charcoal manufacture or the manufacture of Acetic Acid from wood. It consists of volatile products, as Oil of Tar, Creasote, etc., which are vaporized by heat, leaving a black mass, solid when cool, and known as *Black Pitch*, which is used sometimes in plasters and as an ingredient in

shoemaker's wax, etc.

PULVERES — POWDERS.

Aside from the general meaning of the word Powder or Powders as describing any finely comminuted substance, the term is applied in Pharmacy to a class of Compound Powders which have been adopted as convenient or efficient preparations to be dispensed in this form. Other Powders, as Tooth Powders, Face Powders, etc., are found under their proper headings, only these which are intended to be used as medicine being included here.

The following are those official in the leading Pharmacopoeias :

2753. Pulvis Aerophorus. G. P.

Effervescing Powder.

Bicarbonate of Sodium,	10 parts.
Tartaric Acid,	9 parts.
Sugar,	19 parts.

Dry them separately in fine powder at a gentle heat and then mix them intimately. When mixed with water they effervesce with liberation of carbonic acid gas.

2754. Pulvis Aerophorus Anglicus.

Soda Powders.

The German formula under the above title is:

Bicarbonate of Sodium, put up in a blue paper,	2 grammes.
Tartaric Acid, put up in a white paper,	1 ¹ / ₂ gramme.

Under the title *Pulveres effervescentes* they were official in the 1870 U. S. P. Bicarbonate of Sodium 360 grains and Tartaric Acid 300 grains were each put up separately in 12 powders each.

When given, one of each of the powders is dissolved in one ounce of Water and the solution mixed and drank during effervescence.

2755. Pulvis Amygdalae Compositus. Br.

Compound Powder of Almonds.

Sweet Almonds,	8 ounces or 8 parts.
Refined Sugar,	4 ounces or 4 parts.
Gum Acacia,	1 ounce or 1 part.

Blanch the Almonds, dry them thoroughly and powder them, then mix with the Gum and Sugar. This is used for making mixture of almond.

2757. Pulvis Aromaticus. U. S.

Aromatic Powder.

Cinnamon, No. 60 powder,	7 drachms.
Ginger, No. 60 powder,	7 drachms.
Cardamom, No. 60 powder,	3 drachms.
Nutmeg, No. 60 powder,	3 drachms.

Mix them intimately.

Under the title *Pulvis Cinnamomi Compositus*, *Compound Powder of Cinnamon*, the Br. P. directs Cinnamon, Cardamom Seeds and Ginger, each in fine powder, 1 ounce.

Aromatic Powder is used for making several preparations, and as an addition to other powders.

2758. Pulvis Catechu Compositus. Br.

Compound Powder of Catechu.

Catechu, in powder,	4 ounces or 4 parts.
Kino, in powder,	2 ounces or 2 parts.
Rhatany, in powder,	2 ounces or 2 parts.
Cinnamon, in powder,	1 ounce or 1 part.
Nutmeg, in powder,	1 ounce or 1 part.

Mix them thoroughly, pass the powder through a fine sieve and rub it lightly in a mortar. Dose 20 to 40 grains as an astringent for bowel complaints, etc.

2759. Pulvis Cretas Compositus. U. S.

Compound Chalk Powder.

Prepared Chalk,	30 parts or 3 ounces.
Acacia,	20 parts or 2 ounces.
Sugar,	50 parts or 5 ounces.

Mix them intimately.

This powder is used for making chalk mixture and is given in powder for summer complaints and teething, in doses of 10 to 60 grains.

The *Aromatic Powder of Chalk* of the Br. P. is

Cinnamon	4 ounces,
Nutmeg	3 ounces.
Saffron	3 ounces,
Cloves	1 ¹ / ₂ ounce,
Cardamom Seeds	1 ounce,
Refined Sugar	25 ounces.
Prepared Chalk	11 ounces,

all in powder, and intimately mixed.

2761. Pulvis Effervescens Compositus, U. S.

Seidlitz Powders — Aperient Effervescing Powders.

Bicarbonate of Sodium,	480 grains.
Tartrate of Potassium and Sodium,	1440 grains.

Mix them intimately together and divide into 12 powders, which are to be put up in blue papers.

Tartaric Acid, in fine powder,	420 grains.
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Divide into 12 powders, which are to be put up in white paper.

When taken the contents of one of the blue papers is to be dissolved in about 1½ ounce of water, and the contents of one white paper in about one ounce of water. The solutions are then to be mixed and immediately drank during effervescence.

The German *Pulvis Aerophorus Laxans* is about the same.

2762. Seidlitz Mixture is prepared with 1 part of Bicarbonate of Sodium and 3 parts of Tartrate of Potassium (Rochelle Salt) intimately mixed.

Seidlitz Measures made of boxwood may be had, by which a sufficient quantity of the mixture is taken for each powder.

2763. Pulvis Elaterini Compositus. Br.

Compound Powder of Elaterin.

Elaterin,	5 grains or 1 part.
Sugar of Milk,	195 grains or 39 parts.

Rub them together in a mortar until they are reduced to a fine powder and intimately mixed. Dose ½ to 5 grains.

This contains only 2½ per cent. of Elaterin. The U. S. Trituration of Elaterin contains 10 per cent.

2764. Pulvis Glycyrrhizae Compositus.

Compound Powder of Glycyrrhiza or Liquorice.

The U. S. formula is :

Senna, in powder,	18 parts or 2½ ounces.
Liquorice Root, in powder,	16 parts or 2 ounces.
Fennel, in powder,	8 parts or 1 ounce.
Washed Sulphur,	8 parts or 1 ounce.
Sugar, in fine powder,	50 parts or 6¼ ounces.

Mix them thoroughly by rubbing together and passing through a sieve.

The Br. formula differs but slightly from this in proportion of ingredients and corresponds with the German *Pulvis Liquiritae Compositus*, which is Senna, Liquorice, each 2 parts, Fennel, Washed Sulphur, each 1 part, Sugar 6 parts.

This is also called *Laxative Powder* and *Brustpulver*, and is used both as a laxative and pectoral, in doses of half to a teaspoonful or more in a little water.

2765. Pulvis Gummosus. G. P.

Compound Powder of Acacia — Gummipulver.

Acacia,	15 parts or 3 ounces.
Liquorice Root,	10 parts or 2 ounces.
Sugar,	5 parts or 1 ounce.

Used in cough mixtures, etc.

2767. Pulvis Jalapae Compositus.

Compound Powder of Jalap.

The U. S. formula is :

Jalap, in powder,	35 parts or 1 ounce.
Bitartrate of Potassium, in powder,	65 parts or 2 ounces.

Rub them together until they are thoroughly mixed.

The Br. formula is Jalap, in powder, 5 parts. Acid Tartrate of Potassium (Cream of Tartar) 9 parts, Ginger, in fine powder, 1 part.

The dose of this powder is 20 to 60 grains, usually given in syrup.

2771. Pulvis Rhei Compositus.

Compound Powder of Rhubarb — Gregory's Powder.

The U. S. formula is

Rhubarb, in powder,	25 parts or 2 ¹ / ₂ ounces.
Magnesia (calcined),	65 parts or 6 ¹ / ₂ ounces.
Ginger, in powder,	10 parts or 1 ounce.

Rub them thoroughly together.

The Br. formula is

Rhubarb,	2 ounces.
Light Magnesia,	6 ounces.
Ginger,	1 ounce.

The German formula for *Powder of Magnesia and Rhubarb* is:

Rhubarb,	15 parts.
Oleo-Saccharate of Fennel,	40 parts.
Carbonate of Magnesium,	60 parts.

The dose of this powder is from 20 to 60 grains, as a laxative and antacid stomachic.

2772. Pulvis Salicylicus cum Talco. G. P.

Powder of Salicylic Acid and Talc,

Salicylic Acid,	3 parts.
Wheat Starch,	10 parts.
Talc,	87 parts.

Mix them thoroughly. This powder is used as a dusting for chapped or inflamed surfaces, or as a Baby Powder.

2773. Pulvis Scammonii Compositus. Br.

Compound Powder of Scammony.

Scammony Resin, in powder,	4 ounces or 4 parts.
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Jalap, in powder, 8 ounces or 8 parts.
Ginger, in powder, 1 ounce or 1 part.

Mix them thoroughly. This is used as a cathartic in doses of 10 to 20 grains.

2774. Pulvis Tragacanthae Compositus.

Compound Powder of Tragacanth.

Tragacanth, in powder, 1 ounce or 1 part.
Gum Acacia, in powder, 1 ounce or 1 part.
Starch, in powder, 1 ounce or 1 part.
Refined Sugar, in powder, 3 ounces or 3 parts.

Rub them well together. Dose, 20 to 60 grains.

Unofficial Powders.

The foregoing powders include those official in the leading pharmacopoeias, but many others are used in pharmacy. The following are the more important unofficial powders used in medicine which are not included under other headings :

2775. Aloes and Canella Powder.

Pulvis Aloes et Canella. (Hiera Picra).

This powder was formerly official under the above title :

Socotrine Aloes, in fine powder, 4 ounces.
Canella, in fine powder, 1 ounce.

Rub them together until they are thoroughly mixed. This is familiarly known as " Picra," and used as a bitters, physic and vermifuge.

Liquid Picra may be prepared by macerating 1¹/₂ ounce av. of the above powder in diluted alcohol 1 pint, and filtering.

2776. Aloes Powder Compound.

Aloes, in fine powder,	3 ounces.
Guaiacum Resin, in fine powder,	2 ounces.
Aromatic Powder,	1 ounce.

Rub them well together. This is a warm, sudorific, purgative, in doses of 10 to 20 grains.

2779. Composition Powder — (Thompsonian).—

Bayberry Bark	1 pound av..
Ginger, Cloves, Capsicum,	each 1 ounce av.

All in fine powder and intimately mixed. A teaspoonful in a cup of boiling water, to be drank hot, as a diaphoretic, etc.

Another formula is:

Hemlock Bark	2 pounds,
Bayberry Bark	1 pound.
Ginger	1/2 pound,
Capsicum, Cloves,	each 1 ounce,

all in fine powder and intimately mixed. This powder is not so strong as the preceding, and the Hemlock Bark is considered an addition to its diaphoretic properties. The dose is 1 or 2 teaspoons-ful prepared as above.

2780. Cubeb and Alum Powder. — Cubeb, in fine powder, 4 ounces, Alum, in fine powder, 1 ounce. Mix them. The dose is 2 drachms or less for Gonorrhoea or other vitiated discharges. One part of this powder may be mixed with 4 parts of Syrup and given in this form.

2781. Diapente Powder.—Serpentaria, Gentian, Bayberry, Myrrh, Phosphate of Lime, each in fine powder equal parts, thoroughly mixed.

2782. Fumigating Powder.— Amber, Mastich, Olibanum, each 3 parts, dry Storax 2 parts, Benzoin and Labdanum, each 1 part, all in coarse powder and well mixed, to be burned on hot coals.

RESINÆ — RESINS.

Including Gums, Gum-Resins, and Resinous Substances.

Resins, as understood in pharmacy, are substances obtained from vegetable matters, insoluble in water but soluble in oils, alcohol or ether, and, obtained as natural exudates, or as residues by distillation from oleo-resins or turpentine, or by precipitation from alcoholic fluid extracts of drugs in which they naturally exist as active principles.

The Gums, Gum-Resins, and Resinoids are also included in this section as they have similar origin and characteristics.

2786. Resina.

Resin — Colophony.

The residue left after distilling off the volatile oil from the crude turpentine obtained from various species of *Pinus*. It is often improperly called Rosin. It is a hard, brittle, transparent substance, from a very pale to a dark amber color, and consists of *Abietic Anhydride*, which, when treated with dilute alcohol, is converted into *Abietic Acid*.

Uses.— Resin is extensively used in the industrial arts for various purposes and in pharmacy is employed to impart adhesiveness to ointments, cerates, and plasters.

Resin Oil is an oil obtained by the dry distillation of Resin. It is used for lubricating, etc., being first made into a soap with slacked lime. It is an ingredient of axle-grease.

2787. Resina Copaibae.

Resin of Copaiba.

The residue left after distilling off the volatile oil from Copaiba. It is a yellowish, brittle resin, of a weak odor and taste of Copaiba, and an acid reaction. It is used to combine with Copaiba and Oil of Cubebs, making "*Extract of Cubebs and Copaiba*," a paste or soft mass, used for Gonorrhoea.

2788. Resina Damar.

Demar Resin.

A Resin obtained from various species of *Damara*, found in Southern India. It is a clear or light amber-colored Resin, used for making Demar Varnish by dissolving in Oil of Turpentine, and as a dusting for various purposes. It is official in the G. P.

2789. Resina Jalapae.

Resin of Jalap.

Jalap, in No. 60 powder, 16 ounces av.
Alcohol,
Water, each a sufficient quantity.

Exhaust the Jalap by percolating with Alcohol in the water-bath percolator as directed (1069), and evaporate the percolate by distillation to 6¹/₂ fl.ounces, which add to one gallon of water, gradually, and with constant stirring, wash the precipitate with fresh water. Drain, press and dry by gentle heat. This is used as a cathartic, usually in Pills.

2790. Resina Podophylli.

Resin of Podophyllum — (Podophyllin)

Podophyllum, in No. 60 Powder, 16 ounces.
Hydrochloric Acid, 1 fl.drachm.
Alcohol,
Water, each a sufficient quantity.

Exhaust the Podophyllum by percolating with Alcohol in the water-bath percolator as directed (1069) and evaporate the percolate by distillation to the consistence of Honey, which is then to be slowly added, with constant stirring, to 1 pint of Water, previously cooled by ice and mixed with the Hydrochloric Acid. Wash the precipitate twice with cold water, drain, press and dry in a cool place.

This is more commonly called *Podophyllin*, and is the active principle of Mandrake or May-apple root.

Uses.— This is extensively used in the manufacture of Liver and Cathartic Pills and given in powders. The dose is Y% to i grain.

2791. Resina Scammonii.

Resin, of Scammony,

Scammony, in No. 60 Powder, 16 ounces av.

Alcohol,

Water, each a sufficient quantity.

Digest the Scammony with successive portions of boiling Alcohol until exhausted. Mix the tinctures thus obtained, and evaporate by distillation to a syrupy consistence. Then add the residue to 2¹/₂ pints of water, wash the precipitate with water and dry it with gentle heat.

Uses.—Resin of Scammony is used in making pills, powders, etc. The dose is from 3 to 10 grains.

The foregoing Resins are official in the leading pharmacopoeias. The following unofficial Resins are considerably used:

2792. Amber—*Succinum*.—Also called *Electron* from its property of generating electricity. A fossil-resin, supposed to have been produced by species of *Pinus* now extinct. It is used for making ornaments, mouth-pieces of pipes, etc. By dry distillation it yields Acetic Acid and Oil of Amber, which pass over as liquids into the receiver, and *Succinic Acid*, $H_2C_4H_4O_4$, which sublimes and gathers in the neck of the retort, and which combines with bases forming *Succinates*. Amber is extensively used for making fine varnishes.

2793. Anime — *Gum-Anime, West India Copal*.— A pale brownish-yellow, brittle, transparent Resin, obtained from a species of locust in the West Indies. It emits a very fragrant odor when burned, and is used as a fumigation for asthma and in solution is externally applied. It is used in making pastilles and for varnishes.

2794. Asphaltum.—A black, hard, brittle variety of bitumen found in various parts of the world as a natural exudation from the earth. It is also called Mineral Pitch, Fossil Bitumen, etc. It is not properly included

with the Resins but has similar characteristics.

Liquid Asphaltum.—This is prepared as a *Black Japan* or gloss varnish by melting Asphaltum $\frac{1}{2}$ pound av., adding Balsam Copaiba, heated, 1 pound, and thinning with Oil of Turpentine. Ordinary Black Asphaltum Varnish is made by melting Asphaltum and adding twice its weight of hot Oil of Turpentine.

2795. Caoutchouc—*India Rubber*—*Resina Elastica*.—This is the concrete juice of several species of *Elastica* found in tropical countries. The fresh milky juice is spread over mounds of unbaked clay and exposed to heat by torches, from which its smoky color is derived. Successive layers of the juice are spread on until the mass is sufficiently thick and hard, when the clay is broken. India Rubber is extensively used in the arts, for a great variety of purposes. Its solution in ether or benzol is used as an adhesive and a water-proof covering for fabrics.

Vulcanized Rubber or *Hard Rubber* is made by combining Caoutchouc with from 12 to 15 per cent. of Sulphur, by heating them together. It is used for making a great variety of useful and ornamental articles.

2796. Copal — *Gum Copal*.— A resinous exudate from various species of locust and other trees found in tropical countries. The variety obtained from East India is known as *Gum Anime* (2793), that from the West Indies is known as Copal. These resins are extensively used in the manufacture of varnishes.

2797. Dragon's Blood — *Sanguis Draconis*, *Resina Draconis*. A rich-red resin obtained from the fruit of *Calamus Draco*, a species of palm, by beating or shaking the fruit in a bag, which breaks off the resin, which is then separated, melted and run into reed moulds or masses as it appears on the market. Its solution is used for coloring some medicinal substances, varnishes and lacquers.

2798. Guaiac Resin— *Gum Guaiac*.—This Resin is obtained by various means from *Guaiacum Officinale* and contains Guaiacic Acid, $C_{12}H_{16}O_6$, and several other similar compounds. By dry distillation an Oil is obtained containing *Guaiacol*, $C_7H_8O_2$, *Guaiacene*, C_8H_8O , and other compounds.

Uses.— Guaiac Resin is used in making several preparations, and in

medicine is employed for gout, rheumatism, etc., either in solution or in powder.

2799. Gutta-Percha. — This is a substance resembling India Rubber, obtained from *Isonandro Gutta*, growing only in the Malayan Archipelago. The tree is notched or tapped and the milky juice which exudes exposed to the air for some time when it solidifies, forming the Gutta Percha of commerce. It is purified and made into sheets which are elastic, pliable and tough, and may be moulded into any desired form. Its solution in Benzol or Bisulphide of Carbon is used for adhesive purposes, and for making waterproof fabrics.

2800. Lac.—A resinous substance, combined with considerable coloring matter, obtained from the branches of several tropical trees and produced by the puncture of an insect. *Coccus lacca*. The crude resinous substance is Stick Lac. Shellac is prepared by melting the resin in long linen bags before a fire and spreading it on bamboo in thin layers. It is obtained in scales. It is used as a varnish and for making sealing wax, etc.

Lac Dye is the coloring matter obtained from Lac by washing with water, and *Seed Lac* is the residue obtained after dissolving out most of the coloring matter from the crude Lac.

2801. Mastic— *Gum Mastic*.—A resin obtained from *Pistacia Lentiscus* by incising the bark and collecting the exudate. It occurs in tears, is soluble in Alcohol and in Oil of Turpentine, and is used for making a varnish for pictures and for making cements, and as a dusting for gilding on leather, cloth, etc. for bookbinders' use.

2802. Sandarach — *Gum Sandarach*.— This is a resinous exudate obtained from *Thuja articulata* and *Juniperus communis* grown in warm climates. It is used in making spirit varnish for photographic plates, etc., and in the form of powder for pounce bags, etc.

Gums.

Under this commercial title are included a great number of substances which are pharmaceutically classed under other headings. In pharmacy the substances classed as gums are natural exudates from trees or plants, which are soluble, or partly soluble, in water, and not in Alcohol,

Ether, or Oils, Acacia or Gum Arabic being the most perfect type of this kind.

Acacia and Tragacanth, which are official, are the only true gums. The remainder, which are thus classed commercially, consisting of balsams, oleo-resins, turpentine, resins, gum-resins, stearoptens (camphor), and inspissated or concrete juices (as aloes and opium), and extracts (as catechu).

2803. Acacia.
Gum Arabic.

This is a natural exudate, obtained from various species of Acacia, found in Arabia, Morocco, Turkey, Africa and the East Indies, the product generally bearing the name of the country or locality from which it is obtained — as Gum Arabic from Arabia, Barbary or Morocco Gum from Morocco, Gum Senegal from the settlements on the Senegal River, and East India Gum from Bombay. They are all furnished commercially as Gum Arabic of different qualities, the best being known as Extra, Select, White, and the inferior qualities as 1st, 2d, 3d, 4th, 5th, Select and Sorts.

Acacia consists chiefly of *Arabic Acid* or *Arabin*, combined with lime, potassium, or magnesium.

Uses.— It dissolves in water forming mucilage, and is used for making Syrup Acacia, and in making troches, pills, powders, etc. In medicine it is used as a demulcent.

Gum Senegal is a species of Acacia extensively used in the arts.

2804. Tragacantha.
Tragacanth or Gum Tragacanth.

This is a gummy exudate born several varieties of *Astragalus*, found in western Asia. It contains about 33 per cent. of *Bassorin*, an insoluble gum, and 53 per cent. of a soluble gum peculiar to it.

Uses.— Tragacanth absorbs water and forms a gelatinous mass or paste, which is used as a mucilage. It is used in the form of a powder to give adhesive properties to lozenges, troches, etc., also to make

bandoline and hair fixers.

Besides these gums, which are official, a few others are known and sometimes used, as *Cherry-tree Gum*, which is mostly insoluble. *Hog Gum* from *Rhus Metopium*, *Mesquit Gum* from *Algarobia Glandulosa*, etc.

The following substances are classed commercially with Gums, but are known in pharmacy by the names they bear:

2805. Aloes.—The inspissated juice of the leaves of several varieties of Aloes found in Africa. Socotrine Aloes only is official in the U. S. The Br. P. recognizes Socotrine and Barbadoes Aloes. It is commonly known as Gum Aloes.

2806. Camphor—Gum Camphor— $C_{10}H_{16}O$.—Although Camphor is a stearopten — an oxygenated turpene — possessing none of the properties of gums or gum-resins, and does not properly belong in this department, it is commercially classed with gums, and is familiarly known as "Camphor Gum." It is obtained by subliming the crude Camphor, imported from China and Japan, from *Cinnamonum Camphora*, in shallow iron vessels, the sublimed Camphor collecting on the covers of the vessels.

Uses.— Camphor is one of the most familiar household remedies, "Spirits of Camphor " being used for everything. In pharmacy it is much used in making liniments, ointments, and other external applications and also an ingredient of many preparations given internally. It is a stimulant and may be given in doses of 2 to 10 grains. It is sold extensively to pack with furs to prevent moths, etc.

Monobromated Camphor— $C_{10}H_{15}BrO$.—This is prepared by the reaction of Bromine upon Camphor, and subsequent separation of the crystalline mass, and purification. It is given as a nervous sedative in doses of 2 to 5 grains.

2807. Catechu.— An extract prepared from the wood of *Acacia Catechu*, containing Catechu-tannic Acid, *Catechin* and *Catechol*. It is known commercially as Gum Catechu, Gum Cutch, Terra Japonica, etc. It is extensively used for dyeing and tanning, and in medicine as an

astringent and tonic, the dose being from 5 to 20 grains.

2808. Kino—Gum Kino.—The inspissated juice of *Pterocarpus Marsupium*, found in the East Indies, and containing several astringent principles. It is used in pharmacy for making Tincture of Kino, and in medicine is employed as an astringent and tonic, in doses of 5 to 20 grains.

2809. Opium—Gum Opium.— The concrete milky exudation from *Papaver Somniferum*. Although classed commercially with the gums it has none of their characteristics.

Gum-Resins.

Gum-Resins, as understood in pharmacy, are natural exudates from trees or plants, consisting of gum, a portion soluble in water, and Resin, soluble in alcohol, therefore possessing the properties of both Gum and Resin. They are all classed commercially and familiarly known as Gums.

The following are official in the U. S. and Br. pharmacopoeias, under the titles given :

2810. Ammoniacum.
Ammoniac or Gum Ammoniac.

A Gum-Resin obtained from *Dorema Ammoniacum*, containing about 25 per cent. of Gum, 70 per cent. of Resin, and 3 per cent. of volatile oil. It forms an emulsion when rubbed with water, and is somewhat employed as an expectorant and stimulant. It is also given in powders. The dose is 5 to 15 grains.

2811. Resorcin.— $C_6H_6O_2$ —Ammoniac is exhausted with alcohol, and the alcohol distilled until an extract only remains ; this is carefully fused with three times its weight of caustic potassa; the mass is then dissolved in water and slightly acidulated with sulphuric acid, the solution filtered and agitated with ether. The ethereal portion is then separated and distilled or evaporated, leaving impure Resorcin as a residue, which is purified by dissolving in ether, distilling and crystallizing.

Resorcin is used as an antiseptic in fevers, cholera, etc., in doses of 5 to 10 grains.

2812. Asafoetida.
Asafetida or Gum Fetida.

A Gum-Resin obtained from the root of *Ferula Narthax* and other species of *Ferula*, containing about 20 per cent. of Gum and about 70 per cent. of Resin and a volatile oil. A portion is soluble in water, but the valuable portion is soluble in alcohol. It forms an emulsion when rubbed with water. It is employed as an antispasmodic in doses of 3 to 10 grains, and is given in the form of tincture and syrup for worms. Owing to its disagreeable odor it is usually given in the form of pills

2813. Cambogia.
Gambogia, Gum Gamboge.

A Gum-Resin obtained from *Garcinia Hanburii*, containing about 20 per cent. of Gum and 75 per cent. of Resin, called *Gambogic Acid*. It is a powerful hydrogogue cathartic, and is mostly used in combination with other substances in cathartic pills. The dose is $\frac{1}{2}$ to 3 grains. It is also used as a pigment, making with water a glossy golden color.

2814. Galbanum.
Gum Galbanum.

A Gum-Resin obtained from *Ferula Galbaniflua*, containing 20 per cent. of gum, 65 per cent. of resin, and about 8 per cent. of volatile oil. It is a valuable ingredient of plasters and is used in pills. Its resin, extracted with alcohol, yields resorcin by the same treatment as is employed with ammoniac, and by dry distillation *Umbelliferone*, $C_9H_6O_3$, which is the principal in gums, giving a blue color when dissolved with water and a little ammonia added. Galbanum is employed internally as an antispasmodic, in doses of 5 to 15 grains.

2815. Myrrha.
Myrrh — Gum Myrrh.

A Gum-Resin obtained from *Balsamodendron Myrrha*, containing about 30 per cent. of gum, 60 per cent. of resin, about 3 per cent. of a volatile oil, and a bitter principle.

Myrrh is used in making several official preparations and employed in

medicine as a stimulant and tonic. The dose is 5 to 20 grains.

2816. Scammonium.
Scammony.

A dried exudation from the root of *Convolvulus Scammonium*, containing gum and resin. The best varieties are called *Virgin Scammony*. It is used for making Resin of Scammony and in medicine as a purgative.

Other Gum-Resins.

Several other Gum-resins besides the foregoing official ones are used in pharmacy and medicine. The more important are as follows:

2817. Bdellium—*Gum Bdellium*.—A substance resembling Myrrh, obtained from Africa and the East Indies. It is used as a stimulant and expectorant.

2818. Euphorbium. — A substance containing- about 18 per cent. of gum and 38 per cent. of resin, obtained from *Euphorbium resinifera* found in Morocco. It is used in irritating plasters, especially in veterinary practice, and in catarrh snuffs, etc.

2819. Olibanum — *Gum Olibanum or Frankincense*.— A Gum-Resin obtained from several species of *Boswellia*. It resembles Myrrh and is burned as incense. It contains 30 to 36 per cent. of gum and about 56 per cent. of resin, with a little volatile oil and insoluble gum (bassorin). It is used in making plasters and some other preparations.

2820. Opoponax—*Gum Opoponax*.—A Gum-Resin obtained from the roots of *Opoponax Chironium*, and containing gum, volatile oil, and resin. It is sometimes used as a stimulant and in plasters.

2821. Sagepenum—*Gum Sagepenum*.—A Gum-Resin obtained from some species of *Ferula*, somewhat resembling Asafetida and Galbanum. Factitious Gum Sagepenum is made by melting 3 parts Asafetida with 15 parts Galbanum and adding 1 part Oil of Turpentine. Its uses are similar to Galbanum.

2822. Spruce Gum.—A Gum-Resin obtained from the black spruce,

Abies Nigra, found in the elevated regions of New England and in Canada. This gum is highly esteemed as a chewing gum, the pure gum having a fine flavor, but, as it is not abundant, most of the gum sold as Spruce Gum consists mainly of Bergundy Pitch.

An alcoholic Tincture of Pure Spruce Gum is used as a pectoral, and may be made into a syrup the same as Tolu.

2823. Tamarac Gum.—This is a Gum-Resin exuding from the tamarac or hackmatack tree, *Larix Americana*. It is not very abundant. It is used in the form of tincture as a pectoral, and the gum is chewed for the same purpose.

Many other exudates which are known commercially as Gums will be found under other headings, as Benzoin, Liquidamber or Sweet Gum under BALSAMS, Elemi, Gum Thus or White Pine Gum, etc., under OLEO-RESINS, etc.

2824. Chewing Gums.

The practice of Gum chewing has recently developed to quite an extent among all classes, and enterprising manufacturers advertise the superior qualities of their Gums with great vigor. They can only be mentioned in this connection, their formulas being given in another department.

The Chewing Gums sold as "Spruce Gum" are mainly composed of Burgundy Pitch. The white Gums under various titles as "Mastic," "Tolu," "Rosebud," etc., are soft Paraffin, some of them being mixed with sugar, fruits, etc. "Rubber Gum" is made from Rubber mixed with some other Gums. The Taffy and Caramel Gums are made with mixed Gums and Sugar or Caramel, etc. The Black Gums contain Black Pitch, etc. In fact, so great is the variety of Chewing Gums found in the market that it is next to impossible to enumerate them.

RESINOIDS OR CONCENTRATIONS.

Eclectic Extracts, Powders, or Active Principles.

A class of preparations first introduced by the Eclectics and known as concentrated medicines or resinoids, of which Resin of Podophyllum ("Podophyllin") may be taken as a type, are considerably used, many of them possessing great merit as representing the principles of the drugs from which they are derived in concentrated form. These preparations are generally precipitated alcoholic extracts of the drugs, some being resins, some oleo-resins, and others mixed principles, which may or may not represent the true active medicinal value of the drug, depending upon its solubility in alcohol. They must not, therefore, be confounded with true active principles of definite chemical composition bearing the same names, as they are sometimes widely different.

2825. General Formula for Resinoids or Concentrations.

Take of the required drug in moderately fine powder any convenient quantity and Alcohol sufficient. Exhaust the drug by water-bath percolation with the alcoholic menstruum and concentrate the percolate by distillation until it is reduced to the consistence of a thin syrup, which pour gradually and with constant stirring into a sufficient quantity of cold Water. After standing, collect the precipitate, wash it with a little cold water, spread it upon plates and carefully dry it by means of a current of warm air, or in the case of Oleo-resins, or very soft extracts which are precipitated, mix them with a sufficient quantity of the powdered drug from which they were derived, to make them into the form of powder.

The consistence of the residue after concentration by distillation or evaporation depends much upon the constituents of the drug, but as a rule the liquid should be no more than one fourth the quantity of the powdered drug which was taken. And the quantity of cold Water into which it is poured should be from 10 to 30 times as much as of the concentrated liquid. Some extracts deposit tarry matter, which is undesirable, and should be removed by allowing them to stand and decanting the clear solution before adding to Water. Alum is sometimes added to the Water to facilitate the precipitation.

Asclepidin, Cyripedin, Ptelein, Senecin, Xanthoxylin and some other preparations are mostly Oleo-resins, and must be mixed with the powdered substances in order to make them into a powder. Some, like *Leptandrin* and *Ergotin*, are soft resinous substances and are much

improved by the addition of a portion of the powdered substance.

The following list embraces most of the Concentrations or Resinoids which are used, although it is obvious that many others may be made. They may be prepared as directed by the foregoing General Formula :

ECLECTIC CONCENTRATIONS OR RESINOIDS.

No.	NAME.	PREPARED FROM.	PART USED.	DOSE.
2826	Aconitin	Aconitum Napellus	Root.	$\frac{1}{80}$ to $\frac{1}{30}$ grain.
2827	Aletrin.	Aletris Farinosa.	Root.	2 to 5 grains.
2828	Alunin	Aluns Rubra	Bark.	1 to 3 grains.
2829	Ampelopsin	Ampelopsis Quinquefolia.	Bark.	2 to 8 grains.
2830	Apocynin	Apocynum Androsæmifolium	Root.	$\frac{1}{2}$ to 2 grains.
2831	Asclepin	Asclepias Tuberosa	Root.	1 to 5 grains.
2832	Atropin	Atropa Belladonna	Root or leaves.	$\frac{1}{30}$ to $\frac{1}{10}$ grain.
2833	Baptisin	Baptisia Tinctoria.	Root.	$\frac{1}{3}$ to 1 grain.
2834	Barosmin	Barosma Betulina	Leaves	1 to 4 grains.
2835	Betin	Beta Vulgaris.	Root.	2 to 5 grains.
2836	Caulophyllin	Caulophyllum, thalictroides	Root.	$\frac{1}{4}$ to 1 grain.
2837	Ceanothin	Ceanothus Americana.	Root.	2 to 5 grains.
2838	Cerasein	Cerasus Virginiana.	Bark.	5 to 10 grains.
2839	Chelonin	Chelona Glabra	Herb.	1 to 2 grains.
2840	Chimaphilin	Chimaphila Umbellata	Leaves.	1 to 4 grains.
2841	Chionanthin	Chionanthus Virginiana.	Bark.	1 to 3 grains.
2842	Cimicifugin	Cimicifuga Racinosa.	Rhizome	1 to 5 grains.
2843	Collinsonin	Collinsonia Canadensis	Herb.	1 to 3 grains.
2844	Colocynthin	Cucumis Colocynthis.	Fruit Pulp.	$\frac{1}{2}$ to 2 grains.
2845	Cornin	Cornus Florida.	Root bark.	3 to 5 grains.
2846	Corydalin	Dicentra Canadensis.	Tubers.	$\frac{1}{2}$ to 2 grains.
2847	Cypripedin	Cypripedium Pubescens.	Rhizome	1 to 2 grains.
2848	Digitalin	Digitalis Purpurea.	Leaves.	$\frac{1}{4}$ to 1 grain.
2849	Dioscorin	Dioscorea Villosa.	Root.	2 to 5 grains.
2850	Ergotin	Ergota, Claviceps purpurea.	Fungus	$\frac{1}{10}$ to $\frac{1}{4}$ grain.
2851	Erythroxylin	Erythroxyton Coca.	Leaves.	1 to 3 grains.
2852	Euonymin	Euonymus Atropurpureus.	Bark.	$\frac{1}{4}$ to 4 grains.
2853	Eupatorin	Eupatorium Perfoliatum.	Leaves and tops.	2 to 4 grains.
2854	Euphorbin	Euphorbia Corollata.	Root.	$\frac{1}{2}$ to 2 grains.
2855	Eupurpurin.	Eupatorium Purpureum.	Root.	1 to 3 grains.
2856	Frazerin	Frasera Walteri.	Root.	1 to 5 grains.
2857	Gelsemin	Gelseminum Sempervirens	Rhizome	$\frac{1}{2}$ to 2 grains.
2858	Geraniin	Geraneum Maculatum.	Root.	1 to 3 grains.
2859	Gossypiin	Gossipium Herbaceum.	Root bark.	1 to 5 grains.
2860	Hamamelidin	Hamamelidis Virginica	Root.	3 to 5 grains.
2861	Helonin	Helonias Dioica.	Root.	$\frac{1}{2}$ to 2 grains.
2862	Hydrastin	Hydrastis Canadensis.	Rhizome.	2 to 5 grains.
2863	Hyoscyamin.	Hyoscyamus Niger	Leaves.	$\frac{1}{2}$ to 2 grains.

ECLECTIC CONCENTRATIONS OR RESINOIDS—Continued.

No.	NAME.	PREPARED FROM.	PART USED.	DOSE.
2864	Inulin	Inula Helenium	Root.	1 to 3 grains.
2865	Irisin or Iridin . . .	Iris Versicolor	Root.	½ to 2 grains.
2866	Jalapin	Ipomœa Jalapa	Tuber.	½ to 2 grains.
2867	Juglandin	Juglans Cinerea	Root bark.	2 to 5 grains.
2868	Leontodin	Leontodon Taraxacum	Root.	2 to 5 grains.
2869	Leptandrin	Leptandra Virginica	Root.	2 to 4 grains.
2870	Lobelin	Lobelia Inflata	Herb.	⅒ to ¼ grain.
2871	Lupulin	Humulus Lupulus	Strobiles.	1 to 3 grains.
2872	Lycopin	Lycopus Virginicus	Plant	1 to 3 grains.
2873	Macrotin	Cimicifuga Racemosa	Rhizome.	1 to 5 grains.
2874	Menispermin	Menispermum Canadense	Root.	1 to 2 grains.
2875	Myricin	Myrica Cerifera	Bark.	1 to 5 grains.
2876	Phytolaccin	Phitolacca Decandra	Rhizome.	¼ to 1 grain.
2877	Podophyllin	Podophyllum Peltatum	Root.	⅛ to 1 grain.
2878	Populin	Populus Tremuloides	Bark.	2 to 5 grains.
2879	Prunin	Prunus Virginiana	Root bark.	1 to 3 grains.
2880	Ptelein	Ptelea Trifoliata	Bark.	1 to 3 grains.
2881	Rhein	Rheum Palmatum	Root.	2 to 4 grains.
2882	Rhusin	Rhus Glabra	Root bark.	1 to 3 grains.
2883	Rumin	Rumex Crispus	Root.	1 to 2 grains.
2884	Sanguinarin	Sanguinaria Canadensis	Rhizome.	½ to 2 grains.
2885	Scutellarin	Scutellaria Laterifolia	Herb.	3 to 5 grains.
2886	Senecin	Senecio Gracilis	Plant	1 to 3 grains.
2887	Smilacin	Smilax Sarsaparilla	Root.	2 to 5 grains.
2888	Stillingin	Stillingia Sylvatica	Root.	½ to 1 grain.
2889	Trillin	Trillium Pendulum	Root.	3 to 5 grains.
2890	Veratrin	Veratrum Viride	Rhizome.	¼ to ½ grain.
2891	Viburnin	Viburnum Opulus	Bark.	1 to 2 grains.
2892	Xanthoxylin	Xanthoxylum Fraxineum	Bark.	¼ to 1 grain.

SACCHARA — SUGARS.

Sugars are substances composed of carbon, hydrogen and oxygen, of a sweet taste, crystallizable, and mostly of a vegetable origin. The most important sugars, are Saccharose, the ordinary Sugar of commerce, prepared from sugar-cane, sorghum, etc., and glucose, which has already been described.

The glucoses have the composition $C_6H_{12}O_6$, and are directly subject to vinous fermentation. The saccharoses have the composition $C_{12}H_{22}O_{11}$, and are fermentable only after being converted into a Sugar of the glucose class.

