

in gradually increasing circles, until the side of the mortar is reached, then reversing the motion and gradually lessening the circles until the pestle reaches the centre again. The process is greatly facilitated by having the pestle attached to a long handle playing in an opening made in a piece of wood nailed at a convenient height. A weight may be fixed on top of the handle if a greater degree of friction is desired.

Pulverization by Intervention is only another name for trituration when performed in a mortar and with solid bodies, the foreign substance used being subsequently removed. Potassium Sulphate may be employed as the medium for the pulverization of Gold and then dissolved out by water. Alcohol or Chloroform may be added to Camphor to aid its pulverization, and then removed by evaporation. Phosphorus may be pulverized by placing it in water, gently heating the latter until the phosphorus is melted, and agitating the whole while cooling.

Levigation is the trituration of a substance made into paste with water or some other liquid, and resembles the old process of grinding oil paints by hand on a slab of stone. The process is used for coarse materials, as chalk, where the refuse is rejected, or for such substances as red mercuric oxide, and zinc oxide. When performed with a porphyry slab and muller it is termed *Porphyzation*.

Elutriation is a water-sifting process for separating the coarser particles of insoluble substances from the finer. The substance is mixed with water and after the larger particles have fallen to the bottom, the liquid is decanted into another vessel, in which the light and powdery particles are collected.

Vaporization includes the various operations by which volatile matters are separated from fixed substances or from other matters which are less volatile, heat at varying temperatures being the agent used. The operations under this head are—*Evaporation*, *Distillation*, *Desiccation*, and *Sublimation*, the last three of which have been described.

EVAPORATION in pharmacy is the process by which the more volatile constituents of a liquid are driven off by heat for the purpose of reducing its volume or purifying it, as in the preparation of extracts and fluidextracts, and the crystallization of salts. The vessels used should be shallow so as to expose a large surface of the liquid to the atmosphere. The heat used may be regulated by a water-bath, a steam-bath or a sand-bath, and ordinarily should be kept below but near to the boiling point of the liquid treated. As organic substances are usually injured by long heating, small portions only of vegetable preparations should be subjected to this process, and the liquid should be frequently stirred in order to hasten the operation. In large laboratories vacuum-pans are employed to remove the atmospheric pressure, enabling the evaporation to be accomplished at a much lower degree of heat than if the liquid were exposed to the air. *Ebullition* (boiling) is a form of evaporation.

Spontaneous Evaporation is the evaporation of a liquid without the direct application of strong heat, but at the temperature of the room or closet used for the purpose. It is especially applicable to cases in which the residue is liable to injury or loss from much heat, or to secure finer crystals than can be obtained by the quick evaporation of their solution.

Washing is a simple mechanical process for separating soluble from insoluble matter, by pouring upon it a liquid which will dissolve the soluble portion. Various methods of doing this are in vogue and are often dignified with very

high-sounding terms, as *Lotion*, *Affusion*, and *Ablution*. An ordinary wash-bottle, with two glass tubes perforating the cork, is a convenient implement for directing a continuous stream upon a precipitate, while for continuous washing a combination of bottles with a funnel may be used.

PREPARATIONS.

Official Preparations may be presented under various methods of classification, one of the simplest being that which divides them into liquids and solids, the former being subdivided into groups named after their principal bases, viz.:—

LIQUID PREPARATIONS.

Acetone Preparations,—all Oleoresins except one, that of *Cubeb*.

Acetous Preparations,—the *Vinegars*, two in number.

Alcoholic,—*Fluidextracts*, *Tinctures*, *Wines*, *Spirits*, *Elixirs*, and one *Oleoresin*, that of *Cubeb*; one *Liniment*, that of *Belladonna*.

Aqueous,—*Waters*, *Solutions*, *Infusions*, *Decoctions*, *Syrups*, *Honeys*, *Mucilages*, *Emulsions*, *Mixtures*; the last five containing sweet or viscid substances.

Ethereal,—*Collodions*, four in number.

Glycerines,—*Glycerites*, six in number.

Oleaginous,—*Liniments*, except that of *Belladonna*; also *Oleates*

SOLID PREPARATIONS

Cerates.	Extracts.	Ointments.	Pills.	Poultices.	Suppositories.
Confections.	Masses.	Papers.	Plasters.	Powders.	Triturations.
				Resins.	Troches.

In the following descriptions of the pharmaceutical groups the composition and dosage of the various preparations are omitted, as they are fully detailed in the section on *Materia Medica*, under the title of the principal constituent in each case.

PHARMACEUTICAL PREPARATIONS.

Pharmaceutical Preparations include the pharmacopœial (official) ones, also those of extemporaneous pharmacy (unofficial). Both classes are described together in alphabetical order, for the sake of easy reference.

Aceta, Vinegars,—are solutions of the active principles of certain drugs in diluted *Acetic Acid*. They are made by maceration and straining, and each one contains the soluble principles from 10 per cent. of drug. *Acidulous menstrua* form soluble salts with the alkaloids and possess antiseptic qualities. The official *Vinegars* number 2, viz.:—

Acetum Opii.

Acetum Scillæ.

Aquæ, Waters,—are aqueous solutions of volatile substances, which may be solids, liquids or gases, dissolved by solution in cold or hot water, by filtration through an absorbent powder, by percolation through cotton saturated with the substance, or by distillation. All waters deteriorate when long kept, microscopic plants being propagated in them from spores derived from the atmosphere. They should be prepared only in such quantities as are needed for immediate use. The official waters number 19, including two forms of Aqua itself, viz.:—

Aqua.	Aqua Cinnamomi.
Aqua Destillata.	Aqua Creosoti.
Aqua Ammoniac.	Aqua Fœniculi.
Aqua Ammoniac Fortior.	Aqua Hamamelidis.
Aqua Amygdalæ Amaræ.	Aqua Hydrogenii Dioxid.
Aqua Anisi.	Aqua Menthæ Piperitæ.
Aqua Aurantii Florum.	Aqua Menthæ Viridis.
Aqua Aurantii Florum Fortior.	Aqua Rosæ.
Aqua Camphoræ.	Aqua Rosæ Fortior.
Aqua Chloroformi.	

Of the above 5 are prepared by simple solution, 4 by passing gases through water, 3 by distillation, and 6 by trituration of the medicament with purified tale, addition of water and filtration.

Balnea, Baths (Unofficial). Baths are often medicated, and then become medicinal preparations. The ingredients only are ordered in a prescription, as in the following examples, each of which is intended for a bath of 20 to 30 gallons:—

<i>Balneum Acidi Nitrohydrochlorici.</i>	<i>Balneum Sulphuris Compositum.</i>
R̄. Acidi Nitrici,	R̄. Sulphuris Præcip.,..... ℥ij.
Acidi Hydrochlorici,..... āā ℥j.	Sodii Hyposulphitis,..... ℥j.
M. Sig.—Use with 30 gallons of hot	Acidi Sulphurici Dil.,..... ℥ss
water, as a bath.	Aquæ,..... Oj.
	M. Sig.—For a 30-gallon bath.

Capsulæ, Capsules, (Unofficial). Gelatin Capsules of various sizes from 0 to 10 are to be obtained in the drug-stores. They are a convenient means of administering oils or nauseous solids, and when filled may be swallowed as easily as a large pill. *Soluble Elastic Capsules* are also prepared, each containing an ordinary dose of