There are also a number of non-fermentable Sugars termed

saccharoids, some of them having the same composition as glucose, and others varying somewhat.

Among other products that are derived from the decomposition of Saccharine fluids, Alcohol, Acetic Acid and Oxalic Acid may be mentioned as most valuable.

2894. Saccharum.

Sugar.

$C_{12}H_{22}O_{11}$.

The greater part of the Sugar found in the market is prepared from the expressed juice of the Sugar-cane, grown in the Southern States, the West Indies, and Central America. The Sugar-cane is crushed in mills, and the juice, which is about 80 per cent. of the whole, is expressed, a little lime and bisulphite of calcium added, then strained and evaporated to a thick syrup, which is placed in casks, allowed to crystallize and drained. In the larger manufacturing establishments the process employed is somewhat different, the vacuum pan being used instead of open evaporation, and the draining being accomplished by "centrifugals," which by rapid motion separate the fluid from the solid portions. The process for making Sugar from Sorghum is the same, and Beet-Root Sugar is made in a similar manner, but is not so readily purified.

The crude or "raw" sugars prepared as described are purified and decolorized by filtering their solutions through powdered animal charcoal, or bone-black. When allowed to crystallize from the solution thus purified the crystals obtained are called Rock Candy, but if evaporated to a solid mass with continual agitation, it is granulated.

Granulated Sugar, on account of its purity and convenience, is generally chosen for making syrups and liquid preparations, and powdered Sugar for making troches, powders, triturations, etc. Cane-sugar is often adulterated or mixed with Grape Sugar, which may be discovered by Trommer's test, which is as follows:

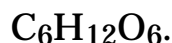
Trommer's Test.—To a solution of the sugar or saccharine liquid desired to be tested, add a little solution of sulphate of copper, and then solution of potassa in excess; heat the mixture to boiling. When cool, if the saccharine solution contained only saccharose or cane-sugar, there will

be but a small deposit of red powder; but if it contained grape-sugar or glucose, there will be a copious greenish precipitate, which changes to scarlet and afterward to a dark brownish-red.

Saccharine Substances.

The following substances, having similar composition and characteristics, are known as Saccharine substances:

Saccharoses.



Cane-Sugar (Saccharose).—From sugar-cane, beets, and sorghum.

Parasaccharose.—Produced by spontaneous fermentation of cane-sugar.

Milk Sugar (Lactose, Lactin).—Obtained from milk.

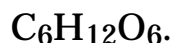
Mycose.—Obtained from ergot, identical with trehalose.

Melezitose.—Obtained from manna found in Tasmania and Persia.

Melitose.—Obtained from various species of eucalyptus.

Trehalose.—Obtained from cocoons of *Larinus Maculatus*.

Glucoses.



Glucose (Dextrose or Dextro-Glucose).—From starch, etc. Rotates the plane of polarization strongly to the right.

Grape-Sugar.—By crystallizing glucose.

Lavulose (Laevo-Glucose).—From sugar-cane and molasses. Rotates plane of polarization to the left.

Maltose (Barley-Sugar).—By the action of diastase on starch.

Dulcitolose.—By oxidizing dulcitol with nitric acid.

Mannitolose.—Found in muscular flesh.

Galactose.—By treating sugar of milk with dilute sulphuric acid.

The following are the *non-fermentable* saccharine substances :

Maunit— $C_6H_{14}O_6$.—From manna and other similar substances.

Dulcitol— $C_6H_{14}O_6$.—From *melampyrum nemorosum*.

Eucalytin— $C_6H_{12}O_6$.—From the fermentation of melitose.

Inositol.— $C_6H_{12}O_6$ — From muscular flesh.

Quercitolose— $C_6H_{12}O_6$ — From quercitrin.

Sorbit— $C_6H_{12}O_6$.— From mountain ash berries.

Erythromannitol— $C_{12}H_{30}O_{12}$.—From *protococcus vulgaris*.

Isodulcitol— $C_6H_{14}O_6$.—From quercitrin.

Pinitol— $C_6H_{12}O_5$.—From *pinus lambertiana*.

Quercitol— $C_6H_{12}O_5$.—From acorns.

2895. Saccharates are prepared by saturating sugar with tinctures, drying it, then powdering. Homoeopathic pellets are prepared in a similar manner, by saturating them with a tincture strongly alcoholic and allowing them to dry.

2896. Oleo-Saccharures—*Elaeo-Sacchara*—are prepared by rubbing 1 drop of any volatile oil with 30 grains of powdered sugar until they are thoroughly mixed.

2897. Saccharine.— This is a new substance prepared by a complicated process from Toluene, by treating with acids and ammonia.

Its every-day chemical name is Benzoyl-Sulphonic-Imide, but when it is on dress-parade it is known as Anhydroorthosulphaminbenzoic Acid, its composition being $C_6H_4COSO_2NH$. It is said to be about three hundred times sweeter than sugar, and to possess wonderful antiseptic properties. Its uses have not yet been well defined, but it is predicted to be of great value in sweetening preparations which with sugar would be liable to ferment, as fruit juices, etc.

SAPOES—SOAPS.

Soaps are compounds of fatty acids with alkalies, and are prepared by mixing fats or oils with a caustic alkali in solution, and either boiling until a thick mass is formed or combining cold, and allowing to stand until the combination is effected. The use of Soaps in the arts and industries is well known. In pharmacy and medicine they are considerably employed.

Soaps are naturally divided into *hard soaps*, which are made with soda alkali, and *soft soaps*, which are made with Potassa alkali. As different fats vary in proportion of their fatty acids, and the caustic soda and potassa of commerce vary in caustic strength, definite formulas for the Soap bases cannot well be given, but the following general formulas and processes given by W. J. Menzies in the Manufacturers Review for November 15, 1880, will be satisfactory. The first can be used either for making Castile Soap or Curd Soap :

2903. General Formula for Hard Soaps.

Take exactly 20 pounds of Greenbank double refined 98 per cent. powdered caustic soda; put it into any suitable iron or metal vessel with 90 pounds of soft water, stir it once or twice with a stirrer; it will dissolve immediately and become quite hot; let it stand until the lye thus made is cold. Weigh out and place in any convenient vessel for mixing and melting exactly 145 pounds of clean tallow, grease or oil (where oil is used no heating is required). Melt it slowly either with steam or fire until it is liquid and feels warm to the hand—that is to say, not exceeding 100° F. Pour the lye slowly into the melted tallow in a small stream continuously, at the same time stirring with a flat wooden stirrer about three inches broad; continue gently stirring until the lye and melted tallow or oil are thoroughly combined and the mixture appears

like honey. Do not stir too long, or the mixture is liable to separate again. The time required varies somewhat with the weather and kind of tallow, grease or oil used, from fifteen to twenty minutes will be quite enough. When the mixture is complete, pour it off into an ordinary soap frame; or this may be dispensed with, and an old square wooden box may be used for a mould, previously damping the sides with white wash or water so as to prevent the soap sticking. Put the frame or box in a warm place until the next day, covering it up well with blankets; it will then be found to contain about 255 pounds of fine white hard soap, which can be cut up with a wire into bars for the convenience of weighing, etc. Remember the chief points in the above directions, which must be exactly followed. The lye must be allowed to cool. The heated tallow or grease used must not be over a temperature of about 100° F. The lye must be thoroughly stirred into the melted tallow, *not* tallow or oil into the lye. The exact weights of Double Refined Powdered 98 per cent. Caustic Soda and tallow, grease or oil must be taken. If the tallow or grease is not clean or contains any salt, it must be "rendered" or purified previous to use, that is to say, boiled with water and allowed to cool, as any salt present spoils the whole operation entirely. Discolored or rancid grease or tallow, however, is just as good for common soap-making purposes. If the soap turns out streaky and uneven, it has not been thoroughly mixed. If very sharp to the taste, too much caustic soda has been used. If soft, mild and greasy, too much tallow or oil has been taken. In either case it should now be thrown into a kettle with about six gallons of water and cut up into shavings or very small pieces. In the first case boiling is all that is necessary — in the other instances a very little more oil or a very little more of the Double Refined 98 per cent. Caustic Soda must be added to the water previous to boiling. None of these things will happen, however, if the above directions are exactly followed, and with the experience gained after making a few batches of soap the whole process is an exceedingly easy one.

2904. General Formula for Soft Soap.

Take 50 pounds of Greenbank pure caustic potash; put it in any iron or earthenware vessel with 90 pounds of water. Stir it once or twice; it will dissolve immediately and become quite hot. Let it stand until the lye thus made is cold. Place in any convenient vessel for mixing 185 pounds of cottonseed oil and 20 pounds of clean melted tallow. Pour the lye into the oil in a small stream, at the same time stirring with a flat wooden stirrer about three inches broad. Continue gently stirring until the lye

and oil are thoroughly combined, and in appearance like honey. Now cover the vessel up and put it in a warm place until the next day. The oil and lye will then be found nearly all combined. Stir up well again and leave for a few days, when the mixture will become quite even and the saponification complete; the result being the production of about 345 pounds of very stiff potash soap, costing for materials about 3¹/₄ cents per pound. If made for use by an actual consumer nothing more need be done; the requisite quantity can be thrown into the scouring vat, either with or without the addition of a small quantity of carbonate potash to increase the alkali present, and depending upon the purpose for which the soap is used.

The potash soap produced in this way is very much more concentrated than the ordinary "fig" soap hitherto sold. If it is desired to make an ordinary soft soap it can be produced in the following manner: Take 200 pounds of the stiff potash soap and add to it about 70 pounds of water. Put it into a boiling pan and gently heat and stir it so as to mix well together; at the same time adding about eight pounds of crystalline carbonate of potash, which will remove all "stringyness" and produce a clear homogeneous soap. It will improve in appearance by keeping for a short time.

The above "cold process" is simple and effective, and even a few pounds alone of soft soap can be made by it. With mechanical mixing apparatus and large pans, soft soap can easily be produced on a large scale by this process.

The following are the Soaps of the U. S., Br. and German Pharmacopoeias:

2905. Sapo. U. S.

White Castile Soap.

Soap prepared from Soda and Olive Oil. In Br. pharmacy this is known as *Sapo Duris*, or Hard Soap; in German pharmacy it is known as *Sapo Oleaceus*; but in commerce it is known only as *Castile Soap*.

The common varieties made from inferior oil and mottled by the addition of an iron salt are extensively sold as ordinary Castile Soap, but in medicine and in pharmacy only that made with fine Olive Oil and pure

Soda should be used. It is employed for making oleates, liniments and pills, and is extensively used mixed with other kinds of Soap for making perfumed and toilet soaps.

2906. Sapo Animalis. Br.

Curd Soap.

A Soap made with Soda and purified animal fat, consisting principally of stearin. This is a nearly neutral White Soap, generally made with fine tallow and pure soda alkali or caustic soda. It is known as *Tallow Soap*, and used as the basis of most of the perfumed toilet Soaps. In pharmacy it is used in making several plasters, liniments, pills, and suppositories.

For making fine Toilet Soaps, Curd Soap is reduced to shavings by passing over a plane and then, being moistened, it is combined with the perfuming oils desired, by working them well in with it in a mortar, until the mass is of uniform consistence without streaks. For larger manufacturing the Soap is milled with the oils, and then pressed into cakes. If desired to be colored the coloring matter is well worked in.

2907. Sapo Jalapinus. G. P.

Jalap Soap.

The G. P. gives the following formula for Jalap Soap or *Jalapenseife*:

Resin of Jalap,	4 parts.
Medicinal Soap,	4 parts.
Diluted Alcohol,	8 pans.

Dissolve the Resin of Jalap and Medicinal Soap in the Diluted Alcohol, and evaporate on a steam-bath, stirring constantly, to 9 parts.

2908. Sapo Mollis. Br.

Soft Soap.

Made with Potash and Olive Oil. In Br. pharmacy it is used in making turpentine liniment. It is of a gelatinous consistence, and is soluble in

rectified spirit.

The *Sapo Kalinus* of the G. P., which is known as *Potassa Soap* or *Soft Soap*, is made by adding to solution of Potassa, G. P., 135 parts, heated on a steam-bath, Linseed Oil 100 parts, stirring constantly, and continuing the heat for half an hour; then adding Alcohol, 25 parts, stirring, and gradually adding Water, 200 parts, and heating until a transparent viscid soap is formed, and continuing the heat until the Alcohol is evaporated, and the finished product weighs 150 parts. This is a soft lubricous mass, and differs from the Soft Soap of the Br. P. in being transparent.

2909. Sapo Medicatus. G. P.

Medicinal Soap.

The German Pharmacopoeia directs:

Solution of Soda, G. P.,	120 parts.
Lard,	50 parts.
Olive Oil,	50 parts.
Alcohol,	12 parts.
Water,	280 parts.
Chloride of Sodium,	25 parts.
Carbonate of Sodium,	3 parts.

Heat the solution of Soda by means of a steam-bath, and gradually add the Lard, previously melted, then the Olive Oil; stir and continue the heat for half an hour; then add the Alcohol, and then 200 parts of Water, gradually adding, if necessary, small portions of the solution of Soda until a transparent viscid Soap is formed; then add a filtered solution of the Chloride and Carbonate of Sodium in 80 parts of Water, and heat and stir until the Soap has wholly separated from the liquid. The separated Soap is afterward washed, expressed, and cut into cakes, and is used as a neutral Medicinal Soap.

2910. Sapo Viridis. U. S.

Green Soap,

Soap prepared from Potassa and Fixed Oils. This is a Soft Soap, called in

the G. P. *Sapo Kalinus Venalis*. It is prepared from various Oils, which contain but little stearin, by boiling with solution of Potassa.

It is used in pharmacy in making Tincture of Green Soap, and medicinally in skin diseases.

Other Soaps.

The foregoing are all the Soaps official in the leading pharmacopoeias, but a large variety of other Soaps are used in pharmacy and the toilet, the more important medicinal soaps being here mentioned.

2911. Yellow Soap.—This is the common Laundry Soap, made from tallow, resin and lard, with Soda, the same as curd soap.

2912. Marine Soap, or Salt— Wafer Soap.—This is a Coconut Oil Soap, made with Soda, and containing an excess of alkali. It is used for washing in salt water and for making toilet soaps. It is known also as Coconut Soap.

2913. Palm Soap.—This is a yellow soap, made with Palm Oil and Soda, considerably used for mixing in making toilet soaps.

2914. Naples Soft Soap is made from Fish Oil mixed with Olive Oil with Potash alkali. *Fig Soft Soap* is made with Olive and other Oils and Potash.

2915. Whale Oil Soap is made with common Whale Oil and Potash. It is also called *Black Soap*, and is used chiefly for washing plants to remove insects.

The foregoing are used as bases and for combining to make other soaps. A few medicinal soaps have some sale and use, especially Carbolic, Sulphur, and Tar Soaps.

2916. Arsenical Soap.—Carbonate of Potassium 6 ounces. Arsenic, White Soap, each 2 ounces. Powdered Camphor 3 drachms. Water sufficient to make a stiff paste. This is used for preserving the skins of birds and small animals.

2918. Camphorated Soap.—This Soap is usually prepared by

incorporating from 2 to 5 per cent. of Camphor with Curd Transparent Soap. The Camphor is dissolved in as little Alcohol as possible, and added to the melted Curd or Transparent Soap, the Alcohol evaporating and leaving the Camphor mixed with the Soap. It may also be mixed by melting powdered Camphor with Soap.

2919. Carbolic Soap.—This popular Soap maybe made for toilet purposes by incorporating 2 to 3 per cent. of Carbolic Acid by melting with Curd or Castile Soap. For medicinal and surgical use it is usually made about 5 per cent. by incorporating with White Castile Soap, For veterinary use and as a wash for dogs and other animals to remove vermin, it is generally made with 10 per cent. of Crude Carbolic Acid, mixed with any kind of cheap hard soap.

2920. Chlorinated Soap.—Powdered Castile Soap n ounces, dry Chlorinated Lime 1 ounce. Mix them together and make into a mass with Alcohol, in which some perfume has been dissolved. This is used as a detergent and antiseptic in hospital practice.

2921. Cod Liver Oil Soap.—This may be made with Cod Liver Oil 2 ounces, Caustic Soda 2 drachms, Water 5 fl.drachms, 1 drachm of Iodide of Potassium may be added to this; making a valuable Soap for scrofulous and syphilitic sores. It is also given internally.

2922. Croton Oil Soap.—Croton Oil and Solution of Potassa, equal parts, triturated together in a warm mortar until they combine. This is given as a cathartic, in doses of 1 to 3 grains, and is much less irritating than the oil taken alone.

2923. Glycerin Soap.—For medicinal use any good toilet, transparent, or Curd Soap may be made by melting with a very little water, and mixing thoroughly with from 3 to 5 per cent. of Glycerin. It may be perfumed as desired. The following formula may be used if desired to make the Soap from crude materials: 40 pounds of Tallow, 40 pounds of Lard, and 20 pounds of Coconut Oil are saponified with 45 pounds of Soda Lye and 5 pounds of Potash Lye of 40° Baumé; to the saponified mass 6 pounds of Glycerin, 1/2 ounce Oil of Portugal, 1/3 ounce Oil of Bergamot, 5 ounces Oil of Bitter Almond, and 3 ounces Oil of Vitivert are added.

2924. Iodine Soap.—This may be made by melting Castile Soap, 1

pound, and adding while melted 1 ounce of Iodide of Potassium, dissolved in 3 ounces of Water. It is used for scrofulous and syphilitic sores.

2925. Juniper Tar Soap.— This Soap may be prepared by saponifying Juniper Tar 1 part, mixed with Tallow 4 parts, with a solution of Caustic Soda, in the same manner as is directed for making Curd Soap. Other Tar Soaps may be made in the same general manner, care being used not to have them contain an excess of alkali. The Tar Soaps are highly esteemed in skin diseases.

2928. Transparent Soap.—By cutting dry Curd, Castile or other varieties of Soap in fine shavings, and dissolving in an equal weight, or as little as possible, of Alcohol, and after standing for some time until all is dissolved that will, then pouring off the clear portion and casting in moulds, and drying. No more spirit than is necessary should be used. It may be perfumed as desired.

2929. Turpentine Soap.—This may be made by mixing Carbonate of Potassium, Oil of Turpentine and Venice Turpentine, equal parts, in a warm mortar, adding a little water until they are combined. This is a stimulating soap for washing indolent ulcers, etc.

The foregoing Soaps include nearly all that are used to any extent medicinally. Other Soaps will be found among the toilet preparations.

SPECIES—TEAS.

Under this heading the German and some other pharmacopoeias direct a variety of mixtures of cut drugs, such as herbs, flowers, barks, roots, woods, leaves, etc., which are designed to be steeped in Water, and the liquid given as a drink or used dry as pillows, or moistened as cataplasms, etc. Several similar preparations have been put upon the market as proprietary remedies and have been quite popular. The following are official in the German Pharmacopoeia: others will be found among The Standard Remedies.

2966. Species Aromaticae.

Aromatic Species or Herbs—Gewürzhafte Kräuter.

Peppermint, Wild Thyme, Garden Thyme, Lavender Flowers, each 2 ounces or parts, Cloves, Cubebs, each 1 ounce or part. Cut and mix them. This is used dry for filling pillows and scent bags, or may be steeped if desired.

2967. Species Emollientes.

Emollient Cataplasms—Erweichende Kräuter.

Althsea Leaves, Mallow Leaves, Melilot, Matricaria, Flaxseed, each equal parts. This is made into a poultice for pains, sores, swellings, etc.

2968. Species Laxantes.

Laxative Tea — St. Germain Tea — Abführender Thee.

Senna 16 parts, Elder Flowers 10 parts, Fennel 5 parts, Anise 5 parts, Bitartrate of Potassium 4 parts. Moisten the Senna previously cut; sprinkle it uniformly with the Bitartrate of Potassium and mix. When dry, add the other ingredients and mix them well together.

2969. Species Lignorum.

Wood Tea — Holzthee.

Guaiacum Wood 5 parts, Rest-harrow Root 3 parts, Russian Liquorice Root, Sassafras Wood, each 1 part Cut them and mix well together.

2970. Species Pectorales.

Pectoral Tea — Brustthee.

Althsea (Flowers),	8 parts.
Russian Liquorice Root,	3 parts.
Orris Root,	1 part.
Coltsfoot,	4 parts.
Mullein Flowers,	2 parts,
Anise,	2 parts..

Cut and mix them.

This is the most popular of the teas, being much used by the Germans for colds, influenzas and similar indispositions. A cup of boiling water is poured upon a tablespoonful of the tea and the infusion drank while warm,

SPIRITUS — SPIRITS.

As understood in Pharmacy, Spirits are solutions of volatile substances in alcoholic or hydro-alcoholic liquids made by distillation. They include solutions of volatile oils, ethers, gases and other substances. Commercially, spirits are understood to be alcohol, or alcoholic liquids, made by distillation and known as Liquors, or Spiritous Liquors.

Many liquids are familiarly known as "Spirits" that are classed in pharmacy under other headings, and many of the liquids included among the Spirits, in pharmacy, are familiarly known as essences, extracts, etc.

The following are the Spirits official in the leading pharmacopoeias:

2976. Spiritus Ammoniae Foetidus. Br.

Fetid Spirit of Ammonia.

Asafetida,	1 ¹ / ₂ ounces av.
Strong Solution of Ammonia,	2 fl.ounces.
Rectified Spirit, a sufficiency.	

Break the Asafetida into small pieces and macerate it in a closed vessel in 15 fl.ounces of the Spirit for 24 hours; then distill off the Spirit, mix the product with the Solution of Ammonia, and add sufficient Spirit to make 20 fl.ounces.

Uses.—This is given as an antispasmodic and stimulant in doses of 20 to 60 minims.

2977. Spiritus Angelicae Compositus. G. P.

Compound Spirit of Angelica.

This is made by macerating Angelica Root 16 parts. Valerian 4 parts, Juniper Berries 5 parts, cut and bruised, in Alcohol 75 parts, Water 125 parts, for 24 hours, then distilling off 100 parts and dissolving in the distillate Camphor 2 parts.

Uses.—This is an aromatic stimulant and may be given in doses of $\frac{1}{2}$ to 1 teaspoonful or more.

2978. Spiritus Anisi. U. S.

Spirit of Anise.

Oil of Anise, 10 parts or $1\frac{1}{3}$ fl.ounces.
Alcohol, 90 parts or $14\frac{2}{3}$ fl.ounces.
Mix them.

Uses.—This is familiarly known as *Essence of Anise*, and is considerably used as an addition to carminative mixtures, as an aromatic. The dose is 5 to 20 minims or more.

2979. Spiritus Armoraciae Compositus. Br.

Compound Spirit of Horse Radish.

Horse Radish Root scraped, 20 ounces av.
Bitter Orange Peel cut and bruised, 20 ounces av.
Nutmeg, bruised, $\frac{1}{2}$ ounce av.
Proof Spirit, 153 fl.ounces.
Water, 58 fl.ounces.

Mix them and distill a gallon.

This is used as an aromatic stomachic, in doses of 1 to 2 fl.drachms.

2980. Spiritus Aurantii. U. S.

Spirit of Orange.

Oil of Orange Peel, 6 parts or 1¹/₈ fl.ounces.
Alcohol, 94 parts or 14⁷/₈ fl.ounces.

Mix them.

This is used as a flavoring for elixirs, syrups, mixtures, etc.

2981. *Spiritus Cajuputi. Br.*

Spirit of Cajuput.

Oil of Cajuput, 1 fl.ounce.
Rectified Spirit, 49 fl.ounces.

Mix them. This is given as a stimulant, etc., in doses of ¹/₂ to 1
teaspoonful.

2984. *Spiritus Cinnamomi.*

Spirit of Cinnamon.

The U. S. formula is:

Oil of Cinnamon, 10 parts or 1¹/₃ fl.ounces.
Alcohol, 90 parts or 14²/₃ fl.ounces.

Mix them.

The Br. P. formula is :

Oil of Cinnamon, 1 fl.ounce.
Rectified Spirit, 49 fl.ounces.

Uses.—Spirit of Cinnamon is used as a flavoring ingredient for many
preparations, and is given as a quick stimulant in doses of 20 to 60
minims. It is familiarly known as Essence of Cinnamon.

2985. Spiritus Cochleariae. G. P.

Spirit of Scurvy Grass.

Scurvy-Grass,	8 parts.
Alcohol,	3 parts.
Water,	3 parts.

Cut the fresh flowering Scurvy-grass, mix it with the Alcohol and Water, and distill off 4 parts.

This is similar to but less aromatic than the Br. Spiritus Armoraciae Compositus. The dose is 1 to 2 fl.drachms.

2987. Spiritus Frumenti.

Whisky.

This is official in the U. S. P., and is described as an Alcoholic liquid, obtained by the distillation of fermented grain (usually corn, wheat or rye), and at least two years old. Whisky contains about 50 per cent. of Alcohol, its standard proof being 100. The method of preparing it is described under the heading SPIRITOUS LIQUORS. It is a diffusive stimulant.

2988. Spiritus Gaultheriae. U. S.

Spirit of Gaultheria.

Oil of Gaultheria (Wintergreen),	3 parts or 165 minims.
Alcohol,	97 parts or 1 pint.

Mix them.

This is a weak solution of the oil corresponding with the strength of similar British Spirits. To make Essence of Wintergreen, 1 ounce of the Oil should be dissolved in 15 fl.ounces of Alcohol. (see 927)

2989. Spiritus Juniperi.

Spirit of Juniper.

The U. S. formula is:

Oil of Juniper,	3 parts or 224 minims.
Alcohol,	97 parts or 1 pint.

Mix them. (See also 908.)

The liquor called gin is often prescribed under the name Spiritus Juniperi, but is entirely unlike this preparation.

The Br. formula directs Oil of Juniper 1 part, Alcohol 49 parts.

The G. P. directs Juniper Berries 4 parts, Alcohol, Water, each 15 parts, allowed to macerate for 24 hours, and then 20 parts to be distilled.

Uses.—Spirit of Juniper is used as a stimulating diuretic, and for mixtures.

2990. Spiritus Juniperi Compositus. U. S.

Compound Spirit of Juniper.

Oil of Juniper,	10 parts or 27 minims.
Oil of Caraway,	1 part or 3 minims.
Oil of Fennel,	1 part or 3 minims.
Alcohol,	3000 parts or 20 fl.ounces.
Water, sufficient to make	5000 parts or 2 pints.

Dissolve the Oils in the Alcohol, add the Water, mix and filter. This is given as a stimulant and diuretic.

2991. Spiritus Lavandulae.

Spirit of Lavender.

The U. S. formula is :

Oil of Lavender Flowers, 3 parts or 220 minims.

Alcohol, 97 parts or 16 fl.ounces. (
See also 909).

The Br. P. formula directs 1 fl.ounce of Oil of Lavender to be dissolved in 49 parts of Rectified Spirit.

The G. P. directs Lavender Flowers, 5 parts to be macerated in Alcohol 15 parts, Water 15 parts, for 24 hours, and then 20 parts distilled.

Uses.—Spirit of Lavender is given as an aromatic stimulant and stomachic in doses of 20 to 60 minims.

2992. Spiritus Limonis. U. S.

Spirit of Lemon.

Oil of Lemon,	6 parts or 1 fl.ounce.
Lemon Peel, freshly grated,	4 parts or 1/2 ounce.
Alcohol, sufficient to make	100 parts or 1 pint.

Mix, macerate and filter.

This is also known as *Essence of Lemon* or Flavoring Extract of Lemon. It is used for flavoring medicinal preparations, syrups, pastry, etc. (See also 910.)

2993. Spiritus Melissa Compositus. G. P.

Compound Spirit of Balm.

Balm Leaves	14 parts,
Lemon Peel	12 parts,
Nutmeg	6 parts,
Cinnamon, Cloves, each	3 parts, are bruised and distilled with
Water	250 parts,
Alcohol	150 parts,

recovering of the distillate 200 parts.

This is a fragrant spirit used for flavoring medicines, etc.

2994. Spiritus Menthae Piperitae.

Spirit of Peppermint—Essence of Peppermint.

The U. S. formula is:

Oil of Peppermint,	10 parts or 1 ¹ / ₂ fl.ounces.
Peppermint in coarse powder,	1 part or 60 grains.
Alcohol, sufficient to make	100 parts or 1 pint.

The substances are mixed, macerated and filtered. By adding a little Carbonate of Magnesium to the filter a clearer preparation is produced.

The Br. P. directs 1 fl.ounce of Oil of Peppermint to be dissolved in 49 fl.ounces of Rectified Spirit.

The G. P. formula is 1 part of Oil of Peppermint dissolved in 9 parts of Alcohol.

Essence of Peppermint is usually made with Oil of Peppermint 1 ounce, Alcohol 15 ounces. (See 918.)

Uses.—This essence is extensively used as household remedy for flatulence, colic, etc. The dose is 10 to 60 drops.

2995. Spiritus Menthae Viridis. U. S.

Spirit of Spearmint—Essence of Spearmint.

Oil of Spearmint,	10 parts or 1 ³ / ₈ fl.ounces.
Spearmint in coarse powder,	1 part or 60 grains.
Alcohol, sufficient to make	100 parts or 1 pint.

Mix, macerate and filter. (See also 925.)

Uses.—This is used for similar purposes as Essence of Peppermint.

2996. Spiritus Myrciae. U. S.

Spirit of Myrcia—Bay Rum.

Oil of Myrcia,	16 parts or 1 fl.ounce.
Oil of Orange Peel,	1 part or 35 minims.
Oil of Pimenta,	1 part or 28 minims.
Alcohol,	1000 parts or 78 fl.ounces.
Water,	782 parts or 49 fl.ounces.
To make	1800 parts or 1 gallon.

Mix the Oils with the Alcohol and gradually add the Water to the solution. Set the mixture aside in a well-stopped bottle for 8 days, then filter through paper in a well-wetted funnel. Other formulas for Bay Rum which may be preferred to this will be found among the toilet preparations.

2997. Spiritus Myristicae.

Spirit of Nutmeg—Essence of Nutmeg.

The U. S. formula is:

Oil of Nutmeg,	3 parts or 220 minims.
Alcohol,	97 parts or 1 pint.

Dissolve the Oil in the Alcohol.

The Br. formula is Volatile Oil of Nutmeg 1 fl.ounce, Rectified Spirit, 49 fl.ounces.

This is used as a flavoring for medicinal preparations and pastry. (See 914.)

2998. Spiritus Odoratus.

Perfumed Spirit — Cologne Water.

Oil of Bergamot,	16 parts or	2 fl.ounces.
Oil of Lemon,	8 parts or	1 fl.ounce.
Oil of Rosmary,	8 parts or	1 fl.ounce.
Oil of Lavender Flowers,	4 parts or	1/2 fl.ounce.

Oil of Orange Flowers (Neroli),	4 parts or	1/2 fl.ounce.
Acetic Ether,	2 parts or	1/4 fl.ounce.
Alcohol,	800 parts or	106 fl.ounces.
Water,	158 parts or	17 fl.ounces.
To make	1000 parts or	1 gallon.

Dissolve the Oils and the Ether in the Alcohol and add the Water. Set the mixture aside in a well-closed bottle for eight days, then filter through paper in a well-covered funnel.

Other formulas for Cologne which may be preferred to this will be found among the perfumes and toilet preparations.

2999. Spiritus Rosmarini. Br.

Oil of Rosemary,	1 fl.ounce.
Rectified Spirit,	49 fl.ounces.

Dissolve. An aromatic stimulant. Dose 20 to 60 minims.

3000. Spiritus Saponis. G. P.

Spirit of Soap.

Olive Oil,.	60 parts.
Solution of Potassa, G. P.,	70 parts.
Alcohol,	300 parts.
Water,	170 parts.

Boil the Oil and Solution of Potassa with one-fourth of the Alcohol on a water-bath until the Oil is saponified, and a small portion is found on trial to form a clear mixture with Alcohol and Water. Now replace any Alcohol lost by evaporation, add the remaining three-fourths of the Alcohol and the Water, and filter the liquid when cold.

3001. Spiritus Sinapis. G. P.

Spirit of Mustard.

Volatile Oil of Mustard,	1 part.
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Alcohol, 49 parts.
Mix and dissolve.

A rubefacient and quick stimulant. It is given in doses of 10 to 60 minims.

3002. Spiritus Vini Gallaci.

Brandy—French Brandy.

An Alcoholic liquid obtained by the distillation of fermented grapes, and at least four years old. It is further noticed under the heading SPIRITOUS LIQUORS.

The German-Latin title is *Spiritus Vini Cognac*.

Other Spirits.

Besides the official Spirits named, Alcohol, Diluted Alcohol, Rectified Spirit, and proof Spirit are noted under the heading ALCOHOL. The *Alcoolats* of French Pharmacy which correspond with spirits are noticed under Alcohol. Many of the preparations used in perfumes, and also Spiritous Liquors are classed as Spirits. A few only of those most popular in medicine, which have not been mentioned, are noticed here.

3003. Spirit of Bryony Compound.—Bryony 8 ounces, Valerian 2 ounces, Pennyroyal 3 ounces. Rue 3 ounces, Mugwort, Feverfew, Savin, each $\frac{1}{2}$ ounce, Orange Peel, Lovage seeds, each 1 ounce. Brandy 10 pints, macerate and distill.

3004. Spirit Fioravanti.—Swiss Turpentine 5 ounces, Elemi, Tacamahaca. Amber, Liquid Styrax, Galbanum, Myrrh, Bayberries, each 1 ounce, Aloes, Galangal Root, Ginger, Zedoary, Cinnamon, Cloves, Nutmeg, Cretum marium leaves, each $\frac{1}{2}$ ounce, Alcohol 2 pints, macerate 6 days and distill 25 fl.ounces. This is also known as *Balsam Fioravanti*, and is used for bruises, "black and blue" spots, etc.

3005. Spirit of Mastic Compound.—Mastic, Myrrh, Olibanum, each 1 ounce, Rectified Spirit 20 ounces, macerate and distill. This is used as an application for bruises, lameness, etc.

3006. Spirit of Honey Compound.—Honey 32 parts, Coriander 32 parts, Lemon Peel, fresh, 4 parts, Cloves 3 parts, Nutmeg, Benzoin, Storax, each 2 parts, Vanilla 1 part. Rose Water 20 parts, Orange Flower Water 20 parts, Alcohol 200 parts, macerate for 3 days and distill all the spiritous part. This is a fine aromatic for adding to other preparations or the toilet.

3007. Vulnerary Spirit.—Dried Sage, Wormwood, Fennel Hyssop, Marjoram, Savory, Thyme, Rosmary, Calamint, Balm, Peppermint, Scordium, Fresh leaves of Angelica, Basil, and Lavender Flowers, each 2 ounces, Proof Spirit 10 pints, digest 14 days and distill over 7 pints. This is a stimulant and vulnerary much used on the Continent as a cordial and cosmetic.

SUCCI—JUICES.

The name juice is applied in pharmacy to a variety of very different preparations. No juices as such are now official in the U. S. P., but the Br., French and German Pharmacopoeias recognize several inspissated and liquid juices. Besides the juices that are employed as medicinal agents, the juices of fruits are extensively used in making syrups for Soda Water and other purposes.

The following are the juices which may be classed as medicinal.

3020. Succus Belladonnae. Br.

Juice of Belladonna.

Fresh leaves and young branches of Belladonna, 7 pounds av.
Rectified Spirit a sufficiency.

Bruise the Belladonna in a stone mortar, press out the juice, and to every 3 measures of juice add one of the Spirit. Set aside for seven days and filter, keep in a cool place. The dose is 5 to 15 minims.

3021. Succus Conii. Br.

Juice of Hemlock.

Fresh leaves and young branches of Hemlock (Conium), 7 pounds.
Rectified Spirit, a sufficiency.

Make in the same manner as the preceding. The dose is $\frac{1}{2}$ to 1 fl.drachm.

3022. Succus Hyoscyami. Br.

Juice of Henbane.

Fresh leaves, flowering tops and young branches of Henbane. 7 pounds.
Rectified Spirit, a sufficiency.

Make in the same manner as Juice of Belladonna. Dose $\frac{1}{2}$ to 1 fl.drachm.

3023. Succus Juniperi Inspissatus. G. P.

Inspissated Juice of Juniper Berries — Extract of Juniper Berries.

Fresh Juniper Berries bruised,	1 part.
Hot Water,	4 parts.

Pour the Water on the Berries and having stirred them frequently during 12 hours, express the liquid and evaporate the strained liquid to a thin extract.

3024. Succus Liquiritiae. G. P.

Extract of Liquorice.

An Extract prepared by boiling and expressing the roots of *glycyrrhiza glabra*. The ordinary Extract of Liquorice of commerce. It is made up in the form of mass for manufacturing purposes, but is made into sticks for sale and use in pharmacy. The Liquorice Mass is extensively used in making plug tobacco.

3025. Succus Liquiritiae Depuratus. G. P.

Purified Extract of Liquorice.

Prepared by exhausting the Extract of Liquorice with cold water and evaporating the clear liquid to a thick extract. (See also 1026.)

3026. Succus Scoparii. Br.

Juice of Broom.

Fresh Broom Tops, 7 pounds.
Rectified Spirit, a sufficiency.

Make in the same manner as Juice of Belladonna. Dose 1 to 2 fl. drachms.

3027. Succus Taraxaci. Br.

Juice of Dandelion.

Fresh Dandelion Root, 7 pounds.
Rectified Spirit, a sufficiency.

Make in the same manner as Juice of Belladonna. Dose 1 to 2 fl. drachms. Chicory Juice is made in the same manner.

In French Pharmacy the juices of a great number of plants prepared in a similar manner to the foregoing are used.

Fruit Juices.

Although these are not employed in medicine, except for their flavoring and acid constituents, they are extensively used by druggists for making Soda Water Syrups and aerated beverages. The following general process for preparing Fruit Juices if carefully followed will prove perfectly satisfactory:

3028. General Process for making Fruit Juices.

The fruit should be thoroughly ripe, but not over ripe, and it should be carefully selected, throwing out all that is mouldy or spoiled. Some fruits require mashing or grinding and others do not. When the juice can well be obtained without mashing the fruit, as with strawberries, raspberries and similar fruit, it is best not to mash them, as when mashed they form a gelatinous mass from which it is more difficult to express the juice than when in their natural state. Grapes, cherries, currants and other similar fruit having a heavy skin must be ground or mashed with pounders; grinding is the best. Pineapples, apples, pears, etc., must be either ground, grated or dessicated. and pulpy fruits like lemon, orange, etc., should be chopped or otherwise cut up so that the juice may be obtained by pressure. When the fruit is properly reduced to the condition for pressing it is put in a wooden press and the juice as much as possible obtained from it by pressure. In making juice in a large way the pulp is run through wooden rollers first, by which a large portion of the juice is separated and the pomace afterward pressed in a press. A layer press is the best, but an ordinary wooden hoop cider press will do for small manufacturing and still smaller quantities may be imperfectly pressed out by hand. In small presses all the juice cannot be obtained with one pressing, and the pomace may be taken out, broken up and pressed again. When the juice is obtained, care being taken to keep it as cool and clean as possible, it may either be put up hot in bottles without any preservative or cold in bulk by adding the proper preserving ingredients. If put up hot, the juice is to be brought to a quick boil and skimmed ; then, while still boiling hot, put into hot bottles taken from boiling water and at once securely corked and put away in a cool place. If put up by the cold process in bulk, it may be preserved by adding 15 per cent. of cologne Spirit of Alcohol proof, or by adding to each gallon 30 grains of Salicylic Acid dissolved in 4 ounces of Cologne Spirit, or by dissolving in it all the sugar that will hold in solution. After standing, juices deposit albuminous matter, which may be separated by decanting or filtering.

The cold process for preparing juices secures the finest product and the best flavor, much of the fine flavor of fruits being volatilized when heated. The important points to bear in mind are : first, to select good, sound ripe fruit; second, to work it up quickly and keep it cool and as little exposed as possible; and third, to put up and put away in a cool place before fermenting, or as soon as possible after the juice is obtained. No matter if the juice is "muddy," it will settle clear, and can be decanted

or filtered before using. Juices put up by the cold process retain their entire flavor and most of their color; if heated, much of their flavor is dissipated and the color changed.

Fruit Syrups may be made from these juices as a rule, by adding 1 part of the juice to 4 parts of syrup. They are very convenient to use as additions to medicinal preparations and are extensively used as soda water syrups.

The following Juices and Syrups may be made in the manner which has been described :

Apricot,	Currant, Black,	Orange,	Quince,
Blackberry,	Currant, Red,	Peach,	Raspberry, Blck,
Blueberry,	Grape,	Pear,	Raspberry, Red,
Cherry, Black,	Lemon,	Pineapple,	Strawberry,
Cherry, Red,	Lime,	Plum or Pruen,	and others.

SUPPOSITORIA—SUPPOSITORIES.

Suppositories are bodies, usually of cone shape, and made of some substance readily melted or soluble at the temperature of the internal cavities of the body. They are prepared with medicinal substances mixed with the mass so that their effect will be obtained as the suppository melts.

Moulds of suitable form may be obtained for making suppositories, the ones usually employed being cone-shape for making rectal suppositories.

Many substances have been employed as a base for suppositories, but none has been found so suitable for this purpose as Oil of Theobroma ("Butter of Cacao").

It melts readily at the temperature of the body, yet has consistence enough to retain its form at ordinary temperatures. It is mild, bland, and non-irritant. Many attempts have been made to introduce suppositories in which Gelatin is used as a base; but without success, for the reason that it cannot be made soluble at the normal temperature of the body, and is therefore worthless for this purpose.

The following is in substance the general formula for suppositories given in the 1880 Pharmacopoeia:

3043. General Formula for Suppositories.

Mix the medicinal substance, or substances (previously brought to a proper consistence if necessary), with a small quantity of Oil of Theobroma, by rubbing them together, and add the mixture to the remainder of the Oil of Theobroma, previously melted and cooled to the temperature of 35° C. (95° F.). Then mix thoroughly without applying more heat and immediately pour the mixture into suitable moulds, which have been previously cooled on ice. The melted oil, etc., should be stirred before filling each mould.

Suppositories may be made without moulds by mixing the medicinal substance, or substances, with a small portion of the Oil of Theobroma in a mortar which has been slightly warmed, and then adding the remainder of the Oil of Theobroma and mixing thoroughly. When thus mixed the mass may be transferred to a pill tile (which has been sprinkled with flour or other convenient substance to prevent it sticking), rolled out and divided the same as a pill mass. The sections may then be made conical in shape by rolling one end of them on the pill tile.

This is by far the most convenient way to make suppositories when prescribed, and it ensures a more even distribution of the medicinal agent than when made by heat, as it is almost impossible to incorporate many of the solid extracts with the melted oil.

The solid Extracts must be softened by rubbing with a little water or alcohol before mixing with the Oil.

Several machines for making suppositories by the cold process have been invented, some of which are very good, though but few druggists have enough demand for suppositories to make it profitable to buy one.

The following general formula for making one dozen 15 grains suppositories will be found convenient for reference.

3044. Formula for one dozen Suppositories.

The medicinal substance or substances.
Oil of Theobroma, sufficient to make 180 grains.

Make as previously directed.

This is the size that is usually prescribed as rectal suppositories with which druggists are most familiar. They are usually made conical in form.

Vaginal suppositories are usually made at least double this size, and oviform.

Urethral Suppositories are generally made "long, slim and slender," like a pipe stem.

Pessaries are made larger than any of the preceding, and usually ob-oviform. Suppositories are also made hollow for the introduction of medicine, but are not in general favor, as the prolonged action of the medicine by the gradual, melting of the suppository, is usually desired.

A great variety of combinations are made up in the form of Suppositories, being naturally classed according to the uses for which they are designed, as Anodyne, Antiseptic, Astringent, Hypnotic, etc. There are also Rectal, Urethral, Vaginal, Aural, and Nasal Suppositories, made up in different forms to suit the localities in which they are designed to be used.

The medicinal composition of the principal Suppositories is shown in the following list, each Suppository containing the stated quantity of the medicinal agent, with sufficient Cacao Butter to make them. Other substances also are used as a base for Suppositories, as Starch Plasma, Soap, etc., but they are not as good as Cacao Butter:

Rectal Suppositories.

These are generally made in cone-shape moulds, containing about 15 grains. The moulds are dusted with Lycopodium or fine Starch, and cooled on ice before pouring in the material.

ANODYNE,

3045. Extract Belladonna.—These are made $\frac{1}{4}$, $\frac{1}{2}$ and 1 grain in each of Extract of Belladonna.

3046. Extract Hyoscyamus. — These are made to contain 3 or 5 grains each of Extract Hyoscyamus.

3048. Hyoscyamus, Codeine, and Cannabis Indica. — Extract Hyoscyamus, Codeine, each 1 grain, Extract Cannabis Indica $\frac{1}{2}$ grain; or Extract Hyoscyamus, Codeine, and Extract Cannabis Indica, each 2 grains, in each suppository.

3049. Hyoscyamus, Coca, and Cannabis Indica.— Extract Hyoscyamus 1 grain, Extract Coca 2 grains, Extract Cannabis Indica $\frac{1}{2}$ grain; or Extract Hyoscyamus 4 grains, Extract Coca 5 grains, Extract Cannabis Indica 2 grains, in each suppository.

ASTRINGENT.

Those which contain a larger quantity of the medicinal agent than can well be contained in a 15-grain mould are made of a correspondingly larger size.

3061. Extract Krameria.— These are made to contain 3 grains, 5 grains, or 10 grains of the Extract in each.

3067. Tannic Acid. — These are made to contain 2 grains, 5 grains, or 10 grains of Tannin in each suppository.

ANTISEPTIC.

Many of these require to be made larger than the 15-grain size.

3081. Salicylic, and Boric Acid with Thymol.—Salicylic Acid 5 grains, Boric Acid 5 grains, Thymol 2 grains; or Salicylic Acid 10 grains, Boric Acid 10 grains, Thymol 5 grains, in each suppository.

HYPNOTIC.

Most of these Suppositories contain a larger quantity of medicine than can be made up into ordinary size suppositories, and must be made larger.

3087. Lupuline and Cannabis Indica Compound. — Lupuline 5 grains. Extract Hyoscyamus 1 grain, Monobromated Camphor 2 grains, Extract Cannabis Indica $\frac{1}{2}$ grain; or Lupuline 15 grains, Extract Hyoscyamus 2 grains, Monobromated Camphor 2 grains, Extract Cannabis Indica 1 grain, in each.

Other Suppositories.

Besides the Suppositories enumerated, there are Aural Suppositories, containing small quantities of medicinal substances in small oblong suppositories, and Nasal Suppositories, also small, and containing small quantities of medicinal agents mostly of an antiseptic nature. These are but little used, and it is not necessary to give their composition here.

3118. Purgative Suppositories.— These may be most conveniently made of powdered Elaterium 1 grain, made up with Oil of Theobroma into a suppository.

3119. Vermifuge Suppositories—For pin worms.—Aloes 10 to 20 grains in powder made up into 30-grain Suppositories.

SYRUPI—SYRUPS.

Syrups as understood in pharmacy are concentrated Solutions of Sugar in Water or other aqueous liquids, containing, usually, some flavoring or medicinal ingredients. They are prepared by dissolving the sugar in the medicinal solution either by the aid of heat or by agitation, or stirring cold, the latter method being now quite generally employed as the flavor of the preparation is better retained by the cold process.

The best process for making Syrups is by water-bath percolation, as by this method the making of the Syrup is facilitated by the heat without exposure, and the flavor and strength of the preparation is unimpaired.

Only the best quality of granulated sugar should be used for making Syrups, and the water should, if not distilled, be free from all impurities. Rain water boiled and filtered is sufficiently pure for most purposes.

Many of the Syrups do not keep well during the summer. Such Syrups should only be made in small quantities and if admissible should be rubbed in a mortar with a few drops only of Oil of Cloves, which prevent them from spoiling for a long time. Syrups should be made slightly heavier of sugar for summer use than when designed to be used in the winter.

A great number of Syrups are employed in pharmacy, but only a comparatively small number are official. Those official in the U. S., Br., and German Pharmacopoeias will first be considered, and then the more important unofficial Syrups.

3120. Syrupus—Syrupus Simplex.

Syrup.—Simple Syrup.

The U. S. 1880 formula is:

Sugar, in coarse powder, 65 parts or $28\frac{3}{8}$ ounces av.
Distilled water, enough to make 100 parts or 2 pints.

Two pints of Syrup as thus prepared weighs as follows:

Weight in grains,	19102
Weight in av. ounces (nearly),	$43\frac{2}{3}$
Specific gravity,	1.310

Dissolve the Sugar with the aid of heat in 11 fl.ounces of Distilled Water, raise the temperature to the boiling point, and strain the solution while hot. Then incorporate with the solution enough Distilled Water, added through the strainer, to make the Syrup measure two pints, or weigh as above. This is dispensed as Simple Syrup and used as the basis of other Syrups.

MADE BY WATER-BATH PERCOLATION.

Sugar, granulated, 7 pounds 1 1/2 ounces av.
Distilled, or pure Water, enough to make a gallon.

Having covered the perforated diaphragm of the water-bath percolator with a piece of muslin or canton flannel, put the sugar upon it in the percolator, and add to it 3 pints of water, heat the solution to boiling, with occasional stirring, then draw off by the stop-cock and add enough Distilled Water through the percolator to make a gallon.

It will readily be seen that this is the most convenient and practical way to make Simple Syrup. It is not only made, but strained or filtered at the same operation, and produces a clear, bright syrup.

If it is desirable to make the syrup (or any syrup) without heat, it may be made in the same manner, simply omitting the heat.

For other purposes Syrup is variously made, as Flavored Syrup, for making elegant preparations, Soda Water Syrup for making soda water, etc.

3121. Syrupus Acaciae.

Syrup of Acacia—Syrup of Gum Arabic.

Mucilage of Acacia, 25 parts or 4 1/2 fl.ounces.
Syrup, 75 parts or 12 fl.ounces.
Mix them.

This Syrup should be freshly made when required for use. The proportion of one part by measure of mucilage to three parts of syrup, although not exactly correct, is accurate enough for making this syrup extemporaneously.

This is used in cough mixtures and as a vehicle for other medicines.

MADE BY WATER-BATH PERCOLATION.

Fenner' s Formula.

Acacia, granulated,	3 ounces av.
Sugar, granulated,	24 ounces av.
Oil of Cloves,	10 minims.
Water, enough to make	2 pints.

Dissolve the Acacia by stirring it from time to time in eight ounces of water. When it is dissolved put the sugar in the water-bath percolator and add the solution and four ounces of water to it; heat gently and stir occasionally until the sugar is dissolved, then draw off by the stop-cock and add enough water through the percolator to make two pints of the syrup. Rub the Oil of Cloves with an ounce of the syrup and mix it with the remainder by agitation.

Syrup Acacia made in this manner will keep sweet through the summer.

3122. Syrupus Acidi Citrici.

Syrup of Citric Acid.

Citric Acid,	8 parts or 150 grains.
Water,	8 parts or 2 ¹ / ₂ fl.drachms.
Spirit of Lemon,	4 parts or 95 minims.
Syrup,	980 parts or 2 pints.

Mix the Spirit of Lemon with the Syrup contained in a bottle; then add, gradually, the Citric Acid, dissolved in the water, shaking the bottle after each addition until the whole is thoroughly mixed.

This is used chiefly for flavoring.

3124. Syrupus Allii.

Syrup of Garlic.

Fresh Garlic, sliced and bruised,	15 parts or 6 ¹ / ₂ ounces av.
Sugar, in coarse powder,	60 parts or 26 ounces av.
Diluted Acetic Acid,	40 parts or 1 pint.

Macerate the Garlic for four days with ten ounces of Diluted Acetic Acid and express the liquid. Then mix the residue with the remainder of the

Acid and again express until enough additional liquid has been obtained to make the whole, when filtered, measure a pint. Then pour the filtered liquid upon the Sugar contained in a bottle and agitate occasionally until it is dissolved. Keep the Syrup in well stopped, filled bottles in a cool place. This is used in cough and worm medicines.

A Compound Syrup of Garlic is made with Garlic $\frac{1}{2}$ ounce. Aniseed $\frac{1}{2}$ ounce. Elecampane Root 3 drachms. Liquorice Root 2 drachms, macerated with Brandy 24 fl.ounces, and the liquid made into a Syrup with $1\frac{1}{2}$ pound of Sugar.

3125. Syrupus Althaea.

Syrup of Althaea,

This is official in the U. S. and German Pharmacopoeias, the formula being about the same in each.

Althaea root, cut,	4 parts or 1 ounce av.
Sugar, granulated,	60 parts or 15 ounces av.
Water, a sufficient quantity to make	100 parts or 1 pint.

Having washed the Althaea with cold Water, pour upon it fourteen ounces of cold Water and macerate for one hour, stirring frequently; then drain through flannel without expressing. To nine fl.ounces of the drained liquid add the Sugar and dissolve it by agitation without heat. This Syrup should be freshly made, when required for use.

This is a demulcent Syrup used for coughs and as a diuretic. Dose, a teaspoonful or more.

3126. Syrupus Amygdalae.

Syrup of Almonds (Orgeat).

Sweet Almond,	10 parts or 5 ounces av.
Bitter Almond,	3 parts or $1\frac{1}{2}$ ounces av.
Sugar,	50 parts or 25 ounces av.
Orange Flower Water,	5 parts or $2\frac{3}{8}$ fl.ounces.
Water, enough to make	100 parts or 2 pints.

Having blanched the Almonds rub them to a very fine paste, adding, during the trituration, 1 1/2 ounces of Water and 5 ounces of Sugar. Mix the paste thoroughly with the Orange Flower Water and 15 ounces of Water, strain with strong expression, and add enough Water to the dregs to obtain, after renewed expression, 25 fl.ounces of strained liquid. To this add the remainder of the Sugar, dissolve it by agitation, without heat, and strain through muslin. Keep the Syrup in well-stopped, filled bottles in a cool place. (U. S. 1880.)

The German formula directs a smaller proportion of Bitter Almonds, but is otherwise about the same. It is used mainly for flavoring.

A Syrup of Bitter Almond for flavoring may be made with Essence of Bitter Almond 1/2 fl.ounce mixed with 1 pint of Syrup.

3127. Syrupus Aurantii.

Syrup of Orange.

The U. S. formula is:

Sweet Orange Peel, deprived of the inner white layer, and cut into small pieces,	5 parts or 2 1/2 ounces av.
Alcohol,	5 parts or 3 fl.ounces.
Precipitated Phosphate of Calcium,	1 part or 1/2 ounce av.
Sugar,	60 parts or 30 ounces av.
Water, a sufficient quantity to make	100 parts or 34 fl.ounces.

Macerate the Orange Peel with the Alcohol for seven days, then express the liquid; rub this with the Precipitated Phosphate of Calcium and 15 ounces of Water gradually added; filter the mixture and pass enough Water through the filter to make the filtrate weigh 40 parts or measure 19 3/8 ounces. Lastly, add the Sugar, dissolve it by agitation, without heat, and strain. Used mainly for flavoring.

The Br. P. directs Tincture of Orange Peel 1 fl.ounce, Syrup 7 fl.ounces, to be mixed together.

The G. P. formula is: Orange Peel 5 parts, White Wine 45 parts, macerate for 2 days and express, then add to 40 parts of expressed liquid 60 parts of Sugar and dissolve.

As Syrup of Orange is used only for its agreeable flavor, and has no medicinal value, it seems unnecessary to go to so much trouble to make it when a simpler method will answer the purpose as well. The following formula is therefore given, which will make a fine preparation, provided only a good quality of Oil of Orange is used:

Oil of Orange,	40 minims.
Alcohol,	2 fl.drachms.
Carbonate of Magnesium,	80 grains.
Sugar, granulated,	28 ounces av.
Water, sufficient to make	2 pints.

Dissolve the Oil of Orange in the Alcohol and rub with the Carbonate of Magnesium in a mortar, gradually adding 12 fl.ounces of Water; filter the mixture and add enough Water through the filter to make 14 fl.ounces; dissolve the Sugar in the filtrate by agitation or percolation and add enough Water, if necessary, to make 2 pints of the Syrup.

3128. Syrupus Aurantii Florum.

Syrup of Orange Flowers.

Sugar, in coarse powder,	65 parts or 28 ³ / ₈ ounces av.
Orange Flower Water,	35 parts or enough to make 2 pints.

Dissolve the Sugar as nearly as possible by agitation in 14 fl.ounces of Orange Flower Water, then add enough Orange Flower Water to make 2 pints of the Syrup and agitate until dissolved.

The amount of Sugar directed is a little more than will readily dissolve by agitation. The 1870 revision directs to use gentle heat. It may be readily made to dissolve by water-bath percolation without injuring its flavor.

The formulas of the Br. and German Pharmacopoeias direct the Sugar first to be dissolved in distilled Water by heat, and Orange Flower

Water added when nearly cold, to make of the desired specific gravity.

This Syrup is used for flavoring other medicines.

3131. Syrupus Cerasorum. G. P.

Syrup of Cherries.

Bruise black sour Cherries with the seeds (stones) and set them aside in a covered vessel at a temperature of about 20°C., stirring frequently until a small filtered portion yields a clear mixture with half its volume of Alcohol; then express and filter. The liquid may be called Cherry Juice. Then take

Cherry Juice,	1 pint or 35 parts.
Sugar,	2 pounds or 65 parts.

Dissolve the Sugar in the Juice. This is a finely-flavored acid Fruit Syrup, Other Fruit Syrups may be prepared in the same manner.

3132. Syrupus Cinnamomi. G. P.

Syrup of Cinnamon — Zimmet Syrup.

Cinnamon, in coarse powder,	10 parts.
Cinnamon Water,	50 parts.
Sugar,	60 parts.
Water,	40 parts.

Macerate the Cinnamon in the Cinnamon Water for 2 days, strain and filter, then add the Sugar and dissolve.

This Syrup is used as a flavoring for other medicines.

3140. Syrupus Hemidesmi. Br.

Syrup of Hemidesmus— (Indian Sarsaparilla).

Hemidesmus Root,	4 ounces av.
Refined Sugar,	28 ounces av.
Boiling Distilled Water,	20 fl.ounces.

Infuse the Hemidesmus Root in the Water in a covered vessel for 4 hours and strain. Set it by till the sediment subsides; then decant the clear liquid, add the sugar and dissolve by aid of a gentle heat. This is used as an alterative and blood purifier. The dose is a teaspoonful.

Syrup of Sarsaparilla. of any other kind may be made in the same proportions and manner.

3143. Syrupus Ipecacuanhae.

Syrup of Ipecac.

The U. S. formula is:

Fluid Extract of Ipecac,	5 parts or 2 fl.ounces.
Syrup,	95 parts or 25 fl.ounces.

Mix them.

The present official Fluid Extract will mix with syrup and make a transparent preparation, because, by the process of preparing it, the resinous matter is removed; but the 1870 Fluid Extract and most manufacturers will make a "muddy" preparation, because of the precipitation of the resin of the Fluid Extract which is held in solution.

The druggist may readily ascertain if his fluid extract contains resin by adding a few drops of it to water. If it contains resin it will have a muddy or cloudy appearance; if free from it, the result will be a clear solution. If it contains resin, the syrup should be made as follows :

Fluid Extract of Ipecac,	2 fl.ounces.
Water,	13 fl.ounces.
Sugar,	28 ounces av.

Mix the Extract with the Water and half of the Sugar, and allow to stand until the Sugar is dissolved, then filter, add the remainder of the Sugar and dissolve by percolation or gentle heat, adding water if necessary to make two pints.

If it is desired to make the Syrup of Ipecac from the root instead of the fluid extract, it may be made by the following formula:

Ipecac, in moderately fine powder,	8 ounces av.
Alcohol,	4 fl.ounces.
Sugar, in coarse powder,	7 pounds av.
Water, a sufficient quantity.	

Moisten the Ipecac with the Alcohol and pack moderately in the water-bath percolator; pour upon it 4 ounces of Water and set in a warm place for 24 hours; then heat very moderately and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until two pints have passed. Evaporate this by means of a water-bath—boiling it for a few moments—to a pint, and when cool filter, add to the filtrate enough Water to make 60 fl.ounces and dissolve the Sugar in the liquid by gentle heat, or water-bath percolation. The product should be one gallon of Syrup. Lastly, while still warm, put it in half-pint well-stopped bottles, and set away in a cool place.

Syrup of Ipecac made and preserved in this manner will keep for years. It is given as an emetic in doses of $\frac{1}{2}$ to 1 teaspoonful, repeated in 15 minutes if necessary, and is used in cough remedies.

The German Syrup of Ipecac contains only 1 per cent. of Ipecac. The Br. P. contains no formula for it.

3144. Syrupus Krameriae.

Syrup of Krameria (Rhatany).

Fluid Extract Krameria,	35 parts or 12 fl.ounces.
Syrup,	65 parts or 20 fl.ounces.
Mix them.	

As this Syrup is so little used, it is much more convenient to prepare it from the Fluid Extract as required; 3 parts or fl.drachms of the Fluid Extract to 5 parts or fl.drachms of Syrup makes the preparation in the proper proportion.

The dose is a teaspoonful or more as an astringent.

3145. Syrupus Lactucarii.

Syrup of Lactucarium.

Fluid Extract of Lactucarium, 5 parts or 2 fl.ounces.
Syrup, 95 parts or 29 fl.ounces.

Mix them.

This is used as an anodyne in doses of 1 to 3 fl.drachms.

3146. Aubergier's Syrup of Lactucarium.

This preparation is much used in Europe and is occasionally called for in this country. Prof. Proctor, in the A. J. P. 1866, page 290, furnished the following formula for its preparation:

Lactucarium (German), 1/2 ounce av.
Sugar, granulated, 1 ounce av.
Syrup, 4 1/2 pints.
Citric Acid, in powder, 60 grains.
Orange Flower Water, 4 fl.ounces.
Diluted Alcohol, Water, each a sufficient quantity.

Triturate the Lactucarium with the Sugar until reduced to powder, put it into a funnel-shaped percolator, pour on diluted Alcohol until the Lactucarium is nearly exhausted, or until 10 fl.ounces have passed, evaporate to 2 fl.ounces and add it to the Syrup, previously heated by boiling, and mix. Continue the ebullition slowly until the whole measures 4 pints and 6 fl.ounces. Then add the Citric Acid and strain, and, lastly, when nearly cool, the Orange Flower Water, and mix them.

This preparation is much inferior in strength to the officinal preparation.

3147. Syrupus Limonis.

Syrup of Lemon.

Lemon Juice, recently expressed and strained,

	40 parts or 17 fl.ounces.
Lemon Peel, fresh,	2 parts or 1 ounce av.
Sugar, in coarse powder,	60 parts or 28 ounces av.
Water enough to make	100 parts or 2 pints.

Heat the Lemon Juice to the boiling point, then add the Lemon Peel and let the whole stand closely covered until cold, filter, add enough Water through the filter to make the filtrate measure 17 fl.ounces, dissolve the Sugar in the filtered liquid by agitation, without heat, and strain.

Syrup of Lemon will not keep long during the summer months. It is better preserved if put up hot, in small bottles, and kept in a cool place.

The Br. formula is Lemon Juice 20 fl.ounces, Lemon Peel 2 ounces av., Sugar 2¹/₄ pounds av., made in the same manner.

3148. Syrupus Liquiritiae. G. P.

Syrup of Licorice Root.

Russian Licorice Root,	20 parts.
Water of Ammonia,	10 parts.
Water,	100 parts.
Alcohol,	10 parts.
Syrup, sufficient to make	100 parts.

Macerate the Licorice Root in the mixed Water of Ammonia and Water for 10 hours, then express, heat the liquid once to boiling, and evaporate on a steam-bath to 10 parts; to this add the alcohol, set aside for 12 hours, then filter and add to the filtrate enough Syrup to make 100 parts. This is used as a vehicle for bitter medicines and as a demulcent in cough mixtures, etc.

3149. Syrupus Mannae. G. P.

Syrup of Manna.

Pure Manna,	10 parts.
Water,	40 parts.
Sugar,	50 parts.

Dissolve the Manna in the Water, filter and dissolve the Sugar in the filtrate. This is slightly laxative.

3150. Syrupus Menthae. G. P.

Syrup of Peppermint.

Peppermint, cut,	10 parts.
Alcohol,	5 parts.
Water,	50 parts.
Sugar,	60 parts.

Moisten the Peppermint with the Alcohol, then add the Water, allow to stand one day, strain without pressure, and to 40 parts of the liquid add the Sugar, dissolve by gentle heat and when cold strain or filter.

A great many other Syrups of Aromatic herbs may be prepared in the same manner.

3151. Syrupus Mori. Br.

Syrup of Mulberries.

Mulberry Juice,	20 fl.ounces.
Refined Sugar,	36 ounces av.
Rectified Spirit,	2 ¹ / ₂ fl.ounces.

Heat the Juice to the boiling point and when cool, filter. Dissolve the Sugar in the filtered Liquid with the aid of heat and, when cool, add the Spirit. The dose is a fl.drachm or more.

3152. Syrupus Papaveris.

The Br. formula is :

Poppy Capsules freed from the seeds,	
and in No. 20 powder,	18 ounces av.
Rectified Spirit,	8 fl.ounces.
Refined Sugar,	2 pounds av.
Boiling Distilled Water, a sufficiency.	

Mix the Poppy Capsules with 40 fl.ounces of the Boiling Water and infuse for 24 hours, stirring frequently; then pack in a percolator, and adding some more of the Water, allow the liquid to pass slowly until exhausted, or until about 160 fl.ounces have passed. Evaporate this percolate by water-bath to 44 fl.ounces, and when cold add the Spirit, allow to stand 12 hours, filter, distill off the Spirit, evaporate the remaining liquor to 20 fl.ounces, add the Sugar and dissolve. The dose is 1 fl.drachm as an anodyne, etc.

The German Pharmacopoeia directs this to be made the same as Syrup of Peppermint (which see). This is not official in the U. S. P.

3153. Syrupus Picis Liquidas.

Syrup of Tar.

Tar,	6 parts or $2\frac{2}{3}$ ounces av.
Cold Water,	12 parts or 5 fl.ounces.
Boiling Distilled Water,	50 parts or 22 fl.ounces.
Sugar, in coarse powder,	60 parts or 26 ounces av.

Upon the Tar contained in a suitable vessel, pour the Cold Water and stir the mixture frequently during 24 hours; then pour off the water and throw it away. Pour the Boiling Distilled Water upon the residue, stir the mixture briskly for fifteen minutes and set it aside for 36 hours, stirring occasionally. Decant the solution and filter. Lastly, in forty parts, or 17 fl.ounces of filtered solution, dissolve the Sugar by agitation, without heat. U. S.

MADE BY WATER-BATH PERCOLATION.

Fenners Formula.

Tar,	2 ounces av.
Cold Water,	4 fl.ounces.
Pine Sawdust,	12 ounces av.
Sugar, granulated,	28 ounces av.
Boiling Water,	a sufficient quantity.

Pour the Cold Water upon the Tar and stir the mixture occasionally during 24 hours; then pour off the water and mix the Tar intimately

with the Pine Sawdust and pack firmly in the water-bath percolator. Pour upon it a pint of Boiling Water and keep at a moderate heat for 2 hours, then pour on more Boiling Water and begin to percolate, adding water and continuing the heat and percolation until 20 ounces have passed. Allow the percolate to stand until cool, then filter off a pint and dissolve the Sugar in the filtrate, by agitation or percolation. This is much used in cough mixtures, etc.

3154. Syrupus Pruni Virginianae.

Syrup of Wild Cherry. 1880.

Wild Cherry, in No. 20 powder,	12 parts or 5 ¹ / ₂ ounces av.
Sugar, in coarse powder,	60 parts or 28 ounces av.
Glycerin,	5 parts or 2 fl.ounces.
Water, a sufficient quantity to make about	2 pints.

Moisten the Wild Cherry thoroughly with Water and macerate for 24 hours in a close vessel, then pack it firmly in a cylindrical glass percolator and gradually pour Water upon it until 15 ounces of percolate are obtained. Dissolve the Sugar in the liquid by agitation without heat, add the Glycerin and strain. U. S.

MADE BY WATER-BATH PERCOLATION.

Wild Cherry, in No. 20 powder,	5 ¹ / ₂ ounces av.
Sugar, granulated,	28 ounces av.
Glycerin,	2 fl.ounces.
Water enough to make	2 pints.

Moisten the Wild Cherry with six ounces of Water, and allow it to stand in a warm place for 24 hours in a covered vessel; then pack in the water-bath percolator, pour a pint of Water upon it and heat very moderately, not over 100 F., for one hour, then begin to percolate, and continue the heat and percolation, adding Water to the drug, if necessary, until 14 fl.ounces have passed, dissolve the Sugar in the percolate while still warm, and add the Glycerin. Keep in small, well-stopped bottles in a cool place. Prepared and preserved in this manner

this" Syrup will keep through the summer.

If the heat is kept within the limit mentioned, a much better preparation will result than when made by the cold process; but too high a degree of heat vaporizes the Hydrocyanic Acid which has been developed by moistening the drug, and injures the preparation.

This Syrup is much used as a sedative in cough remedies.

3155. Syrupus Rhamni Catharticae. G. P.

Syrup of Buckthorn.

This Syrup is officinal in the German Pharmacoposia and is quite frequently called for in this country. It is made from the fresh juice of Buckthorn Berries, which is not obtainable in this country, by dissolving 65 parts of Sugar in 35 parts of the juice. We, therefore, have to depend upon the imported syrup, which can be obtained of wholesale druggists. Fluid Extract and Elixir of Buckthorn made from the Bark or Berries are now extensively used, and have nearly superseded, in this country, the Syrup made from the fresh juice.

3156. Syrupus Rhei.

Syrup of Rhubarb.

The U. S. P. formula is:

Rhubarb, sliced,	90 parts or 3 ⁷ / ₈ ounces av.
Cinnamon, bruised,	18 parts or 340 grains.
Carbonate of Potassium,	6 parts or 112 grains.
Sugar, in coarse powder,	600 parts or 27 ounces av.
Water, sufficient to make	1000 parts or 2 pints.

Mix the Rhubarb, Cinnamon and Carbonate of Potassium with 420 parts or 20 fl.ounces of Water, and macerate the mixture in a glass or porcelain vessel for twelve hours. Then strain and filter, adding through the dregs, if necessary, enough Water to make the filtered liquid weigh 400 parts or measure a pint. Lastly, add the Sugar, dissolve it by agitation, without heat, and strain.

MADE BY WATER-BATH PERCOLATION.

Rhubarb, in No. 20 powder,	4 ounces.
Cinnamon, in No. 20 powder,	360 grains.
Carbonate of Potassium,	120 grains.
Sugar, granulated,	28 ounces av.
Water, a sufficient quantity.	

Mix the Rhubarb and Cinnamon; dissolve the Carbonate of Potassium in 4 ounces of Water, and, having moistened the drugs with the solution, set in a warm place in a closed vessel for 12 hours, then pack moderately in the water-bath percolator, pour upon them a pint of Water and heat very moderately for one hour; then begin to percolate, adding Water to the drugs if necessary, and continue the heat and percolation until a pint of the percolate has passed; while still warm dissolve the Sugar in the liquid by agitation, and filter.

This will be found much superior to the U. S. process for making this Syrup.

The Br. P. formula is Rhubarb, Coriander, each 2 ounces av., Refined Sugar 24 ounces av., Rectified Spirit 8 fl.ounces, Distilled Water 24 fl.ounces. Percolate with the mixed Spirit and Water. Evaporate the percolate to 14 fl.ounces, filter, and dissolve the Sugar in the filtrate.

The German formula is very much like the U. S.

Syrup of Rhubarb is much used as a stomachic and for bowel troubles, acting first as a purgative and then as an astringent. The dose is 1 to 4 fl.drachms.

3157. Syrupus Rhei Aromaticus.

Aromatic Syrup of Rhubarb—Spiced Syrup of Rhubarb.

The U. S. P. formula of 1870 was:

Rhubarb, in No. 50 powder,	600 grains.
Cloves, in No. 50 powder,	60 grains.
Cinnamon, in No. 60 powder,	60 grains.
Nutmeg, in No. 50 powder,	60 grains.

Syrup, 3 pints.
Diluted Alcohol, a sufficient quantity.

Mix the powders, and, having moistened the mixture with a fl.ounce of Diluted Alcohol, introduce it into a conical percolator and pour Diluted Alcohol upon it until a half pint of tincture has passed; add this to the Syrup, previously heated, and mix them thoroughly.

The U. S. P. formula of 1880 is:

Aromatic Tincture of Rhubarb, 10 parts or 2 fl.ounces.
Syrup, 90 parts or 14 fl.ounces.
Mix the Aromatic Tincture of Rhubarb with the Syrup.

As the Aromatic Tincture of Rhubarb is the same as is produced by percolating the drugs with Diluted Alcohol in the 1870 formula, the resultant preparation is very nearly the same in both cases. A formula for preparing this Tincture by water-bath percolation will be found under the head of Tinctures.

3158. Syrupus Rhoeados. Br.

Syrup of Red Poppy.

Fresh Red Poppy Petals, 13 ounces av.
Refined Sugar, 36 ounces av.
Distilled Water, 20 fl.ounces.
Rectified Spirit, 2¹/₂ fl.ounces.

Add the petals gradually to the Water heated in a water-bath, frequently stirring, and afterwards, the vessel being removed, infuse for 12 hours, then press out the liquor, strain, add the Sugar and dissolve by heat; when nearly cold add the Spirit and enough Water to make the product weigh 58 ounces av. This is used for imparting a red color to Syrups, and as a mild anodyne. Dose 1 fl.drachm or more.

3159. Syrupus Rosae.

Syrup of Rose.

This Syrup in the 1870 U. S. P. was called *Syrupus Rosae Gallicae*, or

Syrup of Red Rose. It was prepared by percolating 2 troyounces of Red Rose petals with Diluted Alcohol, reserving the first fl.ounce, evaporating the next 5 ounces that passed to 1¹/₂ ounces and mixing with 7 ounces of Water; 18 troyounces of Sugar was then dissolved in the liquid by gentle heat, and when cold the first one ounce reserved was added and thoroughly mixed.

The present officinal formula is as follows :

Fluid Extract of Rose,	10 parts or 2 fl.ounces.
Syrup,	90 parts or 14 fl.ounces.

Mix them.

This is used for coloring and flavoring.

The Br. P. directs 2 ounces av. of dried Red Rose Petals to be infused for 2 hours in 20 fl.ounces of Water, then pressed and the liquid heated to boiling, filtered, and 30 ounces of Sugar dissolved in the filtrate.

3160. Syrupus Rubi.

Syrup of Rubus (Blackberry).

Fluid Extract of Rubus (Blackberry),	4 fl.ounces.
Syrup,	12 fl.ounces.

Mix them.

The fluid extract designated is made from Blackberry Root. A Syrup of Blackberry for flavoring Soda Water and for other purposes is also made from the fruit.

This is used as an astringent for diarrhoea, etc. Dose a tea-spoonful or more.

3161. Syrupus Rubi Idaei.

Syrup of Raspberry.

The U. S. P. formula is as follows:

Fresh ripe Raspberries, any convenient quantity.
Sugar, a sufficient quantity.

Reduce the Raspberries to a pulp and let it stand at rest for three days. Separate the juice by pressing and set it aside until it has completely fermented and become clear, and then filter. To each pint of the filtered juice then add 25 ounces av. of Sugar, heat to boiling, avoiding the use of tinned vessels, and strain. Keep the Syrup in well-stopped bottles in a cool, dark place. The G. P. formula is about the same.

This is evidently given as a representative formula for Fruit Syrups, and although it makes a good Syrup it does not retain the natural flavor of the fruit as does a Syrup made from the juice without being fermented. See formulas for Fruit Syrups.

3162. Syrupus Sarsaparilla Compositus.

Compound Syrup of Sarsaparilla.

Sarsaparilla,	150 parts or 25 ounces av.
Guaiacum Wood,	20 parts or 3 ¹ / ₃ ounces av.
Pale Rose,	12 parts or 2 ounces av.
Liquorice Root,	12 parts or 2 ounces av.
Senna,	12 parts or 2 ounces av.
Sassafras,	6 parts or 1 ounce av.
Anise,	6 parts or 1 ounce av.
Gaultheria,	6 parts or 1 ounce av.
Sugar,	600 parts or 100 ounces av.
Water, Diluted Alcohol,	
each, sufficient to make	1000 parts or about 7 pints.

(The drugs should all be about No. 30 powder.)

Mix the solid ingredients except the Sugar with three pints of Diluted Alcohol and macerate the mixture for forty-eight hours; then transfer it to a cylindrical percolator, pack it firmly, and gradually pour Diluted Alcohol upon it until 6 pints of tincture have been obtained. Evaporate this portion, by means of a water-bath, to 3 pints, add a pint of Water, and filter, adding enough Water through the filter to make 4 pints. Lastly, add the Sugar, dissolve it by agitation, without heat, and strain.
U. S. 1880.

Other formulas for Syrup Sarsaparilla Compound will be found among the Standard Remedies.

MADE BY WATER-BATH PERCOLATION.

Sarsaparilla, in No. 30 powder,	25 ounces av.
Guaicum Wood, in No. 30 powder,	3 ounces av.
Pale Rose, in No. 30 powder,	2 ounces av.
Liquorice Root, in No. 30 powder,	2 ounces av.
Senna, in No. 30 powder,	2 ounces av.
Sassafras, in No. 30 powder,	1 ounce av.
Anise, in No. 30 powder,	1 ounce av.
Sarsaparilla Flavoring (see below),	1/2 fl.ounce.
Sugar, in coarse powder,	6 1/2 pounds av.
Water, Diluted Alcohol, each,	a sufficient quantity.

Mix the solid ingredients, except the Sugar, and moisten them with 1 1/2 pints of Diluted Alcohol, set in a covered vessel in a warm place for 12 hours, then transfer to the water-bath percolator, pack moderately, pour upon them 2 pints of Diluted Alcohol and set in a warm place for 24 hours; then heat moderately, and after one hour begin to percolate, adding Diluted Alcohol to the drugs and continuing the heat and percolation until 6 pints of the tincture have passed. Distill off three pints of Alcohol, by means of the water-bath and still, add a pint of Water to the residue and filter, adding enough Water through the filter to make the measure 4 pints. Mix the Sarsaparilla Flavoring with 4 ounces of the Sugar and dissolve this with the remainder of the Sugar in the liquid by percolation or agitation.

Sarsaparilla Flavoring, or *Essence of Sarsaparilla*, is the same as is used for flavoring Soda Water Syrups, and is made as follows:

Oil of Wintergreen,	4 fl.drachms.
Oil of Sassafras,	3 fl.drachms.
Oil of Anise,	1 fl.drachm.
Cologne Spirit,	12 fl.ounces.
Water,	4 fl.ounces.

Mix, and, if necessary, filter through a little Carbonate of Magnesium.

3163. Syrupus Scillae.

Syrup of Squill.

The U. S. P. formula is as follows:

Vinegar of Squill,	40 parts or 1 pint.
Sugar, in coarse powder,	60 parts or 26 ounces av.
Water, sufficient to make	100 parts or 2 pints.

Heat the Vinegar of Squill to the boiling point in a glass or porcelain vessel and filter while hot, adding enough Water through the filter to make the filtrate weigh 40 parts or measure a pint; add the Sugar, dissolve it by agitation, without heat, and strain.

The Br. formula is about the same. This is used for coughs, in doses of 1/2 to a teaspoonful.

3164. Syrupus Scillas Compositus.

Compound Syrup of Squill (Hive Syrup).

The U. S. P. formula is:

Squill,	120 parts or 2 1/2 ounces av.
Senega,	120 parts or 2 1/2 ounces av.
Tartrate of Antimony and Potassium,	3 parts or 28 grains.
Sugar,	1200 parts or 26 ounces av.
Precipitated Phosphate of Calcium,	9 parts or 90 grains.
Diluted Alcohol, Water, each sufficient to make	2000 parts or 2 pints.

The drugs should be in No. 30 powder.

Mix the Squill and Senega, and, having moistened the mixture with half a pint of Diluted Alcohol, macerate for an hour, then transfer the mixture to a conical percolator and gradually pour upon it Diluted Alcohol until one and a half pints of tincture are obtained. Boil this

portion for a few minutes and then evaporate it by means of a water-bath to half a pint, having added three ounces of boiling Water, triturate the mixture with the precipitated Phosphate of Calcium, and add, through the filter, enough warm Water to make the whole measure one pint. In this dissolve the Sugar by agitation, without heat, and strain. Lastly, dissolve the Tartrate of Antimony and Potassium in a fl.ounce of hot Water, and mix the solution thoroughly with the Syrup. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Squill, in No. 20 powder,	2 ¹ / ₂ ounces av.
Senega, in No. 30 powder,	23 ¹ / ₂ ounces av.
Tartrate of Antimony and Potassium,	32 grains.
Sugar,	28 ounces av.
Diluted Alcohol, Water,	each, sufficient.

Mix the Squill and Senega, moisten with 5 fl.ounces of Diluted Alcohol, and set in a covered vessel for 12 hours; then transfer to the water-bath percolator, pack very moderately, pour upon it a pint of Diluted Alcohol, and set in a warm place for 24 hours; then heat very moderately, and after one hour, begin to percolate, adding Water to the drug and continuing the heat and percolation until a pint and a half of the percolate has passed. Distill off 12 fl.ounces of Alcohol, and boil the residue for 15 minutes; then evaporate it to half a pint and filter, adding enough Water through the filter to make 15 fl.ounces. In this dissolve the Sugar by percolation or agitation, and having dissolved the Tartrate of Antimony and Potassium in an ounce of hot Water, add to the Syrup and mix thoroughly.

This is much used as a cough Syrup and emetic, in doses of 1/2 to a teaspoonful or more.

3165. Syrupus Senegae.

Syrup of Senega— 1880. Syrup of Seneka— 1870.

The U. S.P. 1880 formula is:

Fluid Extract of Senega, 160 parts or 8 fl.ounces.

Water of Ammonia,	4 parts or 90 minims.
Sugar, in coarse powder,	600 parts or 28 ounces av.
Water, sufficient to make	1000 parts or 2 pints.

Mix the Fluid Extract with 12 ounces of Water, add the Water of Ammonia, shake the mixture well, and let it stand for a few hours ; then filter, adding enough Water through the filter to make 17 fl.ounces. To the filtered solution add the Sugar and dissolve by agitation or percolation, without heat, and strain. This contains 16 per cent of Senega.

The G. P. preparation contains only 5 per cent. of Senega.

MADE BY WATER-BATH PERCOLATION.

Senega, in No. 40 powder,	8 ounces av.
Diluted Alcohol,	1 pint.
Water of Ammonia,	1 ¹ / ₂ fl.drachm.
Sugar,	28 ounces av.
Water, a sufficient quantity.	

Moisten the drug with 8 fl.ounces of Diluted Alcohol and let stand for 12 hours, then pack moderately in the water-bath percolator; pour upon it the remainder (8 fl.ounces) of the Diluted Alcohol and set in a warm place for one day; then heat very moderately, and after one hour begin to percolate, adding Water to the drug, and continuing the heat and percolation until a pint of the tincture has passed ; boil this for 15 minutes to coagulate the albumen and starchy matter, continue the evaporation by gentle heat until the liquid is reduced to half a pint, and filter through muslin, without pressure, adding a little Water through the filter to preserve the measure. To the filtered liquid add 8 ounces of Water and the Water of Ammonia, and, after standing 3 or 4 hours, filter through paper and dissolve the Sugar in the filtrate by agitation or percolation.

This is a tonic expectorant much esteemed in cough mixtures. Dose $\frac{1}{2}$ to 1 fl.drachm.

3166. Syrupus Sennae.

Syrup of Senna.

The U. S. P. 1880 formula is:

Senna, bruised,	33 parts or 16 ounces av.
Sugar, in coarse powder,	60 parts or 29 ounces av.
Alcohol,	4 parts or 2 fl.ounces.
Oil of Coriander,	8 minims.
Water, a sufficient quantity.	

Digest the Senna in five pints of Water, at a temperature not exceeding 50° C. (122° F.), for 24 hours, express and strain the liquid; digest the mass with 2 pints of Water, at the same temperature, for 24 hours, express and strain as before, mix the strained liquids and evaporate the mixture to 15 fl.ounces. When cold add the Alcohol, previously mixed with the Oil of Coriander, and filter through paper, adding, through the filter, enough Water to make the whole measure 17 fl.ounces. Then add the Sugar, dissolve it by agitation or percolation, and strain.

As this Syrup is about one-half the strength of the Fluid Extract, it seems an unnecessary officinal. It may be made extemporaneously by mixing equal measure of Fluid Extract of Senna and Syrup.

It may also be made by water-bath percolation.

The Br. P. formula is about the same. The G. P. preparation contains only 10 per cent. of Senna. The dose as a laxative is 1 to 4 fl.drachms.

3167. Syrupus Tolutanus.

Syrup of Tolu.

As the U. S. P. 1870 formula for Syrup of Tolu is generally preferred, both that and the 1880 formula are given.

U. S. P. 1870 FORMULA.

Tincture of Tolu (U. S. 1870),	2 fl.ounces.
Carbonate of Magnesium,	120 grains.
Sugar, in coarse powder,	28 ¹ / ₂ ounces av.

Water, 1 pint.

Rub the Tincture of Tolu first with the Carbonate of Magnesium and 2 ounces of the Sugar, and then with the Water, gradually added, and filter. To the filtered liquid add the remainder of the Sugar, and, having dissolved it with the aid of a gentle heat, strain the solution while hot.

U. S. P. 1880 FORMULA.

Balsam of Tolu, 4 parts or 1³/₄ ounces av.
Sugar, in coarse powder, 65 parts or 28 ounces av.
Distilled Water, a sufficient quantity,

Mix the Sugar with 13 fl.ounces of Distilled Water, add the Balsam and digest the whole in a covered vessel, at a temperature not exceeding 82° C. (180° F.), for 2 hours. When cold, strain through a well-wetted muslin strainer, adding enough Water through the strainer to make the Syrup measure 2 pints, and mix thoroughly.

The formula of 1870 is much to be preferred, both on account of the manner of making and the quality and appearance of the finished Syrup.

The Br. P. formula is about the same as the U. S. 1880.

3168. Syrupus Zingiberis.

Syrup of Ginger.

As the Syrup of Ginger of the U. S. P. 1870 and 1880 differ considerably, both formulas are given, the 1870 formula being generally preferred.

U. S. P. 1870 FORMULA.

Fluid Extract of Ginger, 3 fl.drachms.
Carbonate of Magnesium, 60 grains.
Sugar, in coarse powder, 26 ounces av.
Water, 1 pint.

Rub the Fluid Extract of Ginger with the Carbonate of Magnesium and

2 ounces of the Sugar, and then with the Water, gradually added, and filter. To the filtrate add the remainder of the Sugar, and, having dissolved it with the aid of gentle heat, strain the solution while hot.

U. S. P. 1880.

Fluid Extract of Ginger,	2 parts or 1 fl.ounce.
Sugar, in coarse powder,	65 parts or 30 ounces av.
Water, a sufficient quantity.	

Rub the Fluid Extract of Ginger with 12 ounces of Sugar and expose the mixture to a heat not exceeding 60° C. (140° F.) until all the Alcohol has evaporated. Then mix the residue thoroughly by agitation with 15 ounces of Water and filter the liquid, adding through the filter enough Water to make the whole measure 22 fl.ounces. Finally, add the remainder of the Sugar, dissolve it by agitation, without heat, and filter.

As with Syrup of Tolu, the 1880 formula is no improvement over the 1870, in fact makes a much less desirable preparation and takes more time and trouble.

The 1870 formula may be made without the use of heat, by percolation or agitation.

The Br. P. formula is strong Tincture of Ginger 6 fl.drachms, Syrup 19 fl.ounces. This is used as a stimulant and stomachic, in doses of 1 or 2 fl.drachms.

Unofficial Syrups.

Besides the foregoing syrups official in the U. S., Br. and German Pharmacopoeias, a great many which are not official are much used. These include the syrups of vegetable substances which are popular or convenient; the syrups of chemical substances, which are mostly included in the preparations of elegant pharmacy; syrups used for soda water and other beverages, and a great variety of other syrups which have been introduced into pharmacy and medicine, because of their value, utility or application. The following are those most used:

Syrups of Vegetable Substances.

These syrups are arranged in classes according to their methods of preparation, medicinal strength, etc.

3169. Syrup Adiantum or Maiden Hair.

Maiden Hair Fern,	1 ounce av.
Boiling Water,	10 fl.ounces.
Sugar,	17 ounces av.

Pour the Boiling Water on the drug and infuse for half an hour, then strain, and dissolve the Sugar in 9 fl.ounces of the liquid.

This is used for coughs, etc.; the dose being from a teaspoonful to a tablespoonful. It is also known as *Syrup Capillaire*. It may be flavored with orange flower or other aromatic water.

3170. Syrup Carrageen or Iceland Moss.—Soak first in Water, and pour off to deprive of bitterness. Then make as above.

3171. Syrup Corsican Moss, or Helminthocortus. Make as above.

3172. Syrup Liquorice Root, or Glycyrrhiza, and of other similar substances which make demulcent syrups are prepared in the same manner.

3173. Syrup Aniseed.

Aniseed in coarse powder,	2 ounces av.
Boiling Water,	12 fl.ounces.
Sugar,	17 ounces av.

Pour the boiling Water on the drug and infuse by gentle heat in a covered vessel for two hours, then strain and in 10 fl.ounces of the strained infusion dissolve the Sugar. This is a representative of a great number of aromatic syrups that may be made from seeds, fruit, and other substances. The following Syrups are made in the same manner:

3174. Syrup Caraway or Carum.

3175. Syrup Cardamom or Cardamomum.

- 3176.** Syrup Cloves or Carophylles.
- 3177.** Syrup Coltsfoot or Tussilagino.
- 3178.** Syrup Cubeb or Cubeba;.
- 3179.** Syrup Eucalyptus, Eucalyptus Globulus.
- 3180.** Syrup Fennel or Foeniculum.
- 3181.** Syrup Gillinia.
- 3182.** Syrup Hyssop or Hyssopus.
- 3183.** Syrup Juniper Berries.
- 3184.** Syrup Sweet Flag or Calamus.
- 3185.** Syrup Violets.—Fresh flowers 8 ounces; dried, 2 ounces.

3186. Syrup Anthemis.

Syrup of Chamomile.

Chamomile Flowers,	1 ounce av.
Boiling Water,	12 fl.ounces.
Sugar,	17 ounces av.

Pour the Boiling Water upon the drug and infuse for two hours in a covered vessel, then strain and in 9 fl.ounces of the strained infusion, dissolve the sugar.

This is representative of a great many syrups that may be prepared from herb?, flowers, leaves, roots, barks, etc.

The following syrups may be prepared in a similar manner:

3187. Syrup Bark or Chinchona.

3188. Syrup Bayberry Bark.

- 3189.** Svrup Blackberry Root or Rubus.
- 3190.** Syrup Bloodroot or Sanguinaria.
- 3191.** Syrup Colchicum.
- 3192.** Syrup Dulcamara or Bitter Sweet.
- 3193.** Syrup Galls or Nutgalls.
- 3194.** Syrup Hoarhound or Marrubium.
- 3195.** Syrup Jalap.
- 3196.** Syrup Lobelia.
- 3197.** Syrup Pipsissewa or Chimaphila.
- 3198.** Syrup Saffron.
- 3199.** Syrup Valerian.
- 3200.** Syrup Vanilla, and many others.

3201. Syrup Asparagus.

Asparagus Juice, clarified,	9 fl.ounces.
Sugar,	17 fl.ounces.

The juice is first clarified by heating almost to boiling and straining. The Sugar is then dissolved in 9 fl.ounces of the clarified juice by gentle heat.

Other syrups are prepared from fresh juices of succulent plants in a similar manner. The following are made in this manner :

- 3202.** Syrup Fumitory.
- 3203.** Syrup Hounds Tongue.
- 3204.** Syrup Hedge Mustard.

3205. Syrup Symphytic.—Comfrey Juice and Plantain Juice each equal parts with Sugar, as above.

3206. Syrup Asafetida.

Asafetida, in powder,	1 ounce av.
Carbonate of Magnesium,	6 drachms.
Boiling Water,	10 fl.ounces.
Essence of Peppermint.	1 fl.ounce.
Sugar,	16 ounces av.

Rub the Asafetida with the Carbonate of Magnesium in a mortar and add the Boiling Water ; when cool add the Essence of Peppermint, filter, adding water enough through the filter to make 9 fl.ounces, and dissolve the Sugar in the filtrate by agitation.

Other syrups may be prepared from gum-resins, balsams, etc., in the same manner, omitting the Essence of Peppermint.

3208. Syrup Balsam Peru.

3209. Syrup Benzoin.

3210. Syrup Canada Balsam.

3211. Syrup Copaiba.

3212. Syrup Guaiacum.

3213. Syrup Liquidambar or Sweet Gum.

Compound Vegetable Syrups.

The following are the principal unofficial Compound Vegetable Syrups :

3227. Antiscorbutic Syrup.—Scurvygrass, Watercresses, Horseradish, fresh, of each, 10 ounces; Buckbean 1 ounce, Bitter Orange 2 ounces, Cinnamon $\frac{1}{2}$ ounce, White Wine 45 fl .ounces. Macerate 2 days, then distill off 10 ounces av. and add to the distillate 25 ounces av. of Sugar. Strain the residue left after distilling, clarify with White of

Egg, and add to the syrup prepared from the distillate. Dose, 2 to 4 drachms.

3228. Syrup Aralia Compound—*Alterative Syrup*.—This may be made by mixing

Fluid Extract Spikenard Compound (1615),	4 fl.ounces.
Syrup,	12 fl.ounces.

or by making an extract of the ingredients as directed (1615), distilling off the Alcohol and making 4 pints of syrup with Sugar and Water. This is the Eclectic Syrup Aralia or Spikenard Compound, much esteemed as an alterative. The dose is from a teaspoonful to a tablespoonful.

3229. Syrup Artemisia Compound—*Syrup of Mugwort Compound*.— Fresh tops of Mugwort, Pennyroyal, Catnip and Savine, each 2 ounces av.; fresh roots of Elecampane, Lovage, and Fennel, each 88 grains; fresh tops of Marjoram, Hyssop, Rue, Feverfew, and Basil, of each 1 ounce av.; Aniseed $\frac{1}{4}$ ounce. Cinnamon $\frac{1}{4}$ ounce, Rectified Spirit 3 ounces, Water 30 ounces, Syrup of Honey 12 $\frac{1}{2}$ ounces av. Infuse the plants with the Water and spirit, and after standing 24 hours distill over 4 fl.ounces, press the residue, clarify the liquid with White of Egg, add Sugar, 25 ounces av., make into a syrup, add the Syrup of Honey, and lastly the distilled liquid, and strain. The dose is 2 to 8 drachms as an aromatic tonic and bitter.

3230. Syrup Asarum Compound.—Macerate 1 $\frac{1}{2}$ ounce av. of Asarum (Canada Snakeroot or Wild Ginger), with 10 fl.ounces of Diluted Alcohol. Pour off the liquid and reserve. Then add 4 fl.ounces of Water, macerate and express, adding the liquid to the portion reserved. To this add 40 grains Cochineal in powder, 75 grains Carbonate of Potassium, Wine of Ipecac 1 fl.ounce, and 28 ounces of Sugar, dissolve and strain. This is used in cough mixtures, and as a fine aromatic. Dose, a teaspoonful or more.

3231. Syrup Blackberry Aromatic.—This syrup may be made by mixing:

Fluid Extract of Blackberry Aromatic (1581),	2 fl.ounces.
Syrup,	14 fl.ounces.

Or by making an extract of the ingredients as directed (1615), distilling off the Alcohol and making 1 gallon of syrup with Sugar and Water. It may also be made by adding 2 fl.ounces of Fluid Extract of Blackberry and 1/4 ounce Fluid Extract of Aromatics to 14 fl.ounces of syrup.

3232. Syrup Carrageen Compound— *Compound Syrup of Iceland Moss.*—Pour Cold Water on 1/2 ounce of Iceland Moss and let stand 12 hours, then pour off and throw away. Boil Hoarhound 1/2 ounce, Liverwort 1/2 ounce and the softened Carrageen with 1 pint of Water for 20 minutes or more, then strain 12 fl.ounces and dissolve in the liquid 24 ounces av. of Sugar. This is an excellent demulcent cough syrup. Dose, a teaspoonful or more.

3233. Syrup Ceanothus Compound — *Compound Syrup of Red-root.*— Tops and leaves of Red-root or Ceanothus, Wild Lettuce, each 1 ounce av.; Cimicifuga 1/2 ounce, Pleurisy Root, Wild Ginger Root, each 1/4 ounce; Lobelia, Bloodroot, each 1 drachm. Make an extract with Diluted Alcohol, distill off the Alcohol and make 2 pints of syrup with the residue. Sugar and Water.

This is used as a cough remedy. The dose is a teaspoonful or more.

3234. Syrup Corydalis Compound.

Compound Syrup of Turkey Corn.

Turkey-corn Tubers,	10 ounces av.
Twin Leaf (Jeffersonia Diphylla),	5 ounces av.
Blue Flag,	2 1/2 ounces av.
Sheep Laurel Leaves,	2 1/2 ounces av.
Sugar,	6 pounds av.
Alcohol, Water, each sufficient.	

Reduce the drugs to a coarse powder and cover them with Alcohol. Macerate for 24 hours, then put in the water-bath percolator. Draw off the Alcoholic tincture, and reserve. Continue the percolation with Water until exhausted. Evaporate the last portion of the percolate to a thin

extract, add the reserved percolate and enough Water to make the measure 5 pints, after standing, filter, and dissolve the Sugar in the filtrate by percolation or very gentle heat.

This syrup is much esteemed by the Eclectics as an alterative and diuretic for scrofula, syphilis, etc. The dose is a teaspoonful or more.

3235. Syrup Liquorice Compound.

Compound Syrup of Glycyrrhiza.

Liquorice Root, in coarse powder,	2 pounds av.
Marshmellow Root, cut,	8 ounces av.
Sugar,	6 pounds av.
Alcohol, Water, each sufficient.	

Macerate the drugs with Warm Water enough to cover them well, pouring off the liquid after standing a few hours, and repeating the operation until one gallon is obtained, evaporate to 4 pints, strain, add one pint of Alcohol, and dissolve the Sugar in the liquid by percolation or gentle heat.

This is an excellent demulcent syrup for coughs, etc., and a vehicle for quinine without any objectionable qualities.

3236. Syrup Marrubium Compound.

Compound Syrup of Hoarhound— Pulmonary Syrup.

This may be made by mixing 3 fl.ounces of Fluid Extract of Hoarhound Compound (1597), with 6 fl.ounces of Water, filtering and dissolving in the nitrate 14 ounces av. of Sugar, or by making an extract from the drugs directed for making the fluid extract (1597), and making with it, by the addition of Sugar and Water, 5/2 pints of Syrup.

This is an excellent tonic cough syrup for pulmonary affections. The dose is a teaspoonful.

3237. Syrup Mitchella Compound.

Compound Syrup of Partridgeberry or Squaw Vine — Mother's Cordial,

This may be made by mixing 3/2 fl.ounces of Fluid Extract Mitchella Compound (1605) with 6 fl.ounces of Water, filtering and dissolving in the filtrate 14 ounces av. of Sugar, or by making an extract of the drugs as directed in the formula (1605), and by the addition of Water and Sugar, making 5 pints of syrup.

This syrup is an Eclectic preparation much esteemed as a parturient and uterine tonic. The dose is a teaspoonful to a tablespoonful.

3239. Syrup Phytolacca Compound.

Compound Syrup of Poke.

This may be made by mixing 3 fl.ounces Fluid Extract of Poke Compound (1607) with 6 fl.ounces of Water, filtering and dissolving 14 ounces av. of Sugar in the filtrate, or by making an extract of the drugs directed (1607), and with Water and Sugar making 5 1/2 pints of syrup.

This is an Eclectic Syrup used as an alterative. The dose is a teaspoonful

3240. Syrup Rhubarb and Potassium.

Neutralizing Cordial.

Rhubarb in very coarse powder,	5 ounces av.
Bicarbonate of Potassium,	5 ounces av.
Golden Seal, in coarse powder,	2 ounces av.
Cinnamon, in fine powder,	2 ounces av.
Oil of Peppermint,	30 minims.
Alcohol,	1 1/2 pint.
Sugar,	6 pounds av.
Water, a sufficient quantity.	

Pack the drugs loosely in the water-bath percolator and having mixed the Alcohol with a pint and a half of Water, pour enough of the liquid on them to saturate and cover them. Let stand for 24 hours, and having dissolved the Bicarbonate of Potassium in the remainder of the liquid pour it upon the drugs; heat very moderately, and after an hour begin

to percolate, reserving all that will pass. Remove the heat and continue the percolation with water until the drugs are exhausted. Evaporate this latter portion to 2¹/₂ pints. Dissolve the Oil of Peppermint in the portion first reserved, add the evaporated portion and enough Water to make 5 pints, filter and dissolve the Sugar in the filtrate.

This is a valuable Eclectic preparation, much used for dyspepsia and acid stomach. The dose is a teaspoonful to a tablespoonful.

3241. Syrup Rumex Compound.

Compound Syrup of Yellow Dock— Scrofulous Syrup.

This may be made by mixing 5 fl.ounces Fluid Extract Rumex Compound (1610) with 5 fl.ounces of Water, filtering and dissolving in the filtrate 14 ounces av. of Sugar.

Or by making an extract of the drugs directed (1610), and with Water and Sugar making 4 pints of syrup.

This is an Eclectic syrup much esteemed as a blood-purifier, alterative, etc. The dose is a teaspoonful to a tablespoonful. Iodide of Potassium may be added 1 or 2 drachms in a pint, if desired.

3242. Syrup Stillingia Compound.

Compound Syrup of Queen's Root.

This may be prepared by mixing 4 fl.ounces of Fluid Extract of Stillingia Compound (1617) with 5 fl.ounces of Water, filtering and dissolving in the filtrate 14 ounces av. of Sugar, or by making an extract from the drugs directed (1617) and with Water and Sugar making 4 pints of syrup.

This is a valuable alterative syrup and blood-purifier first introduced by the "Eclectics." It is much more effective than Syrup Sarsaparilla Compound, and is given in scrofula, syphilis, etc. The dose is a teaspoonful to a tablespoonful. Iodide of Potassium may be added if desired.

3243. Syrup Yerba Santa Compound or Aromatic.

Yerba Santa, coarsely ground,	4 ounces av.
Orange Peel, in coarse powder,	1/2 ounce av.
Cinnamon, in powder,	60 grains.
Cloves, in powder,	60 grains.
Magnesia, Calcined,	3/4 ounce av.
Sugar,	28 ounces av.
Alcohol,	
Water, of each sufficient to make,	2 pints.

Mix one part of Alcohol by measure with 7 parts of Water. Mix the drugs with the Magnesia, moisten with sufficient of the mixed Water and Alcohol and pack in the water-bath percolator, cover with the menstruum and allow to stand 24 hours. Then heat very moderately and begin to percolate, adding the menstruum and continuing the percolation until a pint is obtained, filter this, adding a little more magnesia to the filter if necessary to make clear, and dissolve the Sugar in the nitrate by gentle heat or by percolation.

This syrup is one of the best known vehicles for quinine, as it almost entirely masks its bitterness. It may also be used for bronchial affections.

Soda Water Syrups.

A great variety of Syrups are used by those who dispense Soda Water, for flavoring and sweetening the gaseous water. Simple Syrup is used as a base and the flavoring ingredients added. The flavoring consists of natural fruit juices, or various solutions of oils or aromatic substances, ethers, etc., which are mixed with the Syrup.

As these solutions are variously made and are of different strength as prepared by different manufacturers, definite formulas cannot be given for any except those flavorings which are mentioned in this volume. It will, therefore, be understood that in the formulas given it is expected that the flavorings designated will be such as are made after the formulas which are referred to—which may be either prepared as directed or purchased of the Fenner Medicine Co.

3300. Syrup for Soda Water.

As a basis for the Syrups used for Soda Water a simple Syrup of good body and quality, to which the flavoring ingredients are to be added, may be made by druggists as follows :

Gelatin, Cooper's or Cox's,	3/4 ounce av.
Water,	1 gallon.
Sugar, best white,	10 pounds av.

Soak the Gelatin in a pint of Water for half an hour, then dissolve it by the heat of a water-bath, and, while hot, strain into the remainder of the Water through a coarse muslin strainer, stir thoroughly, add the Sugar, stir until dissolved, strain and set away in a cool place.

The Syrup should be made of Crushed, Granulated, or "A" Coffee Sugar, and the best water that can be conveniently obtained. It should be made in well-tinned or zinc'd cans, or stone crocks; a wooden vessel of any kind imparts its peculiar flavor to Syrup after standing, and rapidly develops the "acetic" change. The Syrup is best made by putting the proper amount of water in a can or crock, adding the sugar a portion at a time, and stirring with a stick until dissolved. A cover should be fitted to the can or crock, and a stopcock can be placed at the bottom, or a dipper may be hung on the inside always ready for use.

Syrup should not be made up in any large quantity (no more than enough to last a week or ten days), and should always be made by the cold process.

Many druggists buy for this purpose the *Double Refined Rock Candy Syrup* made by Dryden & Palmer, of Baltimore, Md., or other similar Syrup.

As this has no ingredients in it to make it "hold its foam" when the water is drawn into it, "Soda Foam " must be added either to the simple Syrup or when made up and flavored, the most convenient way being to add it to the simple Syrup which is then all ready for use. This may be done by dissolving 3¹/₂ ounces av. of Gelatin in 2 quarts of Water and adding to 10 gallons of the Syrup, while hot, or by adding the proper quantity of the prepared Soda Foam. (3301.)

3301. Soda Foam.

If the Syrup used for Soda Water is prepared as directed (3300) no other Foam will be necessary, but if the boughten Syrup is used it is necessary to add something to make it retain its Foam. Gelatin may be used as directed, but it is sometimes convenient to have a liquid Foam which may be added to the Syrups as made up by the gallon. For this purpose the following formulas may be used :

Soap Bark (Quillaya, ground).	1 pound av.
Alcohol,	8 fl.ounces.
Water, a sufficient quantity.	

Cover the Soap Bark, in a porcelain-lined vessel, with boiling Water and infuse for 1 hour, then pour off the liquid and reserve. Pour fresh boiling Water on the Bark and again infuse, and pour off as before, repeating the operation three times; mix the decoctions obtained, and evaporate to 1¹/₂ pint; to this, when cool, add the Alcohol, and, after standing, filter. Add 1 ounce of this to a gallon of Syrup to make it foam. Acid Syrups require a larger quantity.

A still better Foam, because it is nearly tasteless, may be prepared from Soaproot, a species of California lily-bulb, using the same proportions and making in the same manner as the foregoing.

3302. Fruit Acid.

Citric. Acid,	4 ounces av.
Hot Water,	8 fl.ounces.

Dissolve the Acid in the Water. This is used for giving an acid or sour taste to Syrups, thereby making many of them more palatable. A more concentrated solution like 1927 is more desirable, but the formula here given is of the same strength as is generally prepared and used. The quantity to be used is usually stated in the formula, but may be regulated to suit the taste.

3303. Fruit Juice Syrups;

For making Fruit Syrups from juices as prepared (3028) it is only necessary to mix the juices 1 part by measure with 5 parts by measure of Syrup (3300). If they are desired of stronger flavor mix one part of Juice with 4 parts of Syrup.

Fruit Syrups may also be made from the freshly expressed juices by dissolving in them all the Sugar they take when made by the cold process, which is about 14 pounds to each gallon of juice.

Syrups made from Fruit Juices are infinitely superior to any which can be made from artificial extracts.

The following Fruit Syrups may be made from Fenner's Fruit Juices in the manner above described, by mixing 1 measure of the Fruit Juice with 5 measures of Syrup:

Syrup Apricot,	Syrup Mulberry,
Syrup Banana,	Syrup Orange,
Syrup Blackberry,	Syrup Peach,
Syrup Cherry, Black,	Syrup Pear,
Syrup Cherry, Red,	Syrup Pineapple,
Syrup Currant, Red,	Syrup Plum or Prune,
Syrup Grape,	Syrup Quince,
Syrup Huckleberry,	Syrup Raspberry, Black,
Syrup Lemon,	Syrup Raspberry, Red,
Syrup Lime,	Syrup Strawberry.

3304. Ambrosia Syrup.

Raspberry Juice,	1 pint.
Pineapple Juice,	1 pint.
Vanilla Extract,	1 fl.ounce.
Syrup, sufficient to make	1 gallon.

This is a rich, finely-flavored Fruit Syrup. Other Fruit Juices besides those mentioned may be used,

3305. Apple Syrup.

Apple Essence (958),	1/2 fl.ounce.
Cider, sweet,	1 pint.
Fruit Acid,	1/2 fl.ounce.
Syrup, sufficient to make	1 gallon.

If sweet or bottled Cider is not readily at hand use 1 fl.ounce of the Essence of Apple, and omit it.

3306. Apricot Syrup.

Apricot Juice,	1 pint.
Syrup,	2 pints.

An inferior Syrup may be made with

Apricot Essence (958).	1 fl.ounce.
Fruit Acid,	1/2 fl.ounce.
Syrup,	1 gallon.

3307. Banana Syrup.

Banana Juice,	1 pint.
Fruit Acid,	1/2 fl.ounce.
Syrup,	5 pints.

Mix them.

An inferior Syrup may be made with

Banana Essence (959),	1 fl.ounce.
Fruit Acid,	1/2 fl.ounce.
Syrup,	1 gallon.

3308. Birch Beer Syrup.

Birch Beer Extract (952),	3 fl.ounces.
Fruit Acid.	1/2 fl.ounce.
Syrup,	1 gallon.

Mix and color with Caramel.

3309. Ottawa Beer Syrup, from Ottawa Beer Extract (953).

3310. Peruvian Beer Syrup, from Peruvian Beer Extract (954).

3311. Root Beer Syrup, from Root Beer Extract (955).

3312. Spruce Beer Syrup, from Spruce Beer Extract (956).

And others similar may be made in the same proportion and manner as Birch Beer Syrup. Unless the business in Soda Water is quite large, it is much the best way to have these in the form of Syrup as above, and draw the plain Soda Water upon them the same as any other syrups.

3313. Blackberry Syrup.

Blackberry Juice,	1 pint.
Fruit Acid,	1/2 fl.ounce.
Syrup,	5 pints.

Mix them.

An inferior Syrup may be made with

Blackberry Essence (960),	1 fl.ounce.
Fruit Acid,	1/2 fl.ounce.
Syrup,	1 gallon.

This may be colored with Caramel and Red Coloring.

3314. Brandy Syrup.

Cognac Essence,	1/4 fl.ounce.
Brandy,	2 pints.
Fruit Acid,	2 fl.drachrns.
Syrup,	6 pints.

Mix them.

Other Liquor Syrups may be prepared with other liquors in a similar

manner, using the desired spirits and the essences of the kind required. Bourbon and Rye Whisky, Rum, and other liquors are made into syrups in this way. They are usually sold under some fancy name.

3315. Calamus Syrup.

Calamus Essence (894),	2 fl.ounces.
Syrup,	1 gallon.

Mix them.

3318. Caraway Syrup.

Caraway Essence (895),	2 fl.ounces.
Syrup,	1 gallon.

Mix them.

3319. Catawba Syrup.

Catawba Grape Juice,	1 pint.
Brandy,	1/2 pint.
Syrup,	5 pints.

Mix them.

An inferior Syrup may be made with

Catawba Grape Essence (965),	1 fl.ounce.
Fruit Acid,	1 fl.ounce.
Syrup,	1 gallon.

Other varieties of Grape Syrup may be made in the same manner by using other grape juices.

3320. Champagne Syrup.

Rhine Wine,	3 pints.
Pear Essence (972),	1/2 fl.ounce.
Syrup,	5 pints. Mix them.

3321. Cherry Syrup, Red or Black.

Cherry Juice, Red or Black, 1 pint.
Syrup, 5 pints.

Mix them. Made from true Cherry Juice, these Syrups are excellent. Inferior Syrups may be made from the artificial extracts, as follows :

Black or Red Cherry Essence (961 or 978), 1 fl.ounce.
Fruit Acid, 1 fl.ounce.
Syrup, 1 gallon. Mix them.

3323. Wild Cherry Syrup.

Fluid Extract Wild Cherry, 8 fl.ounces.
Syrup, 1 gallon.

Or,

Wild Cherry Essence (981), 2 fl.ounces.
Syrup, 1 gallon.

Mix them.

3324. Chocolate Syrup.

Fenner's Perfection Cream Chocolate, 1 pint.
Syrup, 3 pints.

Mix them.

The Perfection Chocolate Cream mentioned is a liquid emulsion of Chocolate, made by grinding the finest Chocolate with Gum Syrups and Flavoring Extracts through a mill specially constructed for the purpose. It mixes with Syrup without separation, and can be drawn like any other Syrup from the fountain. To make it successfully requires expensive machinery. Ordinary Chocolate Syrup is made as follows:

Chocolate, 1 cake or 8 ounces av.
Vanilla Extract (940), 1 fl.ounce.

Syrup, 3¹/₂ pints.

Liquefy the Chocolate by a water-bath and gradually add the Syrup, stirring them well together until all is added, strain through a wire sieve, and, when nearly cold, add the Vanilla, mixing them well together. As thus made the Syrup separates (rom the Chocolate after standing, and the mixture must be shaken before using.

3325. Cinnamon Syrup.

Cinnamon Essence (897), 1 fl.ounce.
Syrup, 1 gallon.

Mix them.

3326. Claret Syrup.

Claret, 2 pints.
Syrup, 4 pints.

Mix them.

3327. Coffee Syrup.

Coffee Extract (932), 8 fl.ounces.
Syrup, 1 gallon.

Mix them. This Syrup depends upon the strength of the Coffee Extract used. It may be flavored to suit with any other good Extract of Coffee, or as follows:

Java and Mocha Coffee,
browned, each, 4 ounces.
Boiling Water, 4 pints.

Make a decoction, strain and dissolve in the liquid 6 pounds of Sugar, and add Soda Foam 1 ounce.

3328. Cognac Syrup.

Cognac Essence (902,)	1 fl.ounce.
Syrup,	1 gallon.

Mix them. This may be improved by the addition of half a pint of Brandy.

3329. Cream Syrup.

Sweet Milk, fresh,	1 quart.
Corn Starch,	1/2 ounce av.
Egg,	1
Sugar,	1 1/2 pound av.
Vanilla Extract,	1 fl.ounce.
Salicylic Acid,	5 grains.

Mix the Corn Starch with an ounce of Water, beat up the Egg thoroughly and mix them, then heat the Milk with the mixture to make a custard. When it has thickened, take off and add the Sugar and Salicylic Acid. When cool add the Vanilla Extract.

As thus prepared this Syrup will keep for some time, but it is advisable to make it fresh every morning for use during the day. This Syrup should not be kept in the syrup cans but in a bottle on the ice.

Many do not make a Cream Syrup at all, but keep cream in a bottle handy, which is added to the other Syrups as desired.

Cream Syrup is seldom drawn alone, but is mixed with other Syrups, as Chocolate, Coffee, Vanilla, Strawberry, and, in fact, nearly all others. Some druggists have the leading Syrups prepared already with cream, but it is not advisable except for a very large business, as the cream or Cream Syrup may readily be added to any other Syrup.

3330. Curaçoa Syrup.

Curaçoa Essence (904),	1 fl.ounce.
Fruit Acid,	1/2 fl.ounce.
Syrup,	1 gallon.

Mix them. This is similar to but of finer flavor than Orange.

3331. Currant Syrup, Red or Black.

Currant Juice,	1 pint.
Syrup,	5 pints.

Mix them.

An inferior Syrup may be made with

Currant Essence,	
Black or Red (962, 979),	1 fl.ounce.
Fruit Acid,	1 fl.ounce.
Syrup,	1 gallon.

Mix them.

3332. Don't Care Syrup.

Most any Syrup may be drawn when " Don't Care " is wanted. The following is a general favorite :

Wintergreen Essence,	1 ounce.
Vanilla Extract,	2 ounces.
Syrup,	1 gallon.

Mix them.

3333. Egg Nogg Syrup, or Milk Punch Syrup.

Brandy, Jamaica Rum, each,	4 ounces.
Fresh Cream,	1 pint.
or Milk,	1 quart.
Eggs,	2
Corn Starch,	2 ounces.
Extract Vanilla (940),	1 ounce.
Syrup,	1 quart.

Beat the Eggs and the Corn Starch, and add the Milk; heat to a custard, stirring constantly; when it thickens remove from the fire, cool, and add

the Brandy, Rum, and Vanilla Flavoring.

3334. Ginger Syrup.

Soluble Extract of Ginger (943), 4 fl.ounces.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Mix them. Other Extracts of Ginger which are not "soluble" may be used, but they do not make so good preparations.

3335. Ginger Ale Syrup.

Ginger Ale Extract ('944), 3 fl.ounces.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Mix them. This is the most convenient manner of drawing Ginger Ale, and gives as good satisfaction as when drawn from a separate fountain.

3336. Grape Syrup.

Grape Juice, 1 pint.
Syrup, 5 pints.

Mix them. Any kind of Grape Juice may be made up into a Syrup; half a pint of Brandy added improves the flavor.

An inferior Syrup may be made with

Grape Essence (965), 1 fl.ounce.
Fruit Acid, 1 fl.ounce.
Syrup, 1 gallon.

3338. Huckleberry Syrup.

Huckleberry Juice, 1 pint.
Fruit Acid, 1/4 fl.ounce.
Syrup, 5 pints.

Mix them. Blueberry Syrup, which is much the same, is made in the same manner.

An inferior Syrup may be made with

Blueberry Essence,	1 fl.ounce.
Fruit Acid,	1/2 fl.ounce.
Syrup,	1 gallon.

3339. Hock Syrup.

Hock Wine,	2 pints.
Syrup,	6 pints. Mix them.

3340. Lemon Syrup.

This is usually made with

Lemon Essence (910),	1 fl.ounce.
Fruit Acid,	1 1/2 fl.ounce.
Syrup,	1 gallon.

If Lemon Juice is used for making the Syrup, take

Lemon Juice,	1 pint.
Lemon Essence (910),	3/4 fl.ounce.
Syrup,	5 pints.

A clear Syrup of Lemon may be made by taking

Soluble Extract of Lemon (945).	3 fl.ounces.
Fruit Acid,	1 1/2 fl.ounce.
or Lemon Juice,	1 pint.
Syrup,	1 gallon.

Lemon Syrup deteriorates rapidly, and the very best way to dispense it is to have a bottle of Lemon Essence, with a squirt top, a bottle of Lemon Juice, and plain Syrup ready at hand. The plain Syrup should be kept for this and other purposes in one of the Syrup cans. Draw the Syrup in the glass, add the Juice (some want it more acid than others), then the

Essence, and draw the gaseous water upon it as usual.

These same remarks apply also to Lime and Orange Syrups.

3342. Lime Fruit Syrup.

Lime Juice,	1 pint.
Syrup,	5 pints.

This Syrup is strongly acid, which is as usually wanted when Lime Syrup is ordered. It may be flavored more, if desired, by adding [^] fl.ounce Lime Essence (911). It is most convenient to have a bottle of Lime Juice handy, and add to plain Syrup when wanted, as directed for Lemon Syrup.

3344. Mace or Nutmeg Syrup.

Mace or Nutmeg Essence (911 or 914),	1 ¹ / ₂ fl.ounce.
Syrup,	1 gallon.

Mix them. This makes a fine addition to some of the other Syrups, but is seldom used alone.

3345. Malt Tonic Syrup.

Liquid Malt Extract,	1 pint.
Syrup,	5 pints.

Mix them.

3347. Maple Syrup.

Maple Syrup, with Soda Foam added,	
or Maple Sugar,	3 ¹ / ₂ . pounds.
Water,	1 quart.

Dissolve by heat and add Soda Foam.

3348. Mulberry Syrup.

Mulberry Juice, 1 pint.
Syrup, 5 pints.

Mix them.

3349. Nectar Syrup.

Vanilla Extract (939), 2 fl.ounces.
Pineapple Juice, 1 pint.
Raspberry Juice, 1 pint.
Syrup, 1 gallon.

Mix them.

This may be made, also, as follows :

Nectar Essence (968), 1 fl.ounce.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

3350. Nectarine Syrup.

Nectarine Essence (969), 1 fl.ounce.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Mix them. This may also be made from Nectarine Fruit Juice when it can be obtained, in the same manner as other Fruit Syrups.

3351. Orange Syrup.

Orange Essence (915), 1 fl.ounce.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

If Orange Juice is used for making the Syrup, take

Orange Juice, 1 pint.
Orange Essence (915), 3/4 fl.ounce.
Syrup, 5 pints.

It may be made, also, with

Soluble Extract of Orange (948),	3 fl.ounces.
Fruit Acid,	1 ¹ / ₂ fl.ounce.
Syrup,	1 gallon.

This Syrup deteriorates by standing, and may best be dispensed as directed after Lemon Syrup.

3353. Maltese Orange Syrup.

Red. Orange of Malta Syrup — Blood Orange Syrup.

Orange Essence (915),	1 ¹ / ₂ fl.ounce.
Fruit Acid,	1/2 fl.ounce.
Syrup,	1 gallon.

Mix them, and color red with Cochineal Coloring.

3354. Orange Flower Syrup.

Orange Flower Water,	1 pint.
Syrup,	4 pints.

This is sometimes added to other Syrups but is seldom dispensed alone.

3355. Orgeat Syrup.

Orgeat Essence (970).	1 fl.ounce.
Syrup,	1 gallon.

The plain Bitter Almond Syrup is frequently dispensed under this title.

Bitter Almond Essence (893).	1 fl.ounce.
Syrup,	1 gallon.

3356. Peach Syrup.

Peach Juice, 1 pint.
Syrup, 5 pints.

An inferior Syrup may be made from

Peach Essence (971), 1 fl.ounce.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Mix them.

3357. Pear Syrup.

Pear Juice, 1 pint.
Syrup, 5 pints.

A very good artificial Pear Syrup may be made with

Pear Essence (972), 1 fl.ounce.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Mix them.

3361. Pineapple Syrup.

Pineapple Juice, 1 pint.
Fruit Acid, 1/2 fl.ounce.
Syrup, 5 pints.

Mix them.

An inferior Syrup of Pineapple may also be made with

Pineapple Essence (973), 1 fl.ounce.
Fruit Acid, 3/4 fl.ounce.
Syrup, 1 gallon.

3363. Plum or Prune Syrup.

Plum or Prune Juice, 1 pint.
Syrup, 5 pints.

Mix them.

An inferior Syrup may be made from

Plum or Prune Essence (974 or 975), 1 fl.ounce.
Fruit Acid, 1 fl.ounce.
Syrup, 1 gallon.

3364- Quince Syrup.

Quince Juice, 1 pint.
Fruit Acid, 1/2 fl.ounce.
Syrup, 5 pints.
Mix them.

A very good imitation of Quince may be made with

Quince Essence, 1 fl.ounce.
Fruit Acid, 3/4 fl.ounce.
Syrup, 1 gallon.

3365. Raspberry Syrup, Red or Black.

Raspberry Juice, Red or Black, 1 pint.
Syrup, 5 pints.

Mix them. The Red Raspberry Syrup is considered the finest flavor of any of the fruit syrups. Black Raspberry Syrup has a much different flavor and a very dark color.

An inferior Syrup, imitating Raspberry, may be made with

Raspberry Essence (977), 1 fl.ounce.
Fruit Acid, 1 fl.ounce.
Syrup, 1 gallon.

3367. Rose Syrup.

Rose Essence (920), 1 fl.ounce.
Syrup, 1 gallon.

Mix them. Color light red with Red Coloring.

3368. Sarsaparilla Syrup.

Sarsaparilla Essence (923), 1 1/2 fl.ounce.
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Mix, and color brown with Caramel.

This Syrup is improved by adding i drachm of Glycyrrhizin in scales, dissolved in a little water. A perfectly clear Syrup may be made with

Soluble Extract Sarsaparilla (949), 3 fl.ounces
Fruit Acid, 1/2 fl.ounce.
Syrup, 1 gallon.

Color with Caramel.

3369. Sherbet Syrup.

Vanilla Extract (940), 1 fl.ounce.
Pineapple Juice, 1 pint.
Lemon Extract, Soluble (945). 1 fl.ounce.
Syrup, 5 pints.

This may also be mixed extemporaneously from the fountain by drawing equal parts of Vanilla, Pineapple, and Lemon or Orange Syrups.

This may be made also with

Sherbet Extract (935), 1 fl.ounce.
Syrup, 1 gallon.

3370. Persian Sherbet.

This is usually served by drawing into a glass sufficient Strawberry or Vanilla Syrup, then adding from "squirt" bottles a few drops each of Lemon Extract, Orange Extract, Fruit Acid, and drawing the water upon them, or, adding ice, drawing most full of water and shaking it with a shaker. Fancy sauce bottles for this purpose are supplied by dealers. The Fruit Acid will be white, the Lemon yellow, and the Orange should be colored a bright red. The manipulation of the drink is an attraction.

3371. Strawberry Syrup.

Strawberry Juice,	1 pint.
Syrup,	5 pints.

Mix them.

As the color is usually deficient in Strawberry Juice to satisfy the popular taste, it may be colored slightly with Red Coloring, or by the addition of a little Raspberry Juice, which also improves its flavor.

An inferior Syrup may be made with

Strawberry Essence (980),	1 fl.ounce.
Fruit Acid,	$\frac{3}{4}$ fl.ounce.
Syrup,	1 gallon.
With Red Coloring sufficient.	

3373. Tea Syrup.

Green Tea, good quality,	2 ounces av.
Boiling Water,	1 pint.
Sugar,	1 $\frac{1}{2}$ pound .av.

Infuse the Tea in the boiling Water, strain, and add enough Water to make 1 pint, then dissolve the Sugar in the liquid and add a little Soda Foam.

3374- Vanilla Syrup.

Vanilla Extract (940), 2¹/₂ fl.ounces.
Syrup, 1 gallon.

Mix them.

Vanilla Syrup is one of the most popular soda-water syrups. It is combined with nearly all the other syrups, and drawn with cream is a great favorite. It is necessary that only a pure Vanilla Extract of fine flavor be used for making this Syrup. Inferior or mixed extracts witi not draw custom.

3375- Violet Syrup.

Orris Extract (934), 1 fl.ounce.
Syrup, 1 gallon.

Mix them. This makes a fair imitation of Violet. A true Syrup of Violets may be made by gathering the violet flowers in their season, and macerating with Syrup.

3376. Wine Syrups.

Wine of any kind, 2 pints.
Syrup, 3 pints.

Mix them.

3377. Wintergreen Syrup.

Wintergreen Essence (927), 1¹/₂ flounce.
Syrup, 1 gallon.

Mix them.

A perfectly clear Syrup may be made with

Soluble Extract Wintergreen (951), 3 fl.ounces.
Syrup, 1 gallon.

Mix them.

Other Soda Water Syrups, etc.

The foregoing are the regular syrups dispensed at soda fountains, many of them being also useful for other purposes. Besides these, several other drinks are served in various ways in connection with the fountain.

3378. Ice Cream Soda.

This is prepared by drawing the desired Syrup into a glass, adding a large spoonful or more of Ice Cream without flavor, and drawing the gaseous Water upon it. A long-handled spoon is generally put in the glass with which to stir its contents and sip the beverage or eat the ice cream which rises to the surface; it is therefore frequently called " Spoon Soda."

Any Syrup may be combined in this manner with the Ice Cream, and if properly served it is very nice. The Ice Cream should be liberally used.

3379. Milk Shake.

This has become very popular, special apparatus being provided for shaking it. Ice is first shaved into a tumbler, milk is poured upon it until nearly full, it is then transferred to the shaker, agitated, and then poured back into the glass. The milk may be mixed with a small quantity of any flavored syrup if desired, but is generally preferred without sweetening or flavor. In absence of the patent shakers it may be shaken in the ordinary hand shaker usually at hand. A little soda water may be drawn into it to give it "sparkle."

3380. Milk Punch Shake.

This may be made by shaving ice in a glass, adding the usual quantity of Vanilla or other flavored Syrup, drawing part full of Soda Water, then nearly filling with milk and adding, if desired, a little liquor—Brandy, Rum, Whisky, or Wine—then shaking on the patent shaker or with the hand shaker as directed above. Without the liquor, this may be dispensed as Temperance Punch. An egg added is a great improvement.

3381. Fruit Juice Shakes.

Shake drinks may be made with any of the Fruit Juices, as follows. They are similar to lemonade or other ades, and give excellent satisfaction. Plenty of ice should be used :

Any Fruit Juice,	1 fl.ounce.
Syrup of the same kind,	2 fl.ounces.

Shave ice in the tumbler and draw "solid" with Soda Water, transfer to the shaker and shake, or shake with hand shaker.

A dash of Lemon Essence, Orange Essence, or Lime Fruit Essence, added to Lemon, Orange, or Lime Fruit Shakes adds to their flavor and makes an attraction. By squeezing the juice from fresh fruit into the glass the attractiveness of the drink is much increased.

3382. Cobbler Shakes.

These are made by mixing in a small, thin glass,

Wine, any kind,	2 ounces.
Lime or Lemon Juice,	1/2 ounce.
Lemon Syrup,	2 ounces.

Shaving ice in the glass/drawing solid with Soda Water, and shaking as before directed.

3383. Cocktail Shakes.

These are made by adding to ice shaven in a glass, Brandy, Rum, Whisky, or Gin about 1 1/2 ounce, Lime, Lemon, or Orange Juice 1/2 ounce, Syrup 1 ounce, a dash of Stoughton Bitters, and then enough Soda Water to fill a small glass, and shaking as directed.

3385. Nerve Foods and Tonics.

Nerve Foods and Nerve Tonics have become very popular beverages at the soda fountain. "Acid Phosphate" is extensively used, the original "Horsfords " being used by many druggists, but most of them making or buying in bulk a concentrated solution of Phosphates Compound, which

may be diluted or made into a syrup .as directed.

"Malta" is an acid beverage, used as a Nerve Tonic like Acid Phosphate. It is put up in bottles, sweetened and charged with gas, making a sparkling acid drink. A "Malto Syrup" is also made, which is to be diluted with 4 parts of Syrup and drawn from the fountain as any other syrup. The "Acid Phosphate Syrup" will answer the same purpose as this.

"Moxie" Nerve Food is an entirely different preparation. The proprietary "Moxie" has had a large sale. A similar preparation for use at the fountain may be prepared and drawn as a syrup like any other syrup, as follows:

Fluid Extract Sarsaparilla Compound,	6 fl.ounces.
Tincture of Gentian Compound,	1 fl.ounce.
Sarsaparilla Extract, Soluble (949),	3 fl.ounces.
Concentrated Solution Phosphates,	2 fl.drachms.
Syrup, to make	1 gallon.

Mix them.

For Mead, Ginger Ale, etc., see pages 422 to 427.

Hot Soda Syrups.

It is unnecessary to state that the so-called "Hot Soda Water," unlike the cold soda water, contains no gas, but the force is obtained from force of water, and heated in an apparatus specially designed for it.

But comparatively few druggists who have fountains run hot soda water, as the demand is not sufficiently large to pay except in central locations in large towns.

The syrups and drinks which are generally supplied are as follows:

3386. Chocolate Syrup.

Fenner's Perfection. Cream Chocolate.

This is kept hot in a tank or bottle from which it can be drawn. A

sufficient quantity, say 2 ounces, is poured or drawn in a cup, and the Hot Water drawn upon it. Milk or Cream is usually added before drawing the Water.

Chocolate Syrup may also be made by melting on a water-bath Chocolate 1 pound. Vanilla Chocolate $\frac{1}{2}$ pound together, and adding Hot Syrup 3 quarts, mixing them well together.

3387. Coffee Syrup.

Coffee Extract (932),	1 pint.
Syrup,	3 pints.

Keep this hot in a tank or bottle. It may be served with Cream or hot Milk added, or plain, drawing about 2 ounces of the Syrup in a cup and then drawing the hot Water upon it.

3388. Beef Tea Extract.

Extract of Beef, Liebig's,	4 ounces.
Black Pepper,	$\frac{1}{2}$ ounce.
Hot Water,	1 pint.

Infuse the Pepper with the Water for half an hour and strain, then mix the Beef Extract with the liquid.

To make Beef Tea pour a tablespoonful of this into a cup, add a little salt and draw hot Water upon it.

3389. Hot Lemonade.

Lemon Juice,	1 ounce.
Syrup,	1 ounce.

Mix in a cup with a dash of Lemon Essence and draw hot Water upon it.

A little liquor—Whisky, Brandy, or Rum—is sometimes added. Lime Juice may be used instead of Lemon.

TINCTURE—TINCTURES.

Tinctures are solutions of medicinal substances in an Alcoholic or Hydro-alcoholic menstruum, differing from spirits chiefly in being prepared from non-volatile substances.

They are the most used of any class of official preparations, and it is highly important that they should be well made, of the best material, and up to the highest standard of strength.

The directions for making Tinctures in the U. S. 1880 Pharmacopoeia are much more definite than in former revisions. Many Tinctures that were formerly prepared by percolation are now, very sensibly, prepared by maceration, and in most of the present formulae, where percolation is employed, it is directed to moisten the drug and macerate it for 24 hours before packing in the percolator. This is a very important direction, for, in following the former authority, it was often the case that inexperienced druggists would pack the drugs in the percolator and begin percolating at once, having a tincture finished in a few hours, which would, of course, only partly represent the medicinal value of the drug. By moistening the drug and allowing it to stand before packing, it has an opportunity to "swell" and gives time for the medicinal properties to be dissolved or loosened, and it is therefore in a fit condition for the process of percolation.

Of all processes, however, which have been proposed for making Tinctures, none will be found so valuable and economical as the process of water-bath percolation, which, by the influence of heat, dissolves and removes with the percolate, all the medicinal value of the drug. The formulae that are given for making Tinctures by water-bath percolation mostly conform to the standard of strength of the 1880 Pharmacopoeia.

The change in the U. S. 1880 Pharmacopoeia to parts by weight, instead of definite weight and fluid measure, as formerly, causes much inconvenience to American druggists who are not accustomed to preparing them in this manner. This is especially the case with Tinctures, owing to their varying specific gravity and the varying amount of extractive matter which even the same drug will yield by different methods of exhaustion.

The Tinctures of American Pharmacy are now mostly made to represent 5, 10, 15, or 20 per cent. of the medicinal substance, there being but few

variations to this general rule. Those of British Pharmacy mostly represent 5, 10, 12¹/₂, and 20 per cent., while those of German and French Pharmacy are all in decimal proportion.

The official formulas which follow, therefore, are arranged for definite weight and measure as well as in parts. The formulas of the Br., German, and many of those of the French Pharmacopoeias are given as well as the U.S., for in this country they are frequently called for. The following are those official in the authorities mentioned :

3431. Tinctura Absinthii. G. P.

Tincture of Wormwood.

Wormwood,	1 part.
Diluted Alcohol,	5 parts.

Make a Tincture by maceration or percolation.

3435. Tinctura Aloes.

Tincture of Aloes. Purified Aloes,	10 parts or 3 ¹ / ₂ ounces av.
Extract of Liquorice,	10 parts or 3 ¹ / ₂ ounces av.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Mix the powders with a pint and a half of diluted Alcohol, and macerate the mixture for seven days in a closed vessel; then filter through paper, adding through the filter enough diluted Alcohol to make the Tincture measure 2 pints. U. Sr 1880.

MADE BY WATER-BATH PERCOLATION.

Purified Aloes, in moderately fine powder,	3 ¹ / ₄ ounces av.
Extract of Liquorice, in moderately fine powder,	3 ¹ / ₄ ounces av.
Diluted Alcohol, sufficient to make	2 pints.

Mix the drugs and agitate them with 28 fl.ounces of diluted Alcohol; cut a piece of burlap or coarse cloth and place in the bottom, on the perforated diaphragm of the water-bath percolator. Pour the mixture into the percolator and let it stand in a warm place for two days ; then heat moderately, and, after one hour, begin to percolate, adding diluted Alcohol through the percolator to make 2 pints of the Tincture. A little sediment will be found at the bottom after the Tincture has cooled, as the warm diluted Alcohol dissolves a little more of the drugs than it will retain in solution. Forty grains of Carbonate of Potassium then added to the Tincture will nearly dissolve the precipitate and will greatly improve the preparation.

The Br. P. formula is Socotrine Aloes $\frac{1}{2}$ ounce av., Extract of Liquorice $1\frac{1}{2}$ ounce av., Proof Spirit a sufficiency. Macerate for seven days in 15 fl.ounces of the Spirit, then filter and add sufficient Proof Spirit through the filter to make 20 fl.ounces.

The G. P. formula is Aloes 1 part, Alcohol 5 parts, prepared in the same manner.

The U. S. Tincture of Aloes is given as a purgative in doses of $\frac{1}{2}$ to 1 fl.drachm or more.

3436. Tinctura Aloes Composita. G. P.

Elixir ad Longam Vitam.

Aloes 6 parts, Rhubarb, Gentian, Zedoary, Saffron, each 1 part, diluted Alcohol 200 parts. Make a Tincture by maceration.

3437. Tinctura Aloes et Myrrhas.

Tincture of Aloes and Myrrh (Elixir Proprietatis).

Purified Aloes,	10 parts or $2\frac{7}{8}$, ounces av.
Myrrh,	10 parts or $2\frac{7}{8}$, ounces av.
Alcohol, sufficient to make	100 parts or 2 pints.

Mix the powders with $1\frac{1}{2}$ pint of Alcohol and macerate the mixture for

seven days in a closed vessel, then filter through paper, adding through the filter enough Alcohol to make the Tincture measure 2 pints. U. S. 1880.

This may also be made by water-bath percolation in the same manner as is directed for making Tincture Aloes (3435).

It is given as a laxative and regulator and for worms, etc. The dose is 30 minims to a teaspoonful or more.

3438. Tinctura Amara. G. P.

Bitter Tincture — Bittertropfen.

This is prepared by maceration or percolation from Gentian, Centaury, each 3 parts, Orange Peel 2 parts, Orange Berries, Zedoary, each 1 part, diluted Alcohol 50 parts. It is an aromatic bitter.

3439. Tinctura Arnicae Florum.

Tincture of Arnica Flowers.

Arnica Flowers,	20 parts or 6 ¹ / ₄ ounces av.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the Arnica Flowers with 12 fl. ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Arnica Flowers, in coarse powder,	6 ounces av.
Alcohol,	22 fl.ounces.
Water, sufficient to make	2 pints.

Moisten the Arnica with 8 ounces of Alcohol and pack very firmly in the water-batli percolator, pour upon it the remaining 14 ounces of Alcohol and set in a warm place for one day, then heat moderately and, after one hour, begin to percolate, adding Water to the drug in the percolator

after the Alcohol has disappeared and continuing the heat and percolation with Water until 2 pints of the Tincture are obtained. Let it stand for a few days and filter.

The Arnica Flowers can best be reduced to a coarse powder by rubbing them through a coarse sieve. It will be noticed that the proportion of Alcohol is greater than the 1880 Pharmacopoeia directs, but it has been found necessary to use a larger quantity in order to retain the properties in solution, as by water-bath percolation a much stronger Tincture is made than by the ordinary method.

The German formula directs 1 part of the Flowers to 10 parts of diluted Alcohol.

Tincture of Arnica is chiefly used externally.

3440. Tinctura Arnicae Radicis.

Tincture of Arnica Root.

Arnica Root, in No. 40 powder,	10 parts or 3 ¹ / ₈ ounces av.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the powder with 3 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of the Tincture are obtained. U. S. 1880. The Br. formula is essentially the same.

When this Tincture is desired by physicians it should be so stated in the prescription. If "Tincture Arnica" only is written the Tincture of Arnica Flowers should be dispensed.

MADE BY WATER-BATH PERCOLATION.

Arnica Root, in No. 40 powder,	3 ounces av.
Diluted Alcohol, sufficient to make	2 pints.

Moisten the drug with 3 ounces of diluted Alcohol and pack firmly in the water-bath percolator, pour upon it 24 ounces of diluted Alcohol and set in a warm place for 24 hours, then heat moderately and, after one hour, begin to percolate, adding diluted Alcohol to the drug and continuing

the heat and percolation until 2 pints of the Tincture are obtained.

3441. Tinctura Aromatica. G. P.

Aromatic Tincture.

This is prepared by maceration or percolation from Cinnamon 5 parts, Ginger 2 parts, Galangal Root, Cloves, Cardamom. each 1 part, and diluted Alcohol 50 parts. It is used as an aromatic addition to other preparations.

3442. Tinctura Asafoetidae.

Tincture of Asafoetida..

Asafoetida, bruised,	20 parts or 5 ¹ / ₂ ounces av.
Alcohol, sufficient to make	100 parts or 2 pints.

Mix the Asafoetida with a pint and a half of Alcohol and macerate for seven days in a closed vessel, then filter through paper, adding enough Alcohol through the filter to make the Tincture measure 2 pints. U. S. 1880.

This Tincture may be made by water-bath percolation in the same manner as Tincture of Aloes, but, as it is so difficult to clean a vessel in which it is made, it may not be advisable to use a water-bath percolator for this purpose. It is most convenient to keep a wide-mouth jar expressly for making Tincture of Asafoetida, allowing it to macerate for an indefinite time and filtering off a pint, more or less, as is required to fill the shelf bottle.

The German preparation is the same as the U. S.

The Br. P. directs 2¹/₂ ounces av. of the Gum-Resin to make 20 fl.ounces with Rectified Spirit.

The dose is ¹/₂ to 1 fl.drachm as an anti-spasmodic.

3443. Tinctura Aurantii Amari.

Tincture of Bitter Orange Peel.

Bitter Orange Peel, 20 parts or 6¹/₄ ounces av.
Diluted Alcohol, sufficient
to make 100 parts or 2 pints.

Moisten the powder with 6 ounces of Diluted Alcohol and macerate for 24 hours; then pack it moderately in a conical percolator and gradually pour Diluted Alcohol upon it until 2 pints of the Tincture are obtained.

MADE BY WATER-BATH PERCOLATION.

Bitter Orange Peel, in No. 30 powder, 6 ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Moisten the drug with 6 ounces of Diluted Alcohol and macerate in a closed vessel for 24 hours, then pack moderately in the water-bath percolator, pour upon it a pint and a half of Diluted Alcohol and set in a warm place for 24 hours. Then heat very moderately and after one hour begin to percolate, adding Diluted Alcohol to the drug and continuing the heat and percolation until 2 pints of the Tincture have passed. Set this aside for a few days to allow the albuminous matter to separate, and then filter. The Br. and German formulas are the same as the U. S.

This is given as an aromatic bitter in doses of a teaspoonful or more.

3444. Tinctura Aurantii Dulcis.

Tincture of Sweet Orange Peel.

Sweet Orange Peel recently
separated from the fresh
fruit and deprived of the
inner white layer, 20 parts or 6 ounces av.
Alcohol, sufficient to make 100 parts or 2 pints.

Mix the Orange Peel previously cut into small pieces with 80 parts or 1¹/₂ pints of Alcohol, and macerate for 24 hours, then pack it moderately in a conical percolator, and gradually pour Alcohol upon it until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

This is a new officinal tincture used chiefly for flavoring other preparations. The short time which is given for maceration seems insufficient, and certainly is unless the peel is cut very fine and bruised so as to rupture the oil cells as much as possible. It will be much better to add the Alcohol to the peel, chopped very fine, and allow it to remain upon it, instead of percolating as directed. After standing a few weeks it may be filtered off for use. The Br. P. *Tinctura Aurantii Recentis* is similar to this, but stronger.

3445. Orange Fruit Tincture.

Oranges, medium size, sweet. No. 12, or	4 pounds av.
Alcohol,	4 pints.
Water, sufficient.	

Peel the Oranges as you would an apple, taking off a peeling thick enough to contain all the oil cells, squeeze out the juice of the Oranges with a lemon squeezer, chop or cut the peel fine and put in a wide-mouth jar or other convenient vessel, pour upon it the Alcohol and expressed juice of the Oranges, macerate for a week or more. add 2 pints of Water and macerate again for a week, then pour off the liquid, pack the macera'ed peel in a funnel or percolator, and percolate it, first with the poured off liquid, then add Water enough through the drugs to make the measure a gallon. If cloudy when filtered add a very little Alcohol.

This is a finely-flavored preparation and may be used whenever Tincture of Sweet Orange is directed. It is far superior to any other Tincture of Orange. It should be made when oranges are cheap in sufficient quantity to last a year.

3446. Tinctura Belladonnae.

Tincture of Belladonna.

Belladonna Leaves,	15 parts or 4 ¹ / ₂ ounces av.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the powder with 6 fl.ounces of Diluted Alcohol and macerate for

24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

This may be made by water-bath percolation in the same manner as is directed for making Tincture Arnica Root.

The Br. P. formula directs only 1 ounce of the drug with 20 of Proof Spirit, the product being only about one third as strong as the U. S.

The U. S. Tincture is a narcotic poison, acting as a sedative in small doses. The dose is 3 to 10 minims.

3447. Tinctura Benzoini.

Tincture of Bensoin. Benzoin,	20 parts or 6 ounces av.
Alcohol, sufficient to make	100 parts or 2 pints.

Mix the powder with a pint and a half of Alcohol and macerate for seven days in a closed vessel, then filter through paper, adding through the filter enough Alcohol to make the Tincture measure 2 pints. U. S. 1880.

The German Tincture Benzoës is the same.

This may be made by water-bath percolation in the same manner as is directed for making Tincture Aloes.

This is used in making some other preparations and in making Aromatic Lotions, etc.

3448. Tinctura Benzoini Composita.

Compound Tincture of Benzoin.

Benzoin,	12 parts or	3 ¹ / ₄ ounces av.
Purified Aloes,	2 parts or	236 grains.
Storax,	8 parts or	2 ¹ / ₄ ounces av.

Balsam of Tolu,	4 parts or	1 1/8 ounce av.
Alcohol, sufficient to make	100 parts or	2 pints.

Mix the gums, etc., with a pint and a half of Alcohol and macerate the mixture for seven days in a closed vessel, then filter through paper, adding enough Alcohol through the filter to make the Tincture measure 2 pints. U. S. 1880.

This may be made by water-bath percolation in the same manner as directed for making Tincture of Aloes.

The Br. P. formula is Benzoin 2 ounces av., Prepared Storax 1 1/2 ounce av., Balsam Tolu 1/2 ounce av., Socotrine Aloes 160 grains, Rectified Spirit to make 20 fl.ounces.

This Tincture was once a popular panacea known as "*Friar s Balsam.*"

The dose is 1/2 to I fl.drachm on sugar or in sweetened water.

3449. Tinctura Bryoniae.

Tincture of Bryonia.

Bryonia, recently dried, in No. 40 powder,	10 parts or	2 3/4 ounce av.
Alcohol, sufficient to make	100 parts or	2 pints.

Moisten the powder with 3 fl.ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

It is used as a hydrogogue cathartic in doses of 1 to 2 fl.drachms.

3450. Tinctura Buchu. Br.

Tincture of Buchu.

Buchu Leaves, in No. 20 powder,	2 1/2 ounces av.
Proof Spirit,	20 fl.ounces.

Macerate the Buchu for 48 hours in 15 fl.ounces of the Spirit in a closed vessel, agitating occasionally, then transfer to a percolator and, when the fluid ceases to pass, continue the percolation with the remaining 5 fl.ounces of Spirit, press the drugs remaining in the percolator, filter the liquids obtained and add through the filter sufficient Proof Spirit to make a pint.

This is given in doses of 1 to 4 teaspoonfuls as a diuretic, etc.

3451. Tincture Calami. G. P.

Tincture of Calamus {Sweet Flag}.

Calamus 1 part, diluted Alcohol 5 parts. Prepare a Tincture by maceration or percolation.

This is used as a stomachic and for flavoring other preparations.

3452. Tinctura Calendulae.

Tincture of Calendula or Marigold.

Calendula, in No. 20 powder,	6 ounces av.
Diluted Alcohol, sufficient to make	2 pints.

Moisten the powder with 12 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator, and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

The U. S. official Tincture of Calendula is intended to be made from the herb, but it is much more frequently made from the flowers, which are preferable for the purpose.

MADE BY WATER-BATH PERCOLATION.

Calendula (flowers), in No. 20 powder,	6 ounces av.
Alcohol,	22 fl.ounces.
Water, sufficient to make	2 pints.

Make in the same manner as is directed for making Tincture of Arnica

Flowers.

The Calendula Flowers, when dry, can be reduced to a coarse powder by rubbing through a coarse sieve.

The proportion of Alcohol used in this formula is greater than the pharmacopoeia directs, but is no more than is required to hold the medicinal properties in solution.

3453. Tinctura Calumbae.

Tincture of Calumba.

Calumba, No. 20 powder,	10 parts or 3 ounces av.
Alcohol, Water, each sufficient to make	100 parts or 2 pints.

Mix Alcohol and Water (by weight) in proportion of 3 parts of Alcohol to 2 parts of Water, and, having moistened the powder with 3 ounces of the mixture, macerate for 24 hours, then pack it in a cylindrical percolator and gradually pour menstruum upon it until 2 parts of Tincture are obtained.

MADE BY WATER-BATH PERCOLATION.

Calumba, in No. 20 powder,	3 ounces av.
Alcohol, Water, each sufficient to make	2 pints.

Mix Alcohol and Water as above and make a Tincture by water-bath percolation as directed for making Tincture Arnica Root.

The Br. P. directs 2¹/₂ ounces of Calumba to be made into 20 fl.ounces of Tincture with Proof Spirit.

This is given as a bitter tonic and stomachic in doses of 1/2 to 1 teaspoonful.

3454. Tinctura Camphorae Composita. Br.

Compound Tincture of Camphor — Paregoric,

The Br. P. gives the following formula under the above title, the preparation corresponding nearly to the U. S. P. *Tinctura Opii Camphorata* and the G. P. *Tincture Opii Benzoica* (which see):

Opium, in powder,	40 grains.
Benzoic Acid,	40 grains.
Camphor,	30 grains.
Oil of Anise,	1/2 fl.drachm.
Proof Spirit,	20 fl.ounces.

Macerate for seven days in a closed vessel, with occasional agitation, then filter and add sufficient Proof Spirit to make 20 fl.ounces.

A fl.drachm contains 1/4 grain Opium. The dose is 15 to 60 minims.

3455. Tinctura Cannabis Indicae.

Tincture of Indian Cannabis— Tincture of Indian Hemp.

Indian Cannabis,	2 ³ / ₄ ounces av.
Alcohol, sufficient to make	a pint.

Moisten the powder with 3 fl.ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until a pint of Tincture is obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Indian Cannabis, in No. 40 powder,	5 ¹ / ₂ ounces av.
Alcohol, sufficient to make	2 pints.

Moisten the powder with 4 ounces of Alcohol, pack firmly in the water-bath percolator, pour upon it a pint and a half of Alcohol and set in a warm place for two days, then heat moderately and, after one hour, begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until 2 pints of the Tincture have passed.

The Br. P. directs 1 ounce av. of *Extract* of Indian Hemp to be dissolved in Rectified Spirit 20 fl.ounces.

The German formula directs 1 part of *Extract* of Indian Hemp to be dissolved in 19 parts (by weight) of Alcohol.

The dose of the U. S. Tincture is 20 to 40 minims, of the Br. and German preparations 5 to 20 minims.

3456. Tinctura Cantharidis.

Tincture of Cantharides.

Cantharides,	5 parts or 606 grains.
Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the powder with an ounce of Alcohol and pack it firmly in the cylindrical percolator, then gradually pour Alcohol upon it until 2 pints of Tincture are obtained.

MADE BY WATER-BATH PERCOLATION.

Cantharides, in No. 60 powder,	600 grains.
Alcohol, sufficient to make	2 pints.

Make in the same manner as directed for Tincture Cannabis Indica. The dose is 3 to 15 drops.

The Br. P. formula is Cantharides, in coarse powder, $\frac{1}{4}$ ounce av., Proof Spirit 20 fl.ounces, made by maceration. Dose, 5 to 20 minims. It is only about one third the strength of the U. S. preparation.

The G. P. directs Cantharides 1 part, Alcohol 10 parts, being double the strength of the U. S.

3457. Tinctura Capsici.

Tincture of Capsicum.

Capsicum,	5 parts or 600 grains.
Alcohol, Water,	
each sufficient to make	100 parts or 2 pints.

Mix Alcohol and Water in the proportion of 19 parts of Alcohol to 1 part of Water, and, having moistened the powder with $\frac{1}{2}$ fl.ounce of the mixture, pack it firmly in a cylindrical percolator, then gradually pour menstruum upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Capsicum, in No. 30 powder, 600 grains.

Alcohol, Water,
each sufficient to make 2 pints.

Mix Alcohol and Water in the proportion of 19 parts of Alcohol to 1 part of Water and moisten the drug with an ounce of the mixture, pack it firmly in the water-bath percolator, pour upon it a pint and a half of the menstruum and set in a warm place for two days, then heat very moderately and, after one hour, begin to percolate, adding the menstruum to the drug and continuing the heat and percolation until 2 pints of the Tincture have passed.

The Br. P. formula directs $\frac{3}{4}$ ounce of Capsicum with sufficient Rectified Spirit to make 20 fl.ounces.

The G. P. directs i part of Capsicum with 10 parts of Alcohol, to be made by maceration. It is double the strength of the U. S. or Br. preparation.

Tincture of Capsicum is much used externally in liniments, and is given as a warm stimulant in doses of 5 to 30 minims.

3458. Tinctura Cardamomi.

Tincture of Cardamom.

Cardamom, 15 parts or $4\frac{5}{8}$ ounces av.

Diluted Alcohol,
sufficient to make 100 parts or 2 pints.

Moisten the powder with 4 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of the Tincture are obtained. U. S.

1880.

MADE BY WATER-BATH PERCOLATION.

Cardamom, in No. 30 powder, 4⁵/₈ ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make in the same manner as directed for Tincture Arnica Root (3440).

This is given as an aromatic stimulant in doses of 1/2 to 1 teaspoonful.

3459. Tinctura Cardamomi Composita.

Compound Tincture of Cardamom.

Cardamom, 20 parts or 280 grains.
Cinnamon, 20 parts or 280 grains.
Caraway, 10 parts or 140 grains.
Cochineal, 5 parts or 70 grains.
Glycerin, 60 parts or 1 1/2 fl.ounce.
Diluted Alcohol, sufficient
to make 1000 parts or 2 pints.

Mix the drugs and reduce them to a moderately coarse powder, moisten them with an ounce of diluted Alcohol, pack them firmly in a cylindrical percolator and gradually pour diluted Alcohol upon them until 30 1/2 fl.ounces have passed; to this add the Glycerin and mix them thoroughly. Filter if necessary. U. S. 1880.

This may be made by water-bath percolation in the same manner as Tincture of Arnica Root (3440).

The Br. P. formula directs Cardamom Seeds 1/4 ounce, Caraway Fruit (seeds) 1/4 ounce, Raisins, freed from seeds, 2 ounces, Cinnamon Bark 1/2 ounce, Cochineal 55 grains, Proof Spirit 20 fl.ounces, to make a Tincture.

This is a pleasant aromatic, used chiefly for flavoring other

preparations. Dose, a teaspoonful. It is quite a favorite addition to bitters or other stomachics, in which it is used chiefly as a flavoring.

3460. Tinctura Cascariillae. Br.

Tincture Cascanlla.

Cascarilla Bark, in No. 40 powder, 2¹/₄ ounces av.
Proof Spirit, 20 fl.ounces.

Make a Tincture by macerating 48 hours in 15 fl.ounces of the Spirit, then percolating with the addition of enough Spirit through the percolator to make 20 fl.ounces.

This is a tonic and is given in doses of 1/2 to 2 fl.drachms.

3461. Tinctura Castorei. G. P.

Tincture of Castor.

Castor, 1 part.
Alcohol, 10 parts.
Make by maceration.

The formula for this Tincture was official in the U. S. 1870 Pharmacopoeia, Castor, bruised, 2 troyounces. Alcohol 2 pints. Made by maceration. It is given as an antispasmodic. Dose, 20 to 60 minims.

3462. Tinctura Catechu Composita.

Compound Tincture of Catechu — 1880.
Tincture of Catechu — U. S. 1870.

Catechu, in No. 40 powder, 12 parts or 3³/₄ ounces av.
Cinnamon, in No. 40 powder, 8 parts or 2¹/₂ ounces av.
Diluted Alcohol, sufficient to make 100 parts or 2 pints.

Mix the powders, and, having moistened the mixture with 5 fl.ounces of diluted Alcohol, macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2

pints of Tincture are obtained. U. S. 1880.

The U. S. 1870 formula was Catechu 3 tr.ounces, Cinnamon 2 tr.ounces, Diluted Alcohol sufficient to make 2 pints. It was called, simply, Tincture of Catechu.

The Br. formula is Catechu 2¹/₂ ounces av., Cinnamon Bark 1 ounce, Proof Spirit 20 fl.ounces. Making a preparation nearly the same as the U. S.

The German *Tincture Catechu* is prepared from Catechu 1 part, diluted Alcohol 5 parts, by maceration.

This may be made by water-bath percolation as directed for Tincture Aloes (3435).

This Tincture is given as an aromatic astringent in doses of ¹/₂ to 2 teaspoonfuls. It is a favorite addition to diarrhoea mixtures, astringent washes for spongy gums, and other similar preparations.

3463. Tinctura Chinoidini. G. P.

Tincture of Chinoidin.

Chinoidin,	10 parts.
Diluted Alcohol,	85 parts.
Hydrochloric Acid,	5 parts.

Dissolve the Chinoidin in the liquids and filter. Dose ¹/₂ to a teaspoonful or more.

This is a tonic and antiperiodic used particularly for chills, fever and ague, and malaria. Its extreme bitterness can be overcome in a measure by adding 30 grains of Extract of Liquorice, in powder, to each fl.ounce.

3464. Tinctura Chiratae.

Tincture of Chirata.

Chirata, in No. 40 powder, 3 ounces av.

Diluted Alcohol, sufficient to make 2 pints.

Moisten the powder with 3 fl.ounces of Diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

This may be made by water-bath percolation in the same manner as is directed for making Tincture Arnica Root (3440).

The Br. P. formula is Chirata 2¹/₂ ounces, Proof Spirit to make 20 fl.ounces.

It is a bitter stomachic, similar to Tincture of Gentian. The dose is ¹/₂ to 1 teaspoonful.

3467. Tinctura Cimicifugae.

Tincture of Cimicifiiga (Black Cohosh) — Tincture of Actaea.

Black Cohosh, in No. 60 powder, 5¹/₂ ounces av.
Alcohol, sufficient to make 2 pints.

Moisten the powder with 4 ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Black Cohosh, in No. 50 powder, 5¹/₂ ounces av.
Alcohol, sufficient to make 2 pints.

Moisten the powder with 3 ounces of Alcohol and pack firmly in the water-bath percolator, pour upon it a pint and a half of Alcohol and set in a warm place for two days, then heat moderately, and, after one hour, begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until 2 pints of the Tincture have passed.

The Br. P. directs Cimicifuga 2¹/₂ ounces to be made with Proof Spirit

into 20 fl.ounces of Tincture by maceration and percolation.

This is given as a tonic and anti-rheumatic in doses of 15 to 60 minims.

3468. Tinctura Cinchonae.

Tincture of Cinchona — Tinctura Chinae. G. P.

Yellow Cinchona, in No. 60 powder,	6 ounces av.
Glycerin,	2 fl.ounces.
Alcohol, Water, each sufficient to make	2 pints.

Mix the Glycerin with 23 fl.ounces of Alcohol and 7 fl.ounces of Water, and, having moistened the powder with 6 ounces of the mixture, macerate for 24 hours, then pack it firmly in a cylindrical glass percolator and gradually pour on the remainder of the mixture. When the liquid has disappeared from the surface gradually pour on more of the mixture of Alcohol and Water, using the same proportions as before, and continue the percolation until 2 pints of the Tincture are obtained. U. S. 1880. The U. S. 1870 preparation contained no Glycerin.

MADE BY WATER-BATH PERCOLATION.

Yellow Cinchona, in No. 50 powder,	6 ounces av.
Glycerin,	2 fl.ounces.
Alcohol, Water,	
each sufficient to make	2 pints.

Mix the Glycerin with 20 fl.ounces of Alcohol and 8 fl.ounces of Water, moisten the powder with 6 ounces of the mixture and macerate in a closed vessel for 24 hours ; transfer it then to the water-bath percolator, pack firmly, pour upon it the remainder of the mixture and set in a warm place for 24 hours, then heat very moderately, and, after one hour, begin to percolate. When the liquid has disappeared from the surface add through the percolator enough Alcohol and Water, mixed in the proportion of 2 measures of Alcohol to 1 measure of Water, to complete the percolation and make 2 pints of Tincture. Lastly, after standing a few days, filter through paper.

The Br. P. directs *Red* Cinchona Bark 4 ounces, Proof Spirit to make 20 fl.ounces, in the same manner as the U. S.

The G. P. directs 1 part of Cinchona and 5 parts of diluted Alcohol, to be made by maceration.

This is given as a tonic in doses of $\frac{1}{2}$ to 2 fl.drachms.

3469. Tinctura Cinchonae Composita.

*Compound Tincture of Cinchona — Huxham's Tincture —
Tinctura Chinae Composita. G. P.*

Red Cinchona,	10 parts or	3 ounces av.
Bitter Orange Peel,	8 parts or	2 $\frac{1}{2}$ ounces av.
Serpentaria,	2 parts or	260 grains.
Glycerin,	10 parts or	2 $\frac{1}{4}$ fl.ounces.
Alcohol, Water,		
each sufficient to make	100 parts or	2 pints.

Mix the Glycerin with 80 parts or 28 fl.ounces of Alcohol and 10 parts or 3 fl.ounces of Water. Having mixed the Cinchona, Orange Peel, and Serpentaria, reduce them to a fine (No. 60) powder, moisten the powder with 20 parts or 5 fl.ounces of the menstruum and macerate for 24 hours, then pack it firmly in a cylindrical glass percolator and gradually pour on the remainder of the menstruum. When the liquid has disappeared from the surface gradually pour upon it enough of a mixture of Alcohol and Water, using the same proportions as before, and continue the percolation until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

The U. S. 1870 formula was about the same, except that no Glycerin was used; this is added to prevent the precipitation of cincho-tannic acid and other constituents, which occurs when it is not employed.

MADE BY WATER-BATH PERCOLATION.

This may be made by water-bath percolation, with the ingredients as above, in the same manner as is directed for making Tincture Cinchona, preceding.

The Br. P. formula is Red Cinchona Bark 2 ounces, Bitter Orange Peel 1

ounce, Serpentry $\frac{1}{2}$ ounce, Saffron 55 grains, Cochineal 28 grains, Proof Spirit to make 20 fl.ounces, by maceration and percolation.

The G. P. directs, under the title *Tinctura Chinae Composita*, Cinchona 6 parts, Orange Peel 2 parts, Gentian 2 parts, Cinnamon 1 part, diluted Alcohol 50 parts. This is also called *Elixir Roborans*.

This Tincture is much used as a tonic and stomachic, the dose being $\frac{1}{2}$ to 2 fl.drachms.

3470. Tinctura Cinnamomi.

Tincture of Cinnamon.

Cinnamon, in No. 40 powder, 10 parts or $2\frac{7}{8}$ ounces av.
Alcohol, Water,
each sufficient to make 100 parts or 2 pints.

Mix Alcohol and Water in the proportion of 3 parts by weight (22 fl.ounces) of Alcohol to 2 parts (12 fl.ounces) of Water, and, having moistened the powder with 3 fl.ounces of the mixture, pack it in a conical percolator and gradually pour menstruum upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Make a Tincture of the ingredients named above by water-bath percolation.

The Br. P. directs Cinnamon Bark $2\frac{1}{2}$ ounces av., Rectified Spirit to make 20 fl.ounces of Tincture.

The G. P. directs 1 part of Cinnamon and 5 parts of diluted Alcohol.

Tincture of Cinnamon is used as an aromatic and stimulant in doses of $\frac{1}{2}$ to 1 teaspoonful.

3471 Tinctura Cocci. Br.

Tincture of Cochineal.

Cochineal, in powder, 2¹/₂ ounces av.
Proof Spirit, 20 fl.ounces.

Macerate for seven days in a closed vessel, with occasional agitation, strain, press, and add sufficient Proof Spirit to make 20 fl.ounces.

3472. Tinctura Colchici.

Tincture of Colchicum. Colchicum Seed,
 in No. 30 powder, 15 parts or 4⁵/₈ ounces av.
Diluted Alcohol, sufficient
 to make 100 parts or 2 pints.

Moisten the powder with 4 ounces of diluted Alcohol and macerate for 24 hours, then pack it in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Colchicum Seed, in No. 30 powder, 4³/₈ ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for Tincture Arnica Root (3440).

The Br. P., under the title *Tinctura Colchici Seminum* (Seminis?), directs Colchicum Seed 2¹/₂ ounces av. with Proof Spirit to make 20 fl.ounces of Tincture.

The G. P. directs 1 part of Colchicum Seed with 10 parts of diluted Alcohol.

This is used as an anti-rheumatic, the dose being 10 to 40 minims.

3473. Tinctura Colocynthis. G. P.

Tincture of Colocynth.

Colocynth, with the Seeds, 1 part.
Alcohol, 10 parts.

Prepared by maceration. This is a bitter stomachic and cathartic, the dose being 5 to 15 minims.

3474. Tinctura Conii.

Tincture of Conium — Tincture of Hemlock.

The 1870 Pharmacopoeia directed Conium Leaves to be used in this preparation, but in the present revision Conium Leaves have been dismissed, the fruit only being officinal.

Conium (fruit), in No. 30 powder, 4³/₄ ounces av.
Diluted Hydrochloric Acid, 1 fl.drachm.
Diluted Alcohol, sufficient to make 2 pints.

Moisten the powder with 2 fl.ounces of diluted Alcohol, previously mixed with the diluted Hydrochloric Acid, and macerate for 24 hours, then pack it moderately in a conical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-KATII PERCOLATION.

Conium (fruit), in No. 30 powder, 4³/₄ ounces av.
Diluted Hydrochloric Acid, 1 fl.drachm.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as directed for making Tincture Arnica Root (3440).

The Br. P. formula is Hemlock Fruit 2¹/₂ ounces, Proof Spirit to make 20 fl.ounces. This is a sedative, the dose being 20 to 60 minims.

3475. Tinctura Croci.

Tincture of Saffron.

Saffron, 10 parts or 3 ounces av.

Diluted Alcohol,
enough to make 100 parts or 2 pints.

Moisten the Saffron with 3 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

This is designed to be made from the foreign Saffron (*Crocus Sativus*). Many American druggists do not keep this on account of its high price, but use in its place American Saffron or Safflower (*Carthamus Tinctorius*), which much resembles it.

It may be made by water-bath percolation as directed for making Tincture Arnica Flowers.

The Br. P. directs Saffron 1 ounce with Proof Spirit to make 20 fl.ounces.

The G. P. formula directs Saffron 1 part, diluted Alcohol 10 parts.

Tincture of Saffron is an aromatic, used to add to other preparations and for its orange colors; also given in doses of $\frac{1}{2}$ to 1 teaspoonful.

3476. Tinctura Cubebae.

Tincture of Cubeb.

Cubeb, in No. 30 powder, 10 parts or $3\frac{1}{8}$ ounces av.
Diluted Alcohol,
sufficient to make 100 parts or 2 pints.

Moisten the powder with 3 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Cubeb, in No. 30 powder, $3\frac{1}{8}$ ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as directed for making Tincture Arnica Root (3440).

The Br. P. directs 2¹/₂ ounces of Cubebs, in powder, with Rectified Spirit to make 20 fl.ounces of Tincture.

As the medicinal properties of Cubebs are better soluble in a stronger alcoholic menstruum, this is the better formula.

This is given as a stimulant to the mucous membrane in doses of ¹/₂ to 2 fl.drachms.

3477. Tinctura Digitalis.

Tincture of Digitalis (Fox Glove).

Digitalis, recently dried,
 and in No. 60 powder, 15 parts or 4⁵/₈ ounces av.
Diluted Alcohol,
 sufficient to make 100 parts or 2 pints.

Moisten the powder with 5 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Digitalis, recently dried, in No. 50 powder, 4⁵/₈ ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for making Tincture of Belladonna (3446).

The Br. P. directs 2¹/₂ ounces av. of Foxglove Leaves with Proof Spirit to make 20 fl.ounces of Tincture.

The G. P. directs 1 part of Digitalis and 10 parts of diluted Alcohol.

This is given as an arterial sedative, the dose of the U. S. Tincture being 5 to 30 minims.

3478. Tinctura Ergotae. Br.

Tincture of Ergot.

Ergot, finely comminuted,	5 ounces av.
Proof Spirit,	20 fl.ounces.

Macerate the Ergot for 48 hours in 15 fl.ounces of the Spirit in a closed vessel, agitating occasionally, then transfer to a percolator, and, when the fluid ceases to pass, continue the percolation with Proof Spirit until 20 fl.ounces are obtained. The dose is 5 to 30 minims.

3483. Tinctura Gallae.

Tincture of Nutgall.

Nutmall, No. 40 powder,	20 parts or 6 ¹ / ₃ ounces av..
Glycerin,	10 parts or 2 ¹ / ₄ fl.ounces.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Mix the Glycerin with 30 fl.ounces of diluted Alcohol, and, having moistened the powder with 4 ounces of the mixture, pack it in a conical glass percolator, then gradually pour upon it, first, the remainder of the mixture, and, afterward, diluted Alcohol, until 2 pints of Tincture are obtained. U. S. 1880.

The Br. P. directs Galls 2¹/₂ ounces with Proof Spirit to make 20 fl.ounces of the Tincture.

The G. P., under the title *Tinctura Gallarum*, directs 1 part of Nutgalls with 5 parts of diluted Alcohol.

This Tincture is given as an astringent in doses of 1/2 to 2 fl.drachms.

3484. Tinctura Gelsemii.

Tincture of Gelsemium (Yellow Jasmin).

Gelsemium (root), in No. 60 powder, 15 parts or 4¹/₈ ounces av.
Alcohol, sufficient to make 100 parts or 2 pints.

Moisten the powder with 10 parts or 3 fl.ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Gelsemium, in No. 60 powder, 4 ounces av.
Alcohol, sufficient to make 2 pints.

Moisten the powder with 3 ounces of Alcohol and pack firmly in the water-bath percolator, pour upon it a pint and a half 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 2 pints of Tincture have passed.

A saturated Tincture is also prepared from the green root, which is highly esteemed.

The Br. P. directs 2¹/₂ ounces of Gelsemium with Alcohol to make 20 fl.ounces of Tincture.

Tincture of Gelsemium is employed as an arterial sedative, the dose being 10 to 30 minims of the official Tincture, but much less of the green Tincture.

3485. Tinctura. Gentianae. G. P.

Tincture of Gentian.

Gentian, 1 part.

Diluted Alcohol, 5 parts.

Prepare a Tincture by maceration.

The dose is a teaspoonful or more.

3486. Tinctura Gentianae Composita.

Compound Tincture of Gentian.

Gentian,	8 parts or	2 ¹ / ₂ ounces av.
Bitter Orange Peel,	4 parts or	1 ¹ / ₄ ounces av.
Cardamom,	2 parts or	280 grains.
Diluted Alcohol, sufficient to make	100 parts or	2 pints.

Mix the Gentian, Orange Peel, and Cardamom, and reduce them to a moderately coarse powder, moisten the powder with 3 ounces of diluted Alcohol and macerate for 24 hours, then pack it in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

This may be made with the same ingredients by water-bath percolation as directed for making Tincture Arnica Root.

The Br. P. formula is Gentian 1¹/₂ ounce av., Bitter Orange Peel ³/₄ ounce av.. Cardamom Seed ¹/₄ ounce av., with Proof Spirit to make 20 fl.ounces of Tincture.

Tincture of Gentian Compound is a bitter tonic, a popular remedy for dyspepsia and similar disorders. The dose is ¹/₂ to 2 teaspoonfuls.

3487. Compound Tincture of Gentian, Improved.

Gentian, in coarse powder,	2 ¹ / ₂ ounces av.
Cardamom, a fine powder,	¹ / ₂ ounce av.

Oranges, medium size, sweet,	No. 3.
Alcohol,	1 pint.
Water, sufficient to make	2 pints.

Peel the Oranges, squeeze out the juice and mix it with 12 fl.ounces each of Alcohol and Water, chop the Orange Peel fine, mix it with the Gentian and Cardamom, and, having moistened the drugs with 3 ounces of the mixture, macerate for 24 hours in a closed vessel. Transfer it then to a percolator, pack moderately, pour upon it the remainder of the mixture and set in a warm place for two days, then begin to percolate, adding to the drugs, after the liquid has disappeared from the surface, the remaining 4 ounces of Alcohol mixed with 4 ounces of Water, and continuing the percolation with Water, if necessary, until 2 pints of Tincture are obtained. Lastly, after standing a few days for the albuminous matter to separate, filter.

This makes an excellent Compound Tincture of Gentian, of much better flavor than the official preparation.

3488. Tinctura Guaiaci.

Tincture of Guaiac.

Guaiac (resin), in coarse powder,	20 parts or 5 ¹ / ₂ ounces av.
Alcohol, sufficient to make	100 parts or 2 pints.

Mix the powder with a pint and a half of Alcohol and macerate for seven days in a closed vessel; then filter through paper, adding through the filter enough Alcohol to make 2 pints of Tincture. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Guaiac, in .coarse powder,	5 ¹ / ₂ ounces av.
Alcohol, sufficient to make	2 pints.

Mix the Guaiac with an equal bulk of coarse sand and agitate the mixture with a pint and a half of Alcohol in a wide-mouth bottle, cover the perforated diaphragm of the water-bath percolator with burlap or coarse cloth and pour the mixture upon it; keep in a warm place for three days, then heat moderately, and, after one hour, begin to

percolate, adding Alcohol to the drug when the liquid has disappeared from the surface, and continuing the heat and percolation until 2 pints of the Tincture are obtained.

This Tincture is given as an anti-rheumatic and laxative in doses of 1/2 to 1 teaspoonful diluted.

3490. Tincturae Herbarum Recentium.

Tinctures of Fresh Herbs.

Under this heading the 1880 revision gives a general formula for making Tinctures from Fresh Herbs.

The Fresh Herb, bruised or crushed,	50 parts or 16 ounces av.
Alcohol (by weight),	100 parts or 37 ² / ₃ fl.ounces.

Macerate the Herb with the Alcohol for 14 days, then express the liquid and filter.

MADE BY WATER-BATH PERCOLATION.

Tinctures of fresh herbs, flowers, barks, leaves, roots, etc., may be made by water-bath percolation by the following

General Formula for Tinctures from Fresh Herbs, etc.

The Fresh Herb, Bark, Flower, Leaf, or Root,	16 ounces av.
Alcohol, sufficient to make	2 pints.

Bruise, crush, cut, grate, or otherwise reduce the substance to the proper condition for exhaustion and pack it in the water-bath percolator, pour upon it a pint of Alcohol and set in a warm place for two days, then heat moderately, and, after one hour, begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until a pint and a half has passed; remove the drug from the percolator, express, and, if the expressed liquid measures more than half a pint, evaporate it to that measure and add to the percolate ; but if it measures

less than half a pint, make up to that measure with Alcohol and add to the percolate. Lastly, after standing for a few days, filter through paper.

The so-called "Green Tinctures," "Saturated Tinctures," "Specific Tinctures," etc., may be made in this manner. A great variety of Tinctures are prepared from green plants in this manner.

3491. Tinctura Humuli.

Tincture of Hops — Tincture Lupuli. Br.

Hops, No. 20 powder,	20 parts or 6 ¹ / ₄ ounces av.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the powder with 12 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Hops, in No. 20 powder,	6 ¹ / ₄ ounces av.
Diluted Alcohol, sufficient to make	2 pints.

Make a Tincture by water-bath percolation in the same manner as directed for Tincture Belladonna.

The Br. P., under the title *Tinctura Lupuli*, directs Hops 2¹/₂ ounces av. with Proof Spirit to make 20 fl.ounces of Tincture.

The dose of Tincture of Hops is ¹/₂ to 2 fl.drachms as a tonic and nervine.

3492. Tinctura Hydrastis.

Tincture of Hydrastis (Golden Seal).

Hydrastis, in No. 60
powder, 20 parts, or 6¹/₂ ounces av.
Diluted Alcohol, sufficient
to make 100 parts or 2 pints.

Moisten the powder with 5 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack it in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

This may be made by water-bath percolation as directed for Tincture Arnica Root (3440).

The dose is a teaspoonful or more.

3493. Tinctura Hyoscyami.

Tincture Hyoscyamus (Henbane).

Hyoscyamus Leaves, recently dried,
in No. 60 powder, 15 parts or 4³/₄ ounces av.
Diluted Alcohol, sufficient
to make 100 parts or 2 pints.

Moisten the powder with 4 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Hyoscyamus Leaves, in No. 50 powder, 4³/₄ ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for Tincture Belladonna (3446).

The Br. P. directs Hyoscyamus 2¹/₂ ounces av. with Proof Spirit to make 20 fl.ounces of Tincture.

This is given as an anodyne and sedative. Dose, 1/2 to 1 fl.drachm.

3494. Tinctura Ignatiae.

Tincture of Ignatia.

Ignatia, in No. 60 powder, 10 parts.
Alcohol, Water, each sufficient.

This new official formula directs the powder to be exhausted with Alcohol and Water, mixed in the proportion of 8 parts of the former to 1 of the latter. A portion of the Tincture thus obtained is then assayed to ascertain the quantity of dry Extract of Ignatia which it contains, and from this the quantity of extract which the whole percolate represents is to be estimated. Menstruum is then to be added, if required, so that 1 part of the dried extract may be contained in 100 parts of the Tincture. For the detailed formula see Tincture of Nux Vomica, which is made in the same manner.

A more simple method of making it is as follows:

Extract Ignatia, Alcoholic, dry, 60 grains.
Alcohol, 14 fl.ounces.
Water, 1 1/2 fl.ounces.

Mix the Alcohol and Water and dissolve the Extract in the mixture.

This is the same strength as the officinal formula.

3497. Tincture Ipecacuanhae. G. P.

Tincture of Ipecac.

Ipecac, 1 part.
Diluted Alcohol, 10 parts.

Make a Tincture by maceration or percolation. The dose is 15 to 30 minims.

3499. Tinctura Jaborandi. Br.

Tincture of Jaborandi— Tincture of Pilocarpus.

Jaborandi, in No. 40 powder, 5 ounces av.
Proof Spirit, 20 fl.ounces.

Macerate the Jaborandi for 48 hours in 15 fl.ounces of the Spirit in a closed vessel, agitating occasionally, then transfer to a percolator and, when the fluid ceases to pass, continue the percolation with the remaining 5 ounces of Spirit. Afterwards subject the contents of the percolator to pressure, filter the product, mix the liquids, and add sufficient Proof Spirit to make 20 fl.ounces.

This may also be made by water-bath percolation as directed for Tincture of Belladonna. Dose, $\frac{1}{2}$ to 1 fl.drachm.

3500. Tinctura Jalapae. Br.

Tincture of Jalap.

Jalap, in powder, 2 $\frac{1}{2}$ ounces av.
Proof Spirit, 20 fl.ounces.

Make a Tincture by maceration, percolation, etc., as directed for the preceding.

This Tincture was official in the 1870 U. S. P., the formula being Jalap 6 tr.ounces, Alcohol 2 parts to Water 1 part, a sufficient quantity to make 2 pints.

The dose, as a purgative, is $\frac{1}{2}$ to 2 fl.drachms.

3501. Tinctura Kino.

Tincture of Kino.

Kino, 10 parts or 360 grains.
Glycerin, 15 parts or 1 fl.ounce.
Alcohol, Water,
each sufficient to make 100 parts or $\frac{1}{2}$ pint.

Mix the Glycerin with 60 parts or 6 fl.ounces of Alcohol, and 15 parts or 1¹/₄ fl.ounces of Water, rub the Kino in a mortar, adding gradually 30 parts or 3 fl.ounces of menstruum until a smooth paste is made; transfer this to a bottle, add the remainder of the menstruum and macerate for 24 hours, occasionally shaking the bottle, then filter through paper, adding through the filter enough of a mixture of Alcohol and Water, made in the proportion of 5 measures of Alcohol to 1 measure of Water, to make half a pint of the Tincture. U. S. 1880.

Keep the Tincture in well-stopped bottles.

The great trouble with Tincture of Kino is its tendency to gelatinize. This formula, if properly followed, is supposed to overcome this difficulty.

The Br. P. formula is Kino 2 ounces, Glycerin 3 fl.ounces, Distilled Water 5 fl.ounces, Rectified Spirit 12 fl.ounces. Macerate for 7 days in a closed vessel, with occasional agitation, filter, and add sufficient Rectified Spirit to make 20 fl.ounces.

Tincture of Kino is an astringent, given in doses of 1/2 to 2 fl.drachms.

3502. Tinctura Krameriae.

Tincture of Krameria (Rhatany).

Rhatany (Root), in No. 40 powder,	20 parts or 6 ¹ / ₄ ounces av.
Diluted Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the powder with 6 ounces of diluted Alcohol and macerate for 24 hours, then pack it in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Rhatany, in No. 40 powder,	6 ¹ / ₄ ounces av.
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Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for Tincture Arnica Root (3440).

The Br. P. directs Rhatany Root 2¹/₂ ounces av. with Proof Spirit to make 20 fl.ounces.

The G. P., under the title *Tinctura Ratanhiae*, directs Krameria 1 part, diluted Alcohol 5 parts, to be made by maceration.

Tincture of Rhatany is an astringent, given in doses of ¹/₂ to 2 fl.ounces.

3503. Tinctura Laricis. Br.

Tincture of Larch.

Larch Bark, in No. 40 powder, 2¹/₂ ounces av.
Rectified Spirit, 20 fl.ounces.

Macerate the Larch Bark for 48 hours in 15 fl.ounces of the Spirit, then percolate, adding Rectified Spirit through the percolator to make 20 fl.ounces of the Tincture.

This is the Tincture of the European Larch, *Abies Larix*. The dose is 20 to 30 minims.

3504. Tinctura Lavandulae Composita.

Compound Tincture of Lavender, U. S. 1880 — Spiritus Lavendula Composita, U. S. 1870—Spirit of Lavender.

This preparation, which was formerly classed with Spirits, has been very properly transferred to the Tinctures in the present Pharmacopoeia. As the difference is so slight between the 1870 and 1880 preparation, the latter formula only is given.

Oil of Lavender, 8 parts or 2 fl.drachms.
Oil of Rosemary, 2 parts or 30 minims.
Cinnamon, in coarse

powder,	18 parts or 230 grains.
Cloves,	4 parts or 52 grains.
Nutmeg,	10 parts or 128 grains.
Red Saunders, coarse powder,	8 parts or 103 grains.
Alcohol (by weight),	680 parts or 23 fl.ounces.
Water,	270 parts or 7 ⁵ / ₈ fl.ounces.
Diluted Alcohol, sufficient to make	1000 parts or 2 pints.

Dissolve the Oils in the Alcohol and add the Water, crush the Nutmeg in a mortar, mix with it the Cinnamon, Cloves, and Red Saunders, and reduce the mixture by grinding to a coarse powder; moisten the mixture with a sufficient quantity of the Alcoholic solution of the Oils, pack it firmly in a cylindrical percolator, gradually pour upon it the remainder of the Alcoholic solution and, afterward, diluted Alcohol until 1000 parts or 2 pints of the Tincture are obtained. U. S. 1880.

The Br. P. formula is so similar that it need not be repeated. Tincture of Lavender Compound is an agreeable stomachic and aromatic. The dose is 1/2 to 2 fl.drachms.

3505. Tinctura Limonis. Br.

Tincture of Lemon Peel.

Fresh Lemon Peel, cut small,	2 ¹ / ₂ ounces av.
Proof Spirit,	20 fl.ounces.

Macerate for seven days in a closed vessel, with occasional agitation, strain, press, and filter; then add sufficient Proof Spirit to make 20 fl.ounces. It might with advantage be made much stronger.

This is used for flavoring and given as an aromatic stimulant in doses of 1/2 to 2 fl.drachms.

3506. Tinctura Lobeliae.

Tincture of Lobelia.

Lobelia (herb), in No. 40
powder, 20 parts or 6¹/₂ ounces av.
Diluted Alcohol, sufficient
to make 100 parts or 2 pints.

Moisten the powder with 6 fl.ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Lobelia (herb), in No. 40 powder, 6¹/₄ ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation as directed for making Tincture Arnica Root (3440).

The Br. P. directs Lobelia 2¹/₂ ounces av. with Proof Spirit to make 20 fl.ounces of Tincture.

The G. P. directs 1 part of Lobelia with 10 parts of diluted Alcohol. The dose is 5 to 15 minims.

The dose of the U. S. and Br. preparations is from 10 to 30 minims.

3508. Tinctura Lupulinas.

Tincture of Lupulin.

This was official in the 1870 U. S. P., as follows:

Lupulin, 4³/₈ ounces av.
Alcohol, sufficient to make 2 pints.

Pack the Lupulin in a narrow cylindrical percolator and gradually pour Alcohol upon it until 2 pints of Tincture are obtained.

Although this Tincture was omitted from the 1880 Pharmacopoeia, it

will be frequently called for. It may be made by water-bath percolation in the same manner as other Tinctures.

This must not be mistaken for the Br. official *Tinctura Lupuli* or Tincture of Hop. See *Tinctura Humuli*.

3509. Tinctura Matico.

Tincture of Matico.

Matico, in No. 40 powder,	10 parts or 3 ounces av.
Diluted Alcohol, sufficient	
to make	100 parts or 2 pints.

Moisten the Matico with 3 ounces of Diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Matico, in No. 40 powder,	3 ounces av.
Diluted Alcohol, sufficient to make	2 pints.

Make a Tincture by water-bath percolation in the same manner as directed for making Tincture Belladonna (3446).

3510. Tinctura Moschi.

Tincture of Musk. Musk,	10 parts or 337 grains.
Alcohol,	45 parts or 4 ³ / ₈ fl.ounces.
Water,	45 parts or 3 ³ / ₄ fl.ounces.
Diluted Alcohol, sufficient	
to make,	100 parts or 8 fl.ounces.

Rub the Musk in a mortar, first with a little of the Water, until a smooth mixture is made, and then with the remainder of the Water; transfer the whole to a bottle, add the Alcohol, and macerate the mixture for seven days, occasionally shaking the bottle, then filter through paper, adding through the filter enough diluted Alcohol to make the Tincture

measure half a pint. U. S. 1880.

As good grain Musk (which is to be used in this preparation) is worth from \$25.00 to \$35.00 per ounce, it will be advisable to touch this official very lightly.

The G. P. directs Musk 1 part, diluted Alcohol, Water, each 25 parts, made as above.

3511. Tinctura Myrrhae.

Tincture of Myrrh.

Myrrh, in No. 30 powder, 20 parts or 5¹/₂ ounces av.
Alcohol, sufficient to make 100 parts or 2 pints.

Mix the powder with a pint and a half of Alcohol and macerate for seven days in a closed vessel, then filter through paper, adding through the filter enough Alcohol to make 2 pints of Tincture. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Myrrh, in No. 30 powder, 20 parts or 5¹/₂ ounces av.
Alcohol, sufficient to make 2 pints.

Make a Tincture in the same manner as directed for making Tincture Guaiac by water-bath percolation.

The Br. P. directs Myrrh, in coarse powder, 2¹/₂ ounces av. with Rectified Spirit to make 20 fl.ounces of Tincture.

The G. P. formula is Myrrh 1 part, Alcohol 5 parts, made by maceration.

3523. Tinctura Podophylli. Br.

Tincture of Podophyllum (Resin).

Resin of Podophyllum, 160 grains or 1 part.
Rectified Spirit, 20 fl.ounces or 54.68 fl.parts.

Dissolve and filter. It contains 1 grain of the Resin in 1 fl.drachm. The dose is 15 to 60 minims.

Care should be taken not to be misled by the title of this formula as an unofficial Tincture of Podophyllum (Mandrake Root) is sometimes used.

3524. Tinctura Pyrethri.

Tincture of Pyrethrum (Pellitory).

Pyrethrum, in No. 40 powder, 20 parts or 5¹/₂ ounces av.
Alcohol, sufficient to make 100 parts or 2 pints.

Moisten the powder with 5 ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Pellitory, in No. 40 powder, 5¹/₂ ounces av.
Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for making Tinctura Cimicifugae (3467).

The Br. P. directs Pellitory Root 4 ounces with Rectified Spirit to make 20 fl.ounces of the Tincture.

3525. Tinctura Quassiae.

Tincture of Quassia.

Quassia, in No. 40 powder, 10 parts or 3 ounces av.
Diluted Alcohol, sufficient
to make 100 parts or 2 pints.

Moisten the powder with 3 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Quassia, in No. 40 powder, 3 ounces av.
Diluted Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for making Tincture Arnica Root.

The Br. P. directs Quassia Wood, in chips, $\frac{3}{4}$ ounce av. to be macerated for seven days with Proof Spirit sufficient to make 20 fl.ounces. It is only about one third the strength of the U. S. preparation.

Tincture of Quassia is a bitter stomachic, the dose of the U. S. being 15 to 60 minims.

3528. Tinctura Rhei.

Tincture of Rhubarb.

Rhubarb, 12 parts or $3\frac{3}{4}$ ounces av.
Cardamom, in fine powder, 2 parts or 270 grains.
Diluted Alcohol, sufficient
to make 100 parts or 2 pints.

Mix the Rhubarb and Cardamom and reduce the mixture to a moderately coarse (No. 40) powder, moisten the powder with 4 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

This may also be made from the same ingredients, by water-bath percolation, as directed for making Tincture Arnica Root.

The Br. P. directs Rhubarb Root, in No. 20 powder, 2 ounces av., Cardamom, Coriander, Saffron, each, bruised, $\frac{1}{4}$ ounce av., with Proof Spirit to make 20 fl.ounces.

Tincture of Rhubarb is given as a stomachic in doses of 1 to 2 fl.drachms, and as a purgative in doses of $\frac{1}{2}$ to 1 fl.ounce.

3529. Tinctura Rhei Aquosa. G. P.

Aqueous Tincture of Rhubarb.

Rhubarb,	100 parts.
Borate of Sodium (Borax),	10 parts.
Pure Carbonate of Sodium,	10 parts.
Water,	900 parts.
Cinnamon Water,	150 parts.
Alcohol,	90 parts.

Heat the Water to boiling, pour it upon the coarsely-cut Rhubarb (freed from powder), the Borate of Sodium and Carbonate of Potassium, and allow them to digest in a closed vessel for a quarter of an hour, then add the Alcohol and set the mixture aside for one hour. Now strain the mixture through a woolen cloth and express gently the undissolved portion. Finally, add the Cinnamon Water in the proportion of 150 parts to 850 parts of the strained liquid.

The dose of this Tincture is 1 to 4 fl.drachms as a laxative.

3530. Tinctura Rhei Aromatica.

Aromatic Tincture of Rhubarb—Spiced Tincture of Rhubarb.

Rhubarb,	20 parts or	6 ³ / ₄ ounces av.
Cinnamon,	4 parts or	1 ¹ / ₄ ounces av.
Cloves,	4 parts or	1 ¹ / ₄ ounces av.
Nutmeg,	2 parts or	275 grains.
Diluted Alcohol,		
sufficient to make	100 parts or	2 pints.

Mix the Rhubarb, Cinnamon, Cloves, and Nutmeg and reduce the mixture to a moderately coarse powder, moisten the powder with 15 parts or 5 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

From the same ingredients as directed make a Tincture by water-bath percolation in the same manner as directed for making Tinctura Aurantii Amari (3443).

This is given for diarrhoea of children especially, acting first as a purgative, then as an astringent. The dose is a teaspoon-ful to a tablespoonful.

3531. Tinctura Rhei Dulcis.

Sweet Tincture of Rhubarb.

Rhubarb,	8 parts or	2 ¹ / ₂ ounces av.
Liquorice (Root),	4 parts or	1 ¹ / ₄ ounces av.
Anise,	4 parts or	1 ¹ / ₄ ounces av.
Cardamom,	1 part or	136 grains.
Diluted Alcohol,		
sufficient to make	100 parts or	2 pints.

Mix the Rhubarb, Liquorice, Anise, and Cardamom and reduce them to a moderately coarse (No. 40) powder, moisten the powder with 15 parts or 5 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour diluted Alcohol upon it until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

From the same ingredients as directed make a Tincture by water-bath percolation in the same manner as directed for making Tincture of Arnica Root (3440).

This is a weak, pleasant Tincture of Rhubarb, generally given to children in doses of a teaspoonful to a tablespoonful.

3532. Tinctura Rhei et Sennae.

Tincture of Rhubarb and Senna.

Although this Tincture has been dismissed from the present revision of the U. S. Pharmacopoeia it is still considerably used. It was formerly known as Warner's Gout Cordial, and has been an officinal preparation for many generations. Why it should be dismissed and other much less frequently used preparations retained is not apparent. The following is the formula:

Rhubarb, in moderately coarse powder,	480 grains.
Senna, in moderately coarse powder,	120 grains.
Coriander, in moderately coarse powder,	60 grains.
Fennel, in moderately coarse powder,	60 grains.
Liquorice Extract, in moderately coarse powder,	30 grains.
Raisins, deprived of their seeds,	6 ¹ / ₂ ounces av.
Diluted Alcohol,	3 pints.

Macerate for seven days, express, and filter through paper. The dose is a teaspoonful as a laxative.

3533. Tinctura Rhei Vinosa. G. P.

Vinous Tincture of Rhubarb.

This preparation should properly be included with the Wines instead of the Tinctures, but is classed as above in the G. P.

Rhubarb,	8 parts,
Orange Peel,	2 parts.
Cardamom,	1 part.
Sherry Wine,	100 parts.
Sugar, a sufficient quantity.	

Make a Tincture by maceration and expression and in the filtered liquid obtained dissolve one seventh of its weight of Sugar. The dose is 2 to 4 fl.drachms or more.

3534. Tinctura Sabinae. Br.

Tincture of Savine.

Savine Tops, coarsely powdered, 2¹/₂ ounces av.
Proof Spirit, 20 fl.ounces.

Make 20 fl.ounces of Tincture by maceration and percolation.

This is given as a tonic ammenagogue. The dose is 20 to 60 minims.

3535. Tinctura Sanguinariae.

Tincture of Sanguinaria (Bloodroot).

Sanguinaria, in No. 60 powder, 15 parts or 4³/₈ ounces av.
Alcohol, Water, each sufficient.

Mix Alcohol and Water in the proportion of 2 parts (by weight), or 24 fl.ounces of Alcohol with 1 part (by weight), or 10 fl.ounces of Water, moisten the powder with 3 ounces of the mixture and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour the menstruum upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Bloodroot, in No. 60 powder, 4³/₈ ounces av.
Alcohol, 24 fl.ounces.
Water, 10 fl.ounces.
Diluted Alcohol, sufficient to make 2 pints.

Mix the Alcohol and Water, moisten the powder with 4 ounces of the mixture and macerate for 24 hours in a closed vessel, transfer it to the water-bath percolator, pack firmly, pour upon it the remainder of the menstruum and set in a warm place for two days, then heat moderately and, after one hour, begin to percolate; when the liquid has all disappeared from the surface of the drug add sufficient diluted Alcohol.

3538. Tinctura Senegae. Br.

Tincture of Senega.

Senega Root, in No. 40 powder, 2¹/₂ ounces av.
Proof Spirit, to make 20 fl.ounces.

Macerate the Senega for 48 hours in 15 fl.ounces of the Spirit, percolate and add Spirit through the percolator to make 20 fl.ounces of Tincture.

It may also be made by water-bath percolation. This is a tonic expectorant. The dose is ¹/₂ to 2 fl.drachms.

3539. Tinctura Sennae. Br.

Tincture of Senna — Compound Tincture of Senna.

Senna, broken small, 2¹/₂ ounces av.
Raisins, freed from seeds, 2 ounces av.
Caraway Fruit (Seeds), bruised, ¹/₂ ounce av.
Coriander Fruit (Seeds), bruised, ¹/₂ ounce av.
Proof Spirit, to make 20 fl.ounces.

Macerate the ingredients for 48 hours in 13 fl.ounces of the Spirit, then percolate, adding sufficient Spirit through the percolator to produce 20 fl.ounces of Tincture.

This may also be made by water-bath percolation in the same manner as is directed for Tincture Belladonna.

This preparation was formerly known as *Elixir Salutis*. It is an excellent laxative in doses of a tablespoonful or more.

3540. Tinctura Serpentariae.

Tincture of Serpentaria— Tincture of Serpentry.

Serpentaria, in No. 40 powder, 10 parts or 3 ounces av.
Diluted Alcohol, sufficient to make 100 parts or 2 pints.

Moisten the powder with 3 ounces of diluted Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually

pour diluted Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

With the same ingredients make a Tincture by water-bath percolation as directed for making Tincture of Arnica Root (3440).

The Br. P. directs Serpentry 2¹/₂ ounces, Proof Spirit to make 20 fl.ounces. Made by maceration and percolation as directed in the preceding.

The dose is ¹/₂ to 2 fl.drachms as a stimulant and diaphoretic.

3541. Tinctura Sumbul.

Tincture of Sumbul.

Sumbul, in No. 30 powder, 10 parts or 2³/₄ ounces av.
Alcohol, sufficient to make 100 parts or 2 pints.

Moisten the powder with 10 parts or 3 fl.ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Sumbul, in No. 30 powder, 2³/₄ ounces av.
Alcohol, sufficient to make 2 pints.

Make a Tincture in the same manner as directed for making Tincture of Gelsemium.

The Br. P. directs Sumbul 2¹/₂ ounces av. with Rectified Spirit to make 20 fl.ounces of Tincture.

This is used as a nervine in doses of 10 to 30 minims.

3542. Tinctura Tolutana.

Tincture of Tolu.

U. S. 1870. Balsam of Tolu, 3¹/₄ ounces av.
Alcohol, 2 pints.

Macerate the Balsam with the Alcohol until it is dissolved, then filter through paper.

This Tincture contains a larger proportion of Tolu than the U. S. 1880 preparation, and should be used when it is desired to make Syrup of Tolu by the U. S. 1870 formula.

U. S. 1880.

Balsam of Tolu, 2³/₄ ounces av.
Alcohol, sufficient to make 2 pints.

Add the Balsam of Tolu to 30 fl.ounces of Alcohol and macerate until dissolved, then filter through paper, adding through the filter enough Alcohol to make 2 pints.

Both the 1870 and 1880 formulas are given, as the former is still used for making the former official Syrup of Tolu.

This Tincture may be quickly made by the aid of heat. The Balsam and the Alcohol may be put together in a bottle and macerated in a water-bath until the Balsam is dissolved.

The Br. P. directs Balsam of Tolu 2¹/₂ ounces av. with sufficient Rectified Spirit to make 20 fl.ounces of Tincture.

The dose is from 20 to 40 minims.

3543. Tinctura Valerianae.

Tincture of Valerian.

Valerian, in No. 60 powder, 20 parts or 6 ounces av.

Alcohol, Water, each
sufficient to make 100 parts or 2 pints.

Mix Alcohol and Water in the proportion of 2 parts (by weight) or 24 fl.ounces of Alcohol to 1 part or 10 fl.ounces of Water; moisten the powder with 15 parts or 5 ounces of the mixture and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour menstruum upon it until 100 parts or 2 pints of Tincture are obtained.
U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Valerian, in No. 50 powder, 6 ounces av.
Alcohol, Water, each
sufficient to make 2 pints.

Mix Alcohol and Water as above and make a Tincture by water-bath percolation in the same manner as directed for making Tincture Calumba.

The Br. P. directs Valerian Root 2¹/₂ ounces av. with Proof Spirit to make 20 fl.ounces of the Tincture by maceration and percolation.

The G. P. directs Valerian 1 part with diluted Alcohol 5 parts, to be made by maceration.

Tincture of Valerian is given as a nervine, the dose being 1 to 2 fl.drachms.

3546. Tinctura Vanillae.

Tincture of Vanilla.

Vanilla, cut small and bruised, 10 parts or 3 ounces av.
Sugar, in coarse powder, 20 parts or 6 ounces av.
Alcohol, Water,
each sufficient to make 100 parts or 2 pints.

Mix Alcohol and Water in the proportion of 2 parts (by weight) or 24 fl.ounces of Alcohol to 1 part or 10 fl.ounces of Water, macerate the Vanilla in 50 parts or 1 pint of this mixture for 12 hours, then drain off the liquid and set it aside. Transfer the Vanilla to a mortar, beat it with the Sugar into a uniform powder, then pack it in a percolator and pour upon it the reserved liquid; when this has disappeared from the surface gradually pour on menstruum and continue the percolation until 100 parts or 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

Vanilla, cut small and bruised,	3 ounces av.
Sugar, granulated,	6 ounces av.
Alcohol, Water,	
each sufficient to make	2 pints.

Mix Alcohol and Water in the proportion of 24 fl.ounces of Alcohol to 10 fl.ounces of Water, moisten the Vanilla with 3 ounces of the mixture and macerate in a closed vessel for 24 hours, transfer it to a mortar and beat it thoroughly with the Sugar until it is reduced to a coarse powder, pack this very firmly in the water-bath percolator, pour upon it about a pint and a half of the menstruum and set in a warm place for two days, then heat very moderately and, after one hour, begin to percolate, adding the menstruum to the drug and continuing the heat and percolation until 2 pints of Tincture are obtained. Lastly, after standing a few days, filter through paper.

This Tincture may be used as a flavoring extract but is stronger than is usually sold for that purpose. Formulae for flavoring extracts of Vanilla will be found on pages 419 and 420.

3547. Tinctura Veratri Viridis.

Tincture of Veratrum Viride (American Hellebore)

Veratrum Viride, in No. 60 powder,	50 parts or 14 ¹ / ₂ ounces av.
Alcohol, sufficient to make	100 parts or 2 pints.

Moisten the powder with 5 ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

The dose is 3 to 10 minims.

MADE BY WATER-BATH PERCOLATION.

Veratrum Viride, in No. 50 powder, 14¹/₂ ounces av.
Alcohol, sufficient to make 2 pints.

Make a Tincture by water-bath percolation in the same manner as is directed for making Tincture of Aconite Root (3432).

This Tincture is made to take the place of Norwood's Tincture of Veratrum Viride, which has become popular on account of its reliability. The original Norwood's Tincture is made from the green root of the American Hellebore and is probably superior to any preparation made from the dried root. This Tincture may be prepared from the green root in the same way as is directed for making *Tincturae Herbarum Recentium*, which see.

The Br. P. formula directs green Hellebore, Rhizome, in No. 40 powder, 4 ounces av. with Rectified Spirit sufficient to make 20 fl.ounces of Tincture, by maceration and percolation. (Although this is called *Tincture of Green Hellebore*, the adjective relates to the color, and not the green or recent root, as is directed for making Norwood's Tincture. See above.)

This is only about one third the strength of the U. S. preparation. The dose is 5 to 20 minims.

The G. P. formula is White Hellebore 1 part, diluted Alcohol 10 parts, being only about one sixth as strong as the U. S. and one half as strong as the Br.

Tincture of Veratrum is used as an arterial sedative in fevers, delirium, etc.-

3548. Tinctura Zingiberis.

Tincture of Ginger.

As there is considerable difference in the U. S. 1870 and 1880 preparations, both are given.

1870.

Ginger, in No. 40 powder,	8 ³ / ₄ ounces av.
Alcohol, sufficient to make	2 pints

1880

Ginger, in No. 40 powder,	20 parts or 5 ³ / ₄ ounces av.
Alcohol, sufficient to make	100 parts or 2 pints

Moisten the Ginger with 2 ounces of Alcohol and macerate for 24 hours, then pack it firmly in a cylindrical percolator and gradually pour Alcohol upon it until 2 pints of Tincture are obtained. U. S. 1880.

MADE BY WATER-BATH PERCOLATION.

(1880 U. S. P. Standard.)

Ginger, in No. 40 powder,	5 ³ / ₄ ounces av.
Alcohol, sufficient to make	2 pints.

Moisten the Ginger with 4 ounces of Alcohol and pack firmly in the water-bath percolator, pour upon it a pint and a half of Alcohol 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 2 pints of Tincture are obtained.

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

The Br. P. gives two formulas, one of the same title as the U. S., which is made with Ginger, Rhizome, 2¹/₂ ounces av., with Rectified Spirit sufficient to make 20 fl.ounces, made by maceration and percolation. The other is called *Tinctura Zingiberis Fortier* or *Strong Tincture of Ginger*, and is made with Ginger 10 ounces av., percolated with sufficient Rectified Spirit to make 20 fl.ounces of Tincture.

The G. P. directs Ginger 1 part, diluted Alcohol 5 parts.

Tincture of Ginger is a warm stimulant, the dose being from 10 to 60 minims of the U. S. 1880 preparation.

Unofficial Tinctures.

The foregoing Tinctures are those official in the leading pharmacopoeias; besides these are many other Tinctures which are or have been popular, and which are more or less called for, the principal ones being made by the formulae which follow, which are arranged in classes as much as possible to avoid repetition :

SIMPLE TINCTURES.

3550. Tinctures Containing 10 per cent. of the Drug.

These may be made by the following general formula:

Take of the drug, in powder of the proper fineness,	1 part or 1 ounce.
The menstruum, a sufficient quantity to make	10 parts or 10 fl.ounces.

Moisten the drug with a portion of the menstruum sufficient to cover it and macerate for 24 hours in a warm place, then transfer to a water-bath percolator, add sufficient menstruum to well cover it and heat moderately; after one hour begin to percolate, adding more of the menstruum and continuing the percolation slowly until 10 parts or 10 fl.ounces are obtained. The ordinary process of cold percolation may be employed but does not produce so satisfactory preparations. Some Tinctures are best prepared by maceration altogether. They are designated with a *.

The following Tinctures are prepared after this formula and represent about 10 per cent. of the drug:

UNOFFICIAL TINCTURES—TEN PER CENT.

No.	Tincture Prepared From.	Part Used.	Menstruum.	Dose.
3551	Ailanthus.....	Bark	Diluted Alcohol..	½ to 2 fl.drs.
3552	*Ambergris.....	Alcohol	For perfume.
3553	Balm Gilead or Poplar Buds..	Buds.....	Alcohol	½ to 1 fl.dr.
3554	*Balsam Copaiba.....	Balsam.....	Alcohol	1 to 2 fl.drs.
3555	*Balsam Fir	Balsam.....	Alcohol	1 to 2 fl.drs.
3556	Canella.....	Bark	Alcohol	1 to 4 fl.drs.
3557	Chamomile (Anthemis).....	Flowers.....	Diluted Alcohol..	½ to 2 fl.drs.
3558	Cocculus Indicus (Fish Berries)	Fruit	Alcohol	2 to 20 m.
3559	Conium	Leaves.....	Diluted Alcohol..	½ to 1 fl.dr.
3560	Delphinium (Staphisagria)....	Seed.....	Alcohol	External.
3561	*Euphorbium	Gum	Alcohol	External.
3562	*Galbanum	Gum	Diluted Alcohol..	1 to 3 fl.drs.
3563	Geranium (Cranesbill).....	Root.....	Diluted Alcohol..	½ to 2 fl.drs.
3564	Gold Thread (Coptis Trif.)..	Root.....	Diluted Alcohol..	½ to 1 fl.dr.
3565	Horse Chestnut	Bark	Diluted Alcohol..	½ to 1 fl.dr.
3566	*Lactucarium	Insp. Juice..	Diluted Alcohol..	20 to 60 m.
3567	*Oxgall	Inspissated ..	Diluted Alcohol..	1 to 2 fl.drs.
3568	Pareira Brava.....	Rhizome	Diluted Alcohol..	1 to 2 fl drs.
3569	Rhododendon (Laurel)....	Leaves.....	Diluted Alcohol..	½ to 1 fl.dr.

3570. Tinctures Containing 15 per cent. of the Drug.

These may be made by the following general formula:

Take of the drug, in proper fineness for percolation,	2 parts or 2 ounces av.
The menstruum, sufficient to make	14 parts or 14 fl.ounces.

Moisten the drug with a portion of the menstruum sufficient to cover it and macerate for 24 hours in a warm place, then transfer it to the water-bath percolator, add menstruum to cover it, heat moderately and, after one hour, begin to percolate, adding menstruum to the drug and continuing the percolation until 14 parts or 14 fl.ounces of the percolate is obtained.

These may be made by ordinary percolation, but the product is not so satisfactory. Some preparations are better made by maceration than percolation; such are designated with a *.

UNOFFICIAL TINCTURES—TWENTY PER CENT.

No.	Tincture Prepared From.	Part Used.	Menstruum.	Dose.
3589	Alkanet or Auchusa.....	Root.....	Alcohol.....	Coloring.
3590	Augustura.....	Bark.....	Diluted Alcohol.	1 to 3 fl.dr.
3591	Aralia Spinosa (Prickly Elder)	Bark.....	Diluted Alcohol.	10 to 60 m.
3592	Arbor Vita (Thuja).....	Fresh twigs..	Alcohol.....	1 to 4 fl.dr.
3593	Aspidosperma (Quebracho)..	Bark.....	Alcohol.....	1 to 2 fl.dr.
3594	*Balsam Peru.....	Balsam.....	Alcohol.....	5 to 30 m.
3595	Baptisia (Wild Indigo).....	Root.....	Alcohol.....	15 to 60 m.
3596	Blue Flag (Iris Versicolor)..	Root.....	Alcohol.....	5 to 15 m.
3597	Boldo.....	Leaves.....	Alcohol.....	5 to 40 m.
3598	Castor Oil Beans (Ricinus)...	Fruit.....	Alcohol.....	1 to 2 fl.dr.
3599	Contrainerva.....	Root.....	Alcohol.....	½ to 1 fl.dr.
3600	Corydalis (Turkey Corn)....	Tubers.....	Diluted Alcohol.	¼ to 2 fl.dr.
3601	Coto.....	Bark.....	Alcohol.....	15 to 75 m.
3602	Croton Seed.....	Fruit.....	Alcohol.....	5 to 15 m.
3603	Culver's Root (Leptandra)..	Root.....	Diluted Alcohol.	½ to 2 fl.dr.
3604	Elecampane.....	Root.....	Diluted Alcohol.	½ to 2 fl.dr.
3605	Erigeron (Fleabane).....	Plant.....	Diluted Alcohol.	1 to 2 fl.dr.
3606	Encalyptus.....	Leaves.....	Alcohol.....	1 to 2 fl.dr.
3607	Guaiacum Wood.....	Wood.....	Diluted Alcohol.	1 to 2 fl.dr.
3608	Kamala, Rottlera.....	Glands.....	Diluted Alcohol.	1 to 2 fl.dr.
3609	*Mastic.....	Resin.....	Alcohol.....	For cement.
3610	Matico.....	Leaves.....	Diluted Alcohol.	1 to 2 fl.dr.
3611	Orris (Iris Florentina).....	Rhizome....	Diluted Alcohol.	Perfume.
3612	Phytolacca or Poke.....	Berries or root	Diluted Alcohol.	20 to 60 m.
3613	*Red Gum.....	Gum.....	Alcohol.....	20 to 40 m.
3614	Rose (Red Rose).....	Petals.....	Diluted Alcohol.	Flavoring.
3615	Rosemary.....	Tops.....	Sp. of Rosemary	Flavoring.
3616	Saponaria or Quillaya.....	Bark.....	Diluted Alcohol.	Emulsions.
3617	*Scammony.....	Resin.....	Alcohol.....	½ to 1 fl.dr.
3618	Stillingia.....	Root.....	Diluted Alcohol.	10 to 40 m.

COMPOUND AND UNCLASSIFIED TINCTURES.

3619. Tincture Absinthium Compound—Swedish.—Blessed Thistle, Orange Berries, Galangal Root, each 1/2 ounce av.. Wormwood 1 ounce, diluted Alcohol sufficient to make 16 fl. ounces. Dose, 1 to 3 fl.drachms.

3621. Tincture of Aloes, Alkaline—Swedish.—Aloes 1/2 ounce, Liquorice Extract 1 1/2 drachms. Cinnamon Water 8 ounces, diluted Alcohol 8 fl.ounces, Carbonate of Sodium 1 ounce. Digest and strain. Dose, 1 to 4 fl.drachms.

3625. Tincture Antiscorbutic—(Paris Codex).—Fresh Horseradish Root 8 ounces, Black Mustard Seed 4 ounces. Muriate of Ammonia 2 ounces, diluted Alcohol 17 fl.ounces, Compound Syrup of Scurvygrass 18 fl.ounces. Macerate 10 days. Dose, 1 to 2 teaspoonfuls.

3626. Tincture Ants—*Tinctura Formicarum*.—This was formerly official in the Ph. G. and was prepared from ants recently collected, cleaned, and bruised, 2 parts or ounces, Alcohol 3 parts or ounces, by weight. Macerated 8 days.

3627. Tincture Astringent—*Dr. Copeland's*.—Catechu $\frac{1}{2}$ ounce, Myrrh $\frac{1}{2}$ ounce, Peruvian Bark $\frac{1}{4}$ ounce, Balsam Peru $1\frac{1}{2}$ drachm. Spirit of Horseradish $1\frac{1}{2}$ ounce. Alcohol 12 fl.ounces. Mix, digest, and, after standing, niter. This is used for spongy gums, etc.

3628. Tincture Bloodroot Acetous—*Tinctura Sanguinaria Acetata Composita*.—This is an Eclectic preparation, called also Acetous Emetic. Bloodroot, Lobelia, Skunk Cabbage Root, each 2 ounces, distilled Vinegar 2 pints. Alcohol 2 fl.ounces. Macerate and percolate the drugs with the Vinegar and add the Alcohol. In small doses it is an excellent expectorant; in doses of a teaspoonful it is an emetic. Repeat if necessary.

3629. Tincture Bloodroot Compound—*Tinctura Sanguinaria Composita*.—This is made the same as the above except that diluted Alcohol is used instead of Vinegar. The uses and dose are the same.

3630. Tincture Cactus—*Tincture of Night Blooming Cereus*.—The fresh flowers and stems of Cactus Grandiflora cut in small pieces and bruised, 5 ounces, Alcohol 1 pint. Macerate for two weeks with occasional agitation, then filter. A Saturated Tincture may be made by preparing the fresh flowers as directed and adding sufficient Alcohol to just cover them. This is usually sold as Fluid Extract of Cactus. The dose of the weaker Tincture is 5 to 10 drops for heart disease, etc.

3631. Tincture Caulophyllum Compound — *Blue Cohosh Compound*— Amer. Disp.—Blue Cohosh 2 ounces. Ergot 1 ounce, Water Pepper (Smart-weed) 1 ounce. Oil of Savin 30 minims, Alcohol sufficient to make 24 fl.ounces of Tincture. Macerate or percolate. This is an

Emmenagogue, given in doses of 15 drops to 1 fl.drachm.

3632. Tincture Cimicifuga Compound—Black Cohosh Compound—Amer. Disp.—This is prepared by mixing Tincture of Black Cohosh 4 parts, Tincture of Bloodroot 2 parts, and Tincture of Poke Root 1 part. It is used for Rheumatism, etc, the dose being 10 to 30 minims.

3633. Tincture Cockroaches—Tinctura Blattæ.—This is prepared from dried Cockroach, in No. 60 powder, 2 ounces av., Alcohol 10 fl.ounces, by maceration and percolation. The dose is 20 to 30 minims.

3636. Tincture Colchicum Seed Compound.—Colchicum Seed, in fine powder, 2 ounces. Black Cohosh, in fine powder, 3 ounces. Diluted Alcohol sufficient to make 2 pints, by maceration and percolation. The dose is 15 to 30 minims for rheumatism, etc.

3637. Tincture Corydalis Compound—Amer. Disp.—Turkey Corn, Yellow Dock, Tag Alder, Figwort, Mandrake, each 1 ounce, diluted Alcohol sufficient to make 22 fl.ounces. Make a Tincture by maceration and percolation and dissolve 4 ounces-of Sugar in the liquid. The dose is from 1 to 4 fl.drachms as an alterative. It is also called *Scudder's Alterative*.

3638. Tincture Curcuma or Turmeric.—Turmeric, in fine powder, 4 ounces, Alcohol sufficient to make a pint. Macerate and percolate. This is used for coloring alcoholic solutions yellow.

3639. Tincture Elaterium.—Elaterium 8 grains. Alcohol 8 fl.ounces. Triturate the Elaterium first with a small portion of the Alcohol, then add the remainder. The dose is $\frac{1}{2}$ to 2 fl.drachms as a hydrogogue cathartic.

3641. Tincture Hydrastis Compound—Amer. Disp.—Hydrastis, Lobelia Seed, each 2 ounces, diluted Alcohol sufficient to make 1 pint. This is used externally.

3644. Tincture Lobelia Compound—Antispasmodic Tincture.—Lobelia, Sanguinaria, Skunk Cabbage, Wild Ginger, Pleurisy Root, each $\frac{3}{4}$ ounce. Alcohol 10 fl.ounces. Water 5 fl.ounces. Make a Tincture by maceration and percolation. Dose, 15 to 150 minims.

3645. Tincture Lobelia, and Capsicum Compound — *Antispasmodic Tincture*—Amer. Disp.—Lobelia, Capsicum, Skunk Cabbage, each 1 ounce av., diluted Alcohol sufficient to make 1 pint. Make a Tincture by maceration and percolation. Dose, 30 to 60 minims.

3646. Tincture Myrrh and Capsicum—*Hot Drops—No. 6—Pain Killer*.— Capsicum $\frac{1}{2}$ ounce. Myrrh 1 ounce, Alcohol 1 pint. Mix, macerate in a warm place for a week or longer, and filter. Other additions are sometimes made to this and it is quite generally sold as Pain Killer. The dose is $\frac{1}{4}$ to 1 fl.drachm in sweetened water. This is also made with $\frac{1}{4}$ ounce of Capsicum in a pint, instead of $\frac{1}{2}$ ounce, as above.

3650. Tincture Rhubarb Compound — Amer. Disp.— Rhubarb 1 ounce, Bitter Root, Hydrastis, Gentian, Prickly Ash Berries, each $\frac{1}{2}$ ounce, Sassafras, Cardamom, each $\frac{1}{4}$, ounce, diluted Alcohol sufficient to make 20 fl.ounces. Make a Tincture by maceration and percolation. Dose, 2 to 4 fl.drachms.

3652. Warburg's Tincture— (Americanized).—Take of Socotrine Aloes 120 grains, Confection Rose, E. I. Rhubarb, Angelica Seed, each 30 grains, Elecampane Root, Saffron, Fennel Seed, Prepared Chalk, each 15 grains, Gentian Root, Zedoary Root, Cubebs, Myrrh, Camphor, each 8 grains. Sulphate of Quinine 75 grains, diluted Alcohol enough to make 1 pint. Powder the drugs and percolate all except the Confection Rose, Prepared Chalk and Quinine, with the diluted Alcohol until 1 pint is obtained. Rub the Quinine to a fine powder and then with the Confection Rose, triturate this in a mortar with the percolate obtained, and dissolve the Quinine in the mixture by gentle heat; cool, add the prepared chalk, allow to stand 24 hours, and filter. This has enjoyed a great reputation as a Fever Tincture, being given in doses of about 4 fl.drachms.

3653. Tincture White Pine.—White Pine Turpentine (gum) 2 ounces, Alcohol 14 fl.ounces. Cut the Turpentine into small pieces and dissolve it in the Alcohol by gentle heat of water-bath. This is used for making Syrup of White Pine and Syrup of White Pine Compound, used as cough remedies.

3654. Tincture Zedoary Compound.— Zedoary 4 ounces, Calamus, Galangal, each 2 ounces, Chamomile, Aniseed, Caraway, each 1 ounce. Bay Berries, Cloves, each $\frac{3}{4}$ ounce, Orange Peel, Mace, each $\frac{1}{2}$ ounce, Peppermint Water, Alcohol, each 24 fl.ounces. Macerate for two days, then percolate, adding diluted Alcohol sufficient to make 14 fl.ounces, and then add 4 ounces of Chloric Ether. This is employed as a warm carminative Tincture. Dose, 30 to 60 minims.

HOMOEOPATHIC TINCTURES.

The Tinctures of Homoeopathic Pharmacy are mostly supplied by Homoeopathic manufacturing pharmacists, but there is no reason why they should not be made by pharmacists the same as other Tinctures. As a great number are prepared from a great variety of substances it will be impracticable to give detailed formulas for each, but the general method and formulas for making the different classes and potencies are given. The original Tinctures are called *Mother Tinctures*; their dilutions or attenuations are called *Potencies*, and are known as first, second, third, etc., in the centesimal scale, or 1x, 2x, 3x, etc., in the decimal scale, as explained below.

3663. Class I. Tinctures.

Tinctures prepared with equal parts, by weight, of the juice of the plant and Alcohol, The freshly-gathered plant or part which is used is chopped and pounded to a pulp, which is enclosed in a piece of new linen and subjected to pressure. The expressed juice is then mixed, with brisk agitation, with an equal weight of Alcohol, the mixture allowed to stand eight days in a well-stopped bottle in a dark, cool place and then filtered. The drug power of Tinctures thus prepared is $\frac{1}{2}$.

Potentiation — *Centesimal Scale.*— The 1st potency is prepared by mixing 2 minims of the Tincture with 98 minims of diluted Alcohol. The 2d potency is prepared by adding 1 minim of the 1st potency to 99 minims of Alcohol. Each succeeding higher potency is prepared in the same manner as the 2d by adding 1 minim of the next lower to 99 minims of Alcohol.

Decimal Scale.—The first or 1x potency is prepared by adding 2 minims of the Tincture to 8 minims of diluted Alcohol. The second or 2x potency is prepared by mixing 1 minim of the 1x potency with 9 minims of diluted Alcohol.

The 3d or 3x potency is prepared by adding 1 minim of the 2x potency to 9 minims of diluted Alcohol, The higher potencies are prepared in a like manner from the next lower.

3664. Class II. Tinctures.

Tinctures expressed by the aid of 2 parts of Alcohol added to 3 parts of plant or the part of plant used.

The finely-chopped fresh plant or part which is used is weighed, and to every 3 parts 2 parts, by weight, of Alcohol are taken. The chopped plant is moistened with sufficient Alcohol to make it into a thick mass or pulp when well stirred together. The remainder of the Alcohol is then added and the whole mixed together and strained through a piece of new linen. The Tincture thus obtained is allowed to stand eight days, then filtered. The drug power of Tinctures thus prepared is $\frac{1}{2}$.

Potentiation.— As the drug power of Tinctures thus prepared is the same as Class I., their potencies are prepared in exactly the same manner as directed for preparing them.

3665. Class III. Tinctures.

Tinctures prepared with 2 parts, by weight, of Alcohol to 1 part of plant or part of plant used.

The fresh plant or part used is pounded to a fine pulp and weighed, then 2 parts, by weight, of Alcohol are taken; one sixth of it being first mixed with the pulp and then the remainder added, well stirred together and set aside in a cool, dark place for eight days. The Tincture is then decanted, strained and filtered.

The drug power of Tinctures thus prepared is $\frac{1}{4}$.

Potentiation— *Centesimal Scale*.—The 1st potency is prepared by mixing 6 minims of the Tincture with 94 minims of diluted Alcohol. The 2d potency is prepared by adding 1 minim of the 1st potency to 99 minims of Alcohol. Each successive higher potency is prepared in the same manner as the 2d, by adding 1 minim of the next lower to 99 minims of Alcohol.

Decimal Scale.—The first or 1x potency is prepared by adding 6 minims of the Tincture to 4 minims of diluted Alcohol. The second or 2x potency is prepared by adding 1 minim of the 1x potency to 9 minims of diluted Alcohol. The 3d or 3x potency is prepared by adding 1 minim of the 2x potency to 9 minims of diluted Alcohol. The higher potencies are prepared in a like manner from the next lower.

3666. Class IV. Tinctures.

Tinctures prepared with 5 parts, by weight, of Alcohol to 1 part of the dried and finely powdered substance, or fresh animal substances.

Weigh the substance and pour over it 5 parts, by weight, of Alcohol and let the mixture remain eight days or longer, at ordinary temperature, in a dark place, shaking it twice a day. then pour off, strain, and filter. (Fresh animal substances are pounded.)

The drug power of Tinctures thus prepared is $\frac{1}{10}$.

Potentiation — *Centesimal Scale*.— The 1st potency is prepared by adding 10 minims of the Tincture to 90 minims of Alcohol. The 2d potency is prepared by adding 1 minim of the 1st potency to 99 minims of Alcohol. Each successive higher potency is prepared in the same manner as the 2d, by adding 1 minim of the next lower to 99 minims of Alcohol.

Decimal Scale.— As the Tincture contains $\frac{1}{10}$ drug power, it corresponds to the first or 1x potency. The 2d or 2x potency is prepared by adding 1 minim of the 1x potency to 9 minims of Alcohol. The higher potencies are prepared in the same manner from the next lower.

HOMOEOPATHIC SOLUTIONS.

Although these are not properly classified under Tinctures, they most conveniently come in this connection and are therefore given here.

3667. Class V.—a. Aqueous Solutions.

One part, by weight, of the medicinal substance dissolved in 9 parts, by weight, of distilled Water.

Amount of drug power of Solution, $\frac{1}{10}$.

Potentiation—*Centesimal Scale*.—The 1st potency is made by adding 10 minims of the Solution to 90 minims of distilled Water. The 2d potency is prepared by adding 1 minim of the 1st potency to 99 minims of Alcohol. The higher potencies are prepared in a like manner from the next lower.

Decimal Scale.—The original Solution contains $\frac{1}{10}$ drug power and is, therefore, the first or 1x potency. The second or 2x potency is prepared by adding 1 minim of the Solution to 9 minims of distilled Water. The third or 3x potency is prepared by adding 1 minim of the 2x potency to 9 minims of diluted Alcohol. Higher potencies are prepared from the next lower in the same manner by adding 1 minim to 9 minims of Alcohol.

3668. Class V.—B Aqueous Solutions.

One part, by weight, of the medicinal substance is dissolved in 99 parts, by weight, of distilled Water.

The amount of drug power of the Solution is $\frac{1}{100}$.

Potentiation — *Centesimal Scale*.— As the drug power of the Solution is $\frac{1}{100}$ - it corresponds to the 1st potency. The 2d potency is prepared by adding 1 minim of the original Solution to 99 minims diluted Alcohol. The higher potencies are prepared from the next lower by adding 1 minim to 99 minims of Alcohol.

Decimal Scale.—As the Solution contains $\frac{1}{100}$ drug power it corresponds to the second or 2x potency. The third or 3x potency is prepared by adding 1 minim of the Solution to 9 minims of dilute Alcohol. The fourth or 4x potency is prepared by adding 1 minim of the 3x potency to 9 minims of Alcohol. Higher potencies are prepared in a like manner from the next lower.

3669. Class VI.—a. Alcoholic Solutions.

One part, by weight, of the medicinal substance is dissolved in 9 parts, by weight, of Alcohol.

The amount of drug power of the Solution is $\frac{1}{10}$.

Potentiation.—The potencies are prepared in the same manner as those of the Aqueous Solutions, *a*, using Alcohol as the diluent.

3670. Class VI.—*β* Alcoholic Solutions.

One part, by weight, of the medicinal substance is dissolved in 99 parts, by weight, of Alcohol.

Potentiation.—The potencies are prepared in the same manner as those of the Aqueous Solutions, *β*, using Alcohol as the diluent.

For the remaining classes of Homoeopathic preparations, see Triturations.

TISANES.

In French Pharmacy, Tisanes are slightly medicated infusions of some aromatic substance combined with barley, rice, or tamarind water, or other mucilaginous vehicle, the dose being a wineglassful or more every half hour until the medicinal effect is obtained. They are not used to any extent in this country.

TRITURATIONES—TRITURATIONS.

Triturations are a class of preparations newly introduced into the Pharmacopoeia, which consist of some active medicinal agent, reduced by rubbing intimately in a mortar with nine times its weight of Sugar of Milk or some other inert diluent. But one formula, besides the general formula, for making them is given; any substance, however, may be made up in the form of a trituration if desired, and, indeed, this is a very good way to exhibit medicines of which a very small dose only is required, as the medicinal agent is finely divided and the dose can be properly regulated. The following is the U. S. P. 1880:

3671. **General Formula for Triturations.**

The Substance,	10 parts.
Sugar of Milk, in moderately fine powder,	90 parts.
To make	100 parts.

Weigh the Substance and Sugar of Milk separately, then place the Substance, previously reduced, if necessary, to a moderately fine powder, in a mortar, add about an equal bulk of Sugar of Milk, mix well by means of a spatula and triturate them thoroughly together. Add fresh portions of the Sugar of Milk, from time to time, until the whole is added, and continue the trituration until the substance is intimately mixed with the Sugar of Milk and finely comminuted.

3672. **Trituratio Elaterini.**

Trituration of Elaterin.

Elaterin,	10 parts or grains.
Sugar of Milk, in moderately fine powder,	90 parts or grains.
To make	100 parts or grains.

Mix them thoroughly by trituration.

This serves as a sample formula, the only one that is given as officinal in the U. S. P. Others may be made in the same manner.

HOMOEOPATHIC TRITURATIONS.

In Homoeopathic Pharmacy Triturations are extensively used, but their strength does not at all correspond with those of Regular Pharmacy. Aside from the particular directions for manipulating, which amount only to insure that the substances shall be thoroughly triturated together, the directions for making are as follows:

Triturations on the Centesimal Scale.

This scale was introduced by Hahnemann and is still employed for making the higher potencies, the lower being generally made by the Decimal Scale.

3673. Class VII.—Trituration of Dry Medicinal Substances.

First Trituration.— Take 1 grain of the medicinal substance and 99 grains or parts of Sugar of Milk, add the medicinal substance to about one third of the Sugar of Milk in an unglazed porcelain mortar and triturate them thoroughly together for six minutes, then scrape the Trituration from the sides to the centre of the mortar with a porcelain spatula and stir it thoroughly with the same for four minutes, and again triturate for six minutes as before. To this powder again scraped up for four minutes, now add the second third of the quantity of Sugar of Milk, triturate and scrape up as before twice successively, then add the remainder of the Sugar of Milk and combine it with the powder in the mortar by trituration and scraping up as previously directed.

This is the first or standard Trituration, containing 1 per cent. of the medicinal substance. It is also known as the *First Centesimal Trituration*.

Second Trituration.— Take 1 grain or part of the first Trituration and 99 grains or parts of Sugar of Milk and prepare by triturating portions of the Sugar of Milk successively, added with the first Trituration in the same manner as directed for making the first Trituration. This contains 1 part of the medicinal substance in 10,000, and is called the *Second Centesimal Trituration*.

Third Trituration.— Take 1 grain or part of the second Trituration and

99 grains or parts of Sugar of Milk and prepare a Trituration in the same manner as previously directed. This contains 1 part of the medicinal substance in 1,000,000 parts of the Trituration and is called the *Third Centesimal Trituration*.

Liquid Potencies.—The third Trituration may be converted into Liquid Potencies by dissolving in Alcohol and Water, in the following manner: One grain or part of the Third Centesimal Trituration is added to 50 minims or parts of distilled Water and agitated, then, when dissolved, 50 minims or parts of Alcohol are added, and the stoppered vial, only two thirds full, is shaken ten times. This is the *Fourth Potency*.

One minim of this liquid (the Fourth Potency) is added to 99 minims of Alcohol and the vial shaken ten times to make the *Fifth Potency*, and so on, the theory being that the higher the potency used the more effective the medicine. Attenuations above the thirteenth are termed *High Potencies*.

Triturations on the Decimal Scale.

This scale was introduced by Dr. Hering, and is used for the lower potencies.

First Decimal Trituration.— Take 10 parts or grains of the medicinal substance and 90 parts or grains of Sugar of Milk, and prepare a Trituration in the same manner as is directed for making the Centesimal Trituration.

The Second Decimal Trituration is prepared by taking 10 parts of the first with 90 parts of Sugar of Milk.

The Third, by taking 10 parts of the second with 90 parts of Sugar of milk, etc., each higher Trituration representing 10 parts of the next below it.

Liquid Potencies.—The Sixth Decimal (6x) Trituration is converted into Liquid Potencies by adding 1 grain or part to 50 minims or parts of distilled Water, then, when dissolved, adding 50 minims or parts of Alcohol. This is called the Eighth Potency (8x). One drop of this with 9 of diluted Alcohol gives the Ninth Potency (9x). Higher potencies in this scale are made in the same manner by adding 1 drop of the next lower

to 9 of diluted Alcohol. Do not forget that the mixture must be shaken ten times by ten powerful downward strokes of the arm.

3674. Class VIII.—Trituration of Liquid Substances.

These are prepared according to the *Centesimal Scale* by triturating 1 minim or part of the liquid with 99 grains or parts of Sugar of Milk for the *first*, 1 part of the first with 99 of Sugar of Milk for the *second*, and so on.

By the *Decimal Scale* 1 part of the liquid is triturated with 9 parts of Sugar of Milk for the first, 1 part of the first with 9 parts of Sugar of Milk for the *second*, and so on.

These are converted into *Liquid Potencies* in the same manner as has already been described.

3675. Class IX.—Trituration of Fresh Vegetable and Animal Substances.

Fresh vegetable or animal substances are first pounded or crated to a fine pulp, then triturated and potentized as directed in the foregoing classes.

To make the 1st Trituration of the Centesimal Scale 2 parts, by weight, of the substance are triturated with 99 parts, by weight of Sugar of Milk. (Two parts are taken because of loss of weight of the fresh substance by exposure during the trituration.)

The 2d Trituration is made with 1 part of the first and 99 parts of Sugar of Milk, as heretofore described.

These are converted into *Liquid Potencies* as before described.

Medicated Globules or Pellets.

These are prepared by saturating the pellets, globules, or discs with alcoholic solution of whatever potency may be desired, then draining off the superfluous fluid and allowing to dry. These globules or pellets are of different sizes, and are known as No. 8, 10, 15, 20, 25, 30, 40, 50, 60, 70, and 80, according to their size — No. 8 being the smallest, and No.

80 being the largest; the most commonly used being from No. 20 to No. 40.

TROCHISCI—TROCHES.

Troches or Lozenges are flat or slightly convex bodies, made up in various shapes, usually containing some medicinal agent mixed with sugar and gum or other adhesive substance and intended to dissolve slowly in the mouth and by their solution apply the medicinal agent to the internal surface of the throat and surrounding organs.

Like sugar-coated pills, they are now seldom prepared by druggists, manufacturers having mostly monopolized the business and driven the officinal Troches out of use, by introducing more elegant or convenient preparation.

Many of the medicinal agents that are introduced in the form of Troches in the Pharmacopoeia formulae seem inappropriate to be exhibited in this form. It would seem natural that only such remedies should be used in Troches as, by their slow solution, would act locally upon the mucous membrane of the parts with which they come in contact—the throat, larynx, etc.

To make Troches, a board about 5x10 inches, with a rim projecting above its surface about $\frac{1}{8}$ of an inch, and a cylindrical rolling-pin, should be provided. The ingredients are then to be mixed into a stiff mass or dough, the board dusted with a mixture of powdered sugar and starch, and the mass rolled out between the projecting lateral edges of the board, filling it entirely from the end out, as far as it will. It is then to be divided with a knife or spatula into the required number of Troches, and dried by gentle heat. Lozenge cutters that make about 12-grains Troches may be obtained of jobbers or dealers in pharmaceutical apparatus, but they cut only a definite size, not adapting themselves to the specific quantity of the medicinal agent directed in the formula.

The following formula for Troches represent those now official in the leading pharmacopoeias. Others can be made as desired in the same general manner. The solid ingredients to be incorporated are all to be in fine powder. Many of them are called Tablets by manufacturers:

3676. Trochisci Acidi Benzoici.

Benzoic Acid Lozenges.

Benzoic Acid,	360 grains.
Refined Sugar, in powder,	25 ounces av.
Gum Acacia, in powder,	1 ounce av.
Mucilage of Gum Acacia,	2 fl.ounces.
Distilled Water, a sufficiency.	

Mix the Benzoic Acid, Sugar and Gum, add the Mucilage and Water to form a proper mass. Divide into 720 Lozenges and dry in a hot-air chamber at a moderate temperature.

Each Lozenge contains half a grain of Benzoic Acid. Br.

3677. Trochisci Acidi Tannici.

Troches of Tannic Acid.

Tannic Acid,	100 grains or 6.50 grammes.
Sugar, in fine powder,	1000 grains or 65.00 grammes.
Tragacanth, in fine powder,	25 grains or 1.60 grammes.
Orange Flower Water, sufficient to make	100 troches.

Rub the powders together until they are thoroughly mixed, then, with Orange Flower Water, form a mass, to be divided into 100 Troches. U. S.

The Br. P. makes these only $\frac{1}{2}$ grain Tannin in each.

3680. Trochisci Catechu.

Troches of Catechu.

Catechu, in fine powder,	100 grains or 6.50 grammes.
Sugar, in fine powder,	1000 grains or 65.00 grammes.
Tragacanth, in fine powder,	25 grains or 1.60 grammes.
Orange Flower Water, sufficient to make	100 troches.

Rub the powders together until they are thoroughly mixed, then, with Orange Flower Water, form a mass, to be divided into 100 Troches.

The Br. P. directs the same quantity of Catechu.

3681. Trochisci Cretae.

Troches of Chalk.

Prepared Chalk,	400 grains or 26.00 grammes.
Acacia, in fine powder,	100 grains or 6.50 grammes.
Nutmeg, in fine powder,	15 grains or 1.00 gramme.
Sugar, in fine powder,	600 grains or 39.00 grammes.

Rub them together until they are thoroughly mixed, then with Water, form a mass, to be divided into 100 Troches. U. S.

3682. Trochisci Cubebae.

Troches of Cubeb.

Oleoresin of Cubeb,	50 grains or 3.25 grammes.
Oil of Sassafras,	15 grains or 1.00 gramme.
Extract of Liquorice, in fine powder,	400 grains or 26.00 grammes.
Acacia, in fine powder,	200 grains or 13.00 grammes.
Syrup of Tolu, sufficient to make	100 Troches.

Rub the powders together until they are thoroughly mixed, then add the Oleoresin and Oil and incorporate them with the mixture. Lastly, with Syrup of Tolu, form a mass, to be divided into 100 Troches. U. S.

3686. Trochisci Ipecacuanhae.

Troches of Ipecac.

Ipecac, in fine powder,	25 grains or 1.60 grammes.
Tragacanth, in fine powder,	25 grains or 1.60 grammes.
Sugar, in fine powder,	1000 grains or 65.00 grammes.
Syrup of Orange, sufficient to make	100 troches.

Rub the powders together until they are thoroughly mixed, then, with Syrup of Orange, form a mass, to be divided into 100 Troches. U. S.

The 1870 formula directed about 25 per cent. of Arrow Root; its place is supplied in the present formula with Sugar.

The Br. P. directs the same quantity of Ipecac in each.

3687. Trochisci Krameriae.

Troches of Krameria (Rhatany).

Extract of Krameria,	100 grains or 6.50 grammes.
Sugar, in fine powder,	1000 grains or 65.00 grammes.
Tragacanth, in fine powder,	25 grains or 1.60 grammes.
Orange Flower Water,	
sufficient to make	100 troches.

Rub the powders together until they are thoroughly mixed, then, with Orange Flower Water, form a mass, to be divided into 100 Troches. U. S.

3689. Trochisci Menthae Piperitae.

Troches of Peppermint.

Oil of Peppermint,	15 grains or 1.00 gramme.
Sugar, in fine powder,	1200 grains or 78.00 grammes.
Mucilage of Tragacanth,	
sufficient to make	100 troches.

Rub the Oil of Peppermint and Sugar together until they are thoroughly mixed, then, with Mucilage of Tragacanth, form a mass, to be divided into 100 Troches. U. S.

3697. Trochisci Zingiberis.

Troches of Ginger.

Tincture of Ginger,	200 grains or 13.00 grammes.
Tragacanth, in fine powder,	50 grains or 3.25 grammes.
Sugar, in fine powder,	2000 grains or 130.00 grammes.

manufacturers, and it is advisable that druggists should use, in making their Ointments, the color that will best correspond with the color of the Ointments as they have been formerly made—for instance, simple Ointment that has been made with lard and yellow wax, and dark colored Ointments generally, may be made with yellow Petrolatum, while those that have been made with Lard or Benzoinated Lard, if they are white or light colored when finished, should be made with white Petrolatum.

Lanoleum or Wool-fat is also recommended and used as an Ointment base, it being more readily absorbed than any other known solid fatty matter.

The following are the Ointments official in the leading pharmacopoeias, and also the same made, when practicable, with Petrolatum as a base :

3700. Unguentum.

Ointment — Simple Ointment.

Lard,	8 parts or 8 ounces.
Yellow Wax,	2 parts or 2 ounces.

Melt the Wax and add the Lard gradually, then stir the mixture constantly until cool. U. S. 1880.

The Br. P., under the title *Unguentum Simplex*, directs White Wax 2 ounces or 2 parts, Benzoinated Lard 3 ounces or 3 parts, Almond Oil 3 fl.ounces or 3 fl.parts. Melt the Wax and Lard in the Oil on a water-bath, then remove the mixture and stir constantly while it cools. This has the advantage of keeping much better than the U. S. Ointment.

3709. Unguentum Aquae Rosae.

Ointment of Rose Water—Cold Cream.

Expressed Oil of Almond,	50 parts or 5 ounces av.
Spermaceti,	10 parts or 1 ounce av.
White Wax,	10 parts or 1 ounce av.
Rose Water,	30 parts or 3 ounces av.

Melt together at a moderate heat the Oil, Spermaceti, and Wax, then gradually add the Rose Water, stirring the mixture briskly and constantly until it is cool, and continue the stirring until it has become uniformly soft and creamy. U. S. 1880.

3721. Unguentum Elemi. Br.

Ointment of Elemi.

Elemi,	1/4 ounce or 1 part.
Simple Ointment,	1 ounce or 4 parts.

Melt, strain through flannel, and stir constantly until the Ointment solidifies.

3722. Unguentum Eucalypti. Br.

Oil of Eucalyptus, by weight,	1 ounce or 1 part.
Soft Paraffin (Petrolatum),	
Hard Paraffin (Paraffin Wax)	
of each,	2 ounces or 2 parts.

Melt the Paraffins together, add the Oil, and stir until cold.

3723. Unguentum Gallae.

Ointment of Nutgall.

Nutmall, in No. 80 powder,	10 parts or 48 grains.
Benzoinated Lard,	90 parts or 432 grains.

Rub the Nutgall with the Benzoinated Lard gradually added, until they are thoroughly mixed. U. S. 1880.

The Br. P. formula is Galls, in fine powder, 80 grains, Benzoinated Lard 1 ounce. Mix thoroughly.

3725. Unguentum Glycerini. G. P.

Glycerin Ointment.

This can hardly be called an Ointment as it contains no fatty bodies, but it is used for similar purposes as Ointments.

Tragacanth, powdered,	1 part.
Alcohol,	5 parts.
Glycerin,	50 parts.

Rub the Alcohol and Tragacanth together, add the Glycerin and heat the mixture on a steam-bath to form a white translucent Ointment of uniform consistence.

This is quite similar to the *Glycerinum Tragacanthae* (1757) of the Br. P.

3738. Unguentum Mezerei.

Mezereum Ointment.

Fluid Extract of Mezereum,	25 parts or 1 fl.ounce.
Lard,	80 parts or 3 ³ / ₄ ounces av.
Yellow Wax,	12 parts or 1/2 ounce av.

Melt together the Lard and the Wax with a moderate heat, add the Fluid Extract and stir the mixture constantly until the Alcohol has evaporated, then continue to stir until cool. U. S. 1880.

MADE WITH PETROLATUM.

Fluid Extract of Mezereum,	1 fl.ounce.
Petrolatum,	3 ¹ / ₂ ounces av.
Yellow Wax,	1/2 ounce av.

Melt the Petrolatum and Yellow Wax together, add the Fluid Extract and stir the mixture constantly until the Alcohol has evaporated, then continue to stir until cool.

3740. Unguentum Picis Liquidae.

Tar Ointment.

The U. S. P. formula for this Ointment is :

Tar,
Suet, each, equal parts.

Mix the Tar with the Suet, previously melted with a moderate heat, and, having strained the mixture through muslin, stir it constantly until cool.

This Ointment is not improved by using Petrolatum, but if it is used, one half as much Yellow Wax as is taken of Petrolatum should be used to give it the proper consistence.

The Br. P. formula is Tar 5 ounces, Yellow Wax 2 ounces. The Wax is melted and the Tar added, the mixture being stirred until cool.

3748. Unguentum Resinae.

Ointment of Resin—Basilicon Ointment.

The Br. P. formula is:

Resin, in coarse powder,	8 ounces av.
Yellow Wax,	4 ounces av.
Simple Ointment,	16 ounces av.
Almond Oil,	2 fl.ounces.

Melt at a low temperature, strain the mixture while hot through flannel and stir constantly while it cools.

The G. P. formula is common Olive Oil 45 parts, Yellow Wax, Resin, Mutton Suet, each 15 parts, common Turpentine (gum) 10 parts. Melt them together, strain, etc. This is similar to the U. S. Compound Resin Cerate.

3749. Unguentum Rosmarini Compositum. G. P.

Rosemary Ointment — Nervensalbe.

Lard 16 parts, Mutton Suet 8 parts, Yellow Wax 2 parts, expressed Oil of Nutmeg 2 parts. Mix them together and add to the finished Ointment,

Oil of Rosemary 1 part, Oil of Juniper Berries 1 part.

3750. Unguentum Sabinae.

Savin Ointment.

The Br. P. directs this to be prepared from fresh Savin Tops 8 ounces, Yellow Wax 8 ounces, Benzoated Lard 16 ounces, by melting the Lard and Wax together on a water-bath and digesting for 24 hours with the Savin, then removing the heat and expressing the Ointment through calico.

The G. P. directs Extract of Savin 1 part, with Wax Ointment 9 parts, melted together and mixed while cooling to form an Ointment.

3751. Unguentum Staphisagrias. Br.

Ointment of Staphesacre.

Staphesacre Seeds, 4 ounces or 1 part.
Benzoated Lard, 8 ounces or 2 parts.

Crush the Seeds and macerate them in the Lard, kept melted over a water-bath for two hours, strain through calico and set aside to cool. This contains about 10 per cent. of Oil obtained from the Seed.

3752. Unguentum Stramonii.

Stramonium Ointment.

Extract of Stramonium, 10 parts or 51 grains.
Water, 5 parts or 25 minims.
Benzoinated Lard, 85 parts or 433 grains.

Rub the Extract with the Water until uniformly soft, then gradually add the Lard or Benzoinated Lard, and mix them thoroughly. U. S. 1880.

This may be made with Benzoinated Petrolatum instead of Lard.

3756. Unguentum Tabaci.

Ointment of Tobacco.

Tobacco, in fine powder, 1/2 ounce.
Lard. 8 ounces.
Water, a sufficient quantity.

Moisten the Tobacco with a little Water, introduce it into a conical glass percolator, and, having pressed it firmly, pour Water upon it until 4 fl.ounces of liquid have passed. Evaporate this liquid to the consistence of a soft extract, and mix it thoroughly with the Lard. U. S. 1870.

This may be made with Petrolatum instead of Lard.

3757. Unguentum Terebinthinae.

Turpentine Ointment.

The Br. P. formula is Oil of Turpentine 1 fl.ounce, Resin, in coarse powder, 54 grains, Yellow Wax 1/2 ounce av., Prepared Lard 1/2 ounce av. Melt the solid ingredients together and, while cooling, add the Oil and stir.

The G. P. formula is Common Turpentine (gum). Yellow Wax, Oil of Turpentine, each equal parts by weight.

This is used as a stimulating Ointment for sores, ulcers, etc. The Br. preparation has less consistence than the German, and may be used when a very soft Ointment is desired, but the German is generally preferred.

3758. Unguentum Veratrinae.

Veratrine Ointment.

Veratrine, 4 parts or 20 grains.
Alcohol, 6 parts or 35 minims.
Benzoinated Lard, 96 parts or 480 grains.

Rub the Veratrine with the Alcohol in a warm mortar until dissolved, then gradually add the Benzoinated Lard and mix thoroughly. U. S. 1880.

MADE WITH PETROLATUM.

Veratrine,	20 grains.
Alcohol,	35 minims,
Benzoinated Petrolatum,	480 grains.

Rub the Veratrine with the Alcohol in a warm mortar until dissolved, then gradually add the Benzoinated Petrolatum and mix thoroughly.

The Br. P. formula is Veratrine 8 grains, Hard Paraffin (Paraffin Wax) $\frac{1}{4}$ ounce av., Soft Paraffin (Petrolatum) $\frac{3}{4}$ ounce av., Olive Oil 1 fl.drachm. Rub the Veratrine and Oil together and incorporate with the melted Paraffins.

Unofficial Ointments.

The foregoing official Ointments include the greater share that are used to any extent in dispensing pharmacy, but many others are or have been used and are now occasionally called for. It would be impracticable to give detailed formulas for all of them, as the list of official Ointments is already sufficient for the general uses of pharmacy and medicine, so only the more important ones, for which there is some demand, are mentioned and classified, showing their composition. They can be made in the same general way as is directed for similar official Ointments. Solid drugs generally should be reduced to fine powder. Alkaloids should be rubbed with a few drops of Alcohol. Extracts should be slightly softened with Alcohol or Water. Ointment made with Lard or with Petrolatum may be used as a base, the latter being generally preferable. Lard or Petrolatum alone are sometimes used when softer Ointments are desired. The following list shows the composition of the more important Unofficial Ointments:

SIMPLE UNOFFICIAL OINTMENTS.

No.	Ointment of	Composed of
3761	Alum	Alum 40 grains, Ointment 1 ounce.
3762	Ammonium Carb.....	Carbonate Ammonium 1 drachm, Ointment 9 drachms.
3763	Arsenical (Mild)	Arsenic 3 grains, Ointment 1 ounce.
3764	Arsenical (Hospital)...	Arsenic 15 grains, Ointment 1 ounce.
3765	Arsenical (Cancer)....	Arsenic 40 grains, Ointment 1 ounce.
3766	Arsenate of Iron.....	Arsenate of Iron 20 grains, Ointment 1 ounce.
3767	Arsenate of Sodium...	Arsenate of Sodium 30 grains, Ointment 1 ounce.
3768	Balsam Peru	Balsam Peru 1 drachm, Ointment 1 ounce.
3769	Balsams, other	The required Balsam 1 drachm, Ointment 1 ounce.
3770	Bromide Salts	The Bromide Salt 30 grains, Ointment 1 ounce.
3771	Bromine	Bromide Potassium 20 grs., Bromine 10 m., Ointment 1 oz.
3772	Brown (Ungt. Fuscum).	Nitric Oxide of Mercury 30 grains, Resin Ointment 1 oz.
3773	Cadmium Salts.....	The Cadmium Salt 1 drachm, Ointment 1 ounce.
3774	Caffeine.....	Caffeine 5 grains, Ointment 1 ounce.
3775	Camphor.....	Camphor 1 to 2 drachms, Ointment 1 ounce.
3776	Cantharidine.....	Cantharidine 1 grain, Ointment 1 ounce.
3777	Capsicum	Oleo-resin Capsicum 5 grains, Ointment 1 ounce.
3778	Catechu.....	Catechu 30 grains, Ointment 1 ounce.
3779	Chalk.....	Prepared Chalk ¼ ounce, Petrolatum 1 ounce.
3780	Chamomile.....	Chamomile Extract 1 drachm, Ointment 1 ounce.
3781	Charcoal.....	Charcoal 1 part, Resin Ointment 3 parts.
3782	Cherry Laurel.....	Cherry Laurel Oil 1 drachm, Ointment 9 drachms.
3783	Chloral Hydrate.....	Chloral Hydrate 1 drachm, Ointment 9 drachms.
3784	Chloride of Lead.....	Chloride of Lead 1 drachm, Ointment 9 drachms.
3785	Chlorine	Chlorine Water 1 part, Lard 9 parts.
3786	Chloroform	Chloroform 1 drachm, Ointment 9 drachms.
3787	Cocculus Indicus	Cocculus Indicus 2 drachms, Lard 8 drachms.
3788	Cod Liver Oil.....	Cod Liver Oil 7 parts, White Wax and Cetaceum each 1 pt.
3789	Colocynth.....	Colocynth Pulp 1 part, Lard 8 parts.
3790	Corrosive Sublimate...	Corrosive Sublimate 5 grains, Spermaceti Oint. 1 ounce.
3791	Croton Oil.....	Croton Oil 20 minims, Lard 1 ounce.
3792	Cyanide of Mercury ...	Mercury Cyanide 10 grains, Lard 1 ounce.
3793	Cyanide of Potassium .	Cyanide of Potassium 5 grains, Cold Cream 1 ounce.
3794	Elder Flower.....	Elder Flowers and Lard, equal parts, boiled together.
3795	Elder Leaf, green.....	Elder Leaves 3 pts., Lard 3 pts., Suet 3 pts., boiled together.
3796	Emetina	Emetina 30 grains, Alcohol q. s., Lard 1 ounce.
3797	Euphorbium	Euphorbium 30 grains, Lard 1 ounce.
3798	Foxglove.....	Digitalis, fresh leaves, Lard, each equal pts., boiled together.
3799	Garlic.....	Garlic, fresh bruised 2 pts., Lard 3 pts., simmered together.
3800	Gold (Pomade d'Or)...	Gold Leaf 12 grains, rubbed with Ointment 1 ounce.
3801	Gold Chloride.....	Chloride of Gold 12 grains, Ointment 1 ounce.
3802	Hellebore	White Hellebore 2 drachms, Petrolatum 1 ounce.
3803	Hemlock (Conium) ...	Conium Extract 1 drachm, Ointment 9 drachms.
3804	Hops	Hops, fresh, 1 part, Lard 5 parts, simmered together.
3805	Iodide of Sulphur....	Sulphur Iodide 30 grains, Petrolatum 1 ounce.
3806	Laurel.....	Laurel Oil, expressed, 2 ozs., Suet 1 oz., Oil Turp. 1½ dr.
3807	Lupuline.....	Lupulin 1 part, Lard 3 parts, digest by heat.
3808	Naphthalin.....	Naphthalin ½ ounce, Petrolatum 8 ounces.
3809	Picrotoxin.....	Picrotoxin 10 grains, Petrolatum 1 ounce.
3810	Pitch (Black Basilicon).	Pitch, Resin, Beeswax, each 1 ounce, Olive Oil 2 ounces.
3811	Poplar Buds.....	Poplar Buds, fresh, 1 part, Lard 4 parts, digest with heat.
3812	Quinine.....	Sulphate of Quinine 2 drachms, Lard 6 drachms.
3813	Scrofularia.....	Figwort Leaves, fresh, Lard, each 2 parts, Suet 1 pt., boil.
3814	Squill	Squill, in fine powder, 1 part, Mercurial Ointment 2 parts.
3815	Strychnine	Strychnine 16 grains, Lard or Petrolatum 1 ounce.
3816	Sulphate of Zinc.....	Sulphate of Zinc, fine powder, 1 drachm, Lard 1 ounce.
3817	Verdigris.....	Verdigris 30 grains, Resin Ointment 1 ounce.
3818	Wood Soot.....	Wood Soot and Lard, mixed, equal parts.

Compound Unofficial Ointments.

Of the great number of Compound Ointments that are known but few, except those official in the leading pharmacopoeias (and already given), are of sufficient interest to require notice. Others will be found among The Standard Remedies.

3822. Aromatic Ointment.—Yellow Wax, Oil of Laurel, expressed, each 1 ounce, Simple Ointment 13 ounces. Melt them together and add, when nearly cool, Oil of Juniper, Peppermint, Lavender, and Rosemary, each 40 minims.

3823. Astringent Ointment.— The official Ointment of Galls and the Lead Ointments are often used as Astringent Ointments. The following is also used: Powdered Catechu 90 grains, softened with boiling Water 2 drachms, and mixed with Spermaceti Ointment or Simple Ointment, melted until it forms a mass. Or, from Alum 1 ounce, Catechu 3 ounces, both in very fine powder, added to Olive Oil 10 ounces, in which Yellow Resin 4 ounces is melted, and stirred until cool.

3824. Egg Ointment.—Oil of Almonds 1½ ounce. Beeswax ½ ounce. Melt them together and, when cool but still fluid, add the Yolk of 1 Egg and 30 drops of Balsam of Peru and beat them thoroughly together.

3826. Juniper Tar Ointment.— Lard and Suet, each 6 parts. Beeswax 4 parts. Melt them together and, while cooling, add Oil of Juniper Tar (Oil of Cade) 16 parts, Oil of Lavender 1 part.

3827. Labdanum Ointment.— Labdanum 6 drachms. Petrolatum 2 ounces, Oil of Mace 1 drachm, Oil of Wormwood 10 drops, Balsam Peru 2 drachms. Make an Ointment.

3829. Ointment Nervine—*Nervine Balsam.*—Expressed Oil of Mace, Ox Marrow, each 4 ounces. Melt by gentle heat and add Oil of Rosemary 2 drachms, Oil of Cloves 1 drachm, Camphor 1 drachm. Balsam Tolu 2 drachms (the last two dissolved in Alcohol 4 drachms).

3831. Stramonium Ointment Compound—(Beach's).— Bittersweet, bark of root, Stramonium Leaves, Cicuta Leaves, Deadly Nightshade, Yellow Dock Root, each 2 ounces, Lard 1 pound, Venice Turpentine 2 ounces. Bruise the roots and leaves, cover them with Alcohol and digest

with a moderate heat for four hours, then add the Lard and continue the heat until the leaves are crisped. Lastly, strain and express through linen, add the Turpentine and stir constantly until cold.

VINA—WINES.

As considered in Pharmacy, Wines are liquid medicinal preparations in which Wine is chiefly used as the menstruum or vehicle for holding the medicinal principles in solution. They are similar to, but generally weaker than, Tinctures.

The basis of the Medicinal Wines is the fermented juice of different varieties of grapes—the light colored varieties being known in U. S. Pharmacy as *Vinum Album* or White Wine, and the dark varieties being known as *Vinum Rubrum* or Red Wine. In other pharmacopoeias specific varieties of Wines are directed, as *Vinum Xericum*, Sherry Wine, *Vinum Oporto* or Port Wine, etc.

As found in the market, Wines possess scarcely sufficient alcoholic strength for the solution and preservation of most medicinal substances. The U. S. Pharmacopoeia therefore directs that they shall be fortified with Alcohol sufficient to make up for this deficiency, as instanced in *Vinum Album Fortius*.

The following are the official Wines of the leading pharmacopoeias :

3846. Vinum Album.

This is described in the U. S. P. as a pale amber-colored or straw-colored alcoholic liquid, made by fermenting the unmodified juice of the grape, freed from seeds, stems, and skins. It should not contain less than 10 nor more than 12 per cent., by weight, of Absolute Alcohol.

3847. Vinum Album Fortius.

Stronger White Wine.

White Wine,	7 parts or 55 fl.ounces.
Alcohol,	1 part or 9 ¹ / ₂ fl.ounces.

Mix them. When tested for Alcohol, as described under White Wine, Stronger White Wine should contain not less than 20 per cent. nor more than 25 percent, of Absolute Alcohol, by weight. U. S. 1880.

The object of adding Alcohol is to have a Wine for pharmaceutical purposes that will contain a definite and sufficient quantity of Alcohol to dissolve and preserve medicinal agents with which it is combined. This preparation is used as the base of all the medicinal Wines of the U. S. 1880 Pharmacopoeia, in place of "Sherry Wine," which was directed in all the formulas of the 1870 revision. While this change is no doubt beneficial in a general sense, the present preparations will not necessarily correspond in flavor nor appearance with those that have been formerly prepared for any Wine, except a Red Wine may be used.

3848. Vinum Aloes.

Wine of Aloes. Purified Aloes, 6 parts or 1 ounce av.
Cardamom, 1 part or 73 grains.
Ginger, 1 part or 73 grains.
Stronger White Wine, sufficient to make a pint.

Mix the Aloes, Cardamom, and Ginger and reduce them to a moderately coarse powder, macerate the powder with 13 ounces of the Wine for seven days, with occasional agitation, and filter through paper, adding through the filter enough Wine to make a pint of the finished liquid. U. S. 1880.

The Br. formula is Socotrine Aloes 1 $\frac{1}{2}$ ounce av., Cardamom Seeds, bruised, 80 grains, Ginger, in coarse powder, 80 grains, Sherry 40 fl.ounces. Macerate for seven days and filter.

The dose of Wine of Aloes is from 1 to 2 fl.drachms.

3850. Vinum Aromaticum.

Aromatic Wine.

Lavender,
Origanum,
Peppermint,

Rosemary,
Sage,
Wormwood, each, 1 part or 72 grains.
Stronger White Wine, sufficient to make 100 parts or a pint.

Mix the solid ingredients and reduce them to a coarse powder, moisten the powder with a fl.ounce of Stronger White Wine, pack it moderately in a conical glass percolator and gradually pour enough Stronger White Wine upon it to make the filtered liquid measure a pint. U. S. 1880.

This is somewhat similar to the *Vin Aromatique* of the French Codex.

3851. Vinum Aurantii. Br.

Orange Wine.

Wine made in Britain by the fermentation of a saccharine solution to which the fresh peel of the Bitter Orange has been added. Br.

This official Br. Wine is simply a Wine flavored with Orange, and it seems unnecessary to be to so much trouble to prepare it. It may be readily prepared by adding a sufficient quantity of Tincture of fresh Orange Peel or a Solution of Oil of Bitter Orange in Alcohol to Sherry or other White Wine.

Orange Wine is used for making flavored medicinal Wines.

3852. Vinum Camphoratum. G. P.

Wine of Camphor.

Camphor, 1 part.
Alcohol, 1 part.
Mucilage of Acacia, 3 parts.
White Wine, 45 parts.

Dissolve the Camphor by rubbing with the Alcohol and gradually add the remaining ingredients. By using Water instead of Wine this may be dispensed as *Camphor Julep* when wanted.

3860. Vinum Ipecacuanhae.

Wine of Ipecac.

Fluid Extract of Ipecac, 7 parts or 2¹/₄ fl.ounces.
Stronger White Wine, 93 parts or 30 fl.ounces.

Mix them and filter through paper. U. S. 1880.

The Br. P. formula is Ipecacuanha, coarsely powdered, 1 ounce, Acetic Acid 1 fl.ounce, distilled Water a sufficiency, Sherry 20 fl.ounces. Macerate the powder in the Acid for 24 hours, transfer to a percolator and pass sufficient distilled Water through it to produce 20 fl.ounces of the liquor, evaporate the product to dryness over a water-bath, powder the residue and macerate it in the Sherry for 48 hours, with occasional agitation, and filter.

The G. P. directs 1 part of Ipecac to be macerated with 10 parts of Sherry Wine.

It will be observed that the U. S. preparation represents 7 per cent., the Br. 5 per cent., and the German 10 per cent. of the drug.

The dose is from 5 to 20 minims, as an expectorant, and from 1 to 3 fl.drachms, as an emetic.

3864. Vinum Rhei.

Wine of Rhubarb.

Rhubarb, No. 30 powder, 10 parts or 730 grains.
Calamus, No. 30 powder, 1 part or 73 grains.
Stronger White Wine,
sufficient to make 100 parts or a pint.

Moisten the mixed powders with 2 ounces of Stronger White Wine, pack the mixture in a conical glass percolator and gradually pour enough Stronger White Wine upon it to make the filtered liquid measure a pint. U. S. 1880.

The Br. P. formula is Rhubarb Root, in coarse powder, 1¹/₂ ounce av., Canella bark, in coarse powder, 60 grains, Sherry 20 fl.ounces. Macerate for seven days in a closed vessel, then strain, press, filter, and add Sherry to make 20 fl.ounces.

3865. Vinum Rubrum.

Red Wine.

The U. S. P. describes this as a deep-red alcoholic liquid, made by fermenting the juice of colored grapes in presence of their skins. It should contain not less than 10 nor more than 12 per cent., by weight, of Absolute Alcohol.

3866. Vinum Xericum.

Sherry.

This is a light-colored Spanish Wine, which was formerly directed to be used in the U. S. P., and is still directed in the Br. P. It contains a larger percentage of Alcohol than most Wines, about 17 per cent. being the average.

Other varieties of Wine are also used for making the official preparations, the California and native Wines being considerably used. It is only required that they contain sufficient alcohol to keep the preparations.

Other Medicinal Wines.

The foregoing Wines are those official in the leading pharmacopoeias, but besides these are many unofficial medicinal Wines which are considerably used, the most important among them being known as elegant preparations. They are, therefore, given the same prominence as the official Wines.

3870. Prepared Wine.

For making medicinal Wines, containing organic salts or principles, or salts of Iron, it is necessary to use a Wine which is free from tannin or astringent principles which will cause discoloration or precipitation.

Many of the Wines, also, have not sufficient alcoholic strength to keep the preparations in which they are combined, and it is necessary to add more Alcohol to them, as is directed for making the Stronger White Wine of the U. S. P.

In making the following Wines, therefore, it is expedient to have a Prepared Wine which corresponds with these requirements, as follows:

White Wine, Sherry or native,	7 pints.
White of Egg,	1 fl.ounce.
Alcohol,	1 pint.

Beat the White of Egg to a froth and mix it with the Wine, heat to about 170° F., or until the albumen is coagulated, then cool, add the Alcohol and, after standing a few hours, filter clear through paper.

This serves as a basis for all the medicinal Wines which follow, and may with advantage be used in the official Wines foregoing in place of the Stronger White Wine directed.

3871. Aromatic Wine.

Cinnamon, in fine powder,	1 ounce av.
Nutmeg, in fine powder,	1 ounce av.
Cloves, in fine powder,	1 ounce av.
Soluble Flavoring,	2 fl.ounces.
Prepared Wine,	2 pints.

Macerate for 14 days and filter. Dose, a tablespoonful.

3879. Wine of Cotton Root or Gossypium.

This is most readily prepared from the Fluid Extract, as follows:

Fluid Extract of Cotton Root,	4 fl.ounces.
Prepared Wine,	8 fl.ounces.
Elixir,	4 fl.ounces.

Mix them. As a portion of the properties of Cotton Root is insoluble except in Alcohol a precipitate forms, and the preparation must be filtered.

This is given in doses of 1 to 4 fl.drachms as a uterine tonic.

3880. Wine of Damiana or Turneria.

Fluid Extract of Damiana,	3 fl.ounces.
Prepared Wine,	10 fl.ounces.
Elixir,	3 fl.ounces.

Mix them and, after standing, filter.

The dose is 1 to 4 fl.drachms as a diuretic and aphrodisiac.

3887. Wine of Wild Cherry.

Fluid Extract of Wild Cherry,	2 fl.ounces.
Glycerin,	1 fl.ounce.
Elixir,	4 fl.ounces.
Prepared Wine, sufficient to make	1 pint.

Mix them and, after standing 24 hours, filter. This may also be prepared by percolating the bark with the liquids, or by crushing 2 ounces of Wild Cherry Pits and macerating with the mixture of Elixir, Wine, etc., sufficient to make 1 pint.

The dose is a dessertspoonful.

Other Medicinal Wines.

But few Medicinal Wines, except those already noted, are now used in medicine. Wine was once a favorite vehicle for exhausting medicinal principles and the administration of medicine, but has now given way to more stable and uniform alcoholic liquids. A few Wines that are now occasionally called for are noticed as follows :

3889. Antiscorbutic Wine—(Paris Codex).—Fresh Horseradish Root 3 ounces, Scurvygrass 1 $\frac{1}{2}$ ounce, Watercress Leaves 1 $\frac{1}{2}$ ounce, Buckbean 1 $\frac{1}{2}$ ounce, Mustard Seed 1 $\frac{1}{2}$ ounce, Chloride of Ammonium 5 $\frac{1}{2}$ drachms. Wine 5 pints. Compound Spirit of Scurvygrass 1 $\frac{3}{4}$ ounce.

Macerate for 14 days, drain, and express.

3890. Wine of Comfrey Compound—*Restorative Wine Bitters*—(Amer. Disp.).—Comfrey Root, Solomon's Seal Root, Helonias Root, each in coarse powder, 1 ounce, Chamomile Flowers, Colombo Root, Gentian Root, Cardamom Seed, Sassafras Bark, each in coarse powder, $\frac{1}{2}$ ounce, Sherry Wine 4 pints, boiling Water a sufficient quantity. Pour boiling Water upon the drugs in a covered vessel, sufficient to cover them, let macerate 24 hours, then add the Wine, macerate for 14 days, express, and strain.

3891. Wine of Gentian Compound—*Bitter Wine Tonic*.—This may be prepared by mixing 4 fl. drachms of Fluid Extract of Gentian Compound with 4 fl.ounces of Elixir and 12 fl.ounces of Prepared Wine.

3892. Wine of Golden Seal Compound—(Amer. Disp.).—Golden Seal Root, Tulip Tree Bark, Bitterroot, each in fine powder, 1 drachm, Prickly-Ash Berries, Sassafras Bark, Capsicum, each in fine powder, $\frac{1}{2}$ drachm, Sherry Wine 3 pints. Macerate 14 days and filter. Dose, a tablespoonful.

3893. Wine of Hellebore Compound—(Amer. Disp.)—Black Hellebore, in coarse powder. Logwood, ground, Helonias Root, in powder, each 2 ounces, Sherry Wine sufficient to make $1\frac{1}{2}$ pint. Uterine tonic, etc. Dose, tablespoonful or more.

3894. Simple Wines of Drugs.— Wines may be made from many roots barks, leaves, flowers, etc., by macerating the substances, in coarse powder, with Sherry or other Wine, or by adding their fluid extracts to Wine. The proportion is usually 1 ounce in a pint of Wine, for ordinary preparations, and a less quantity of more powerful drugs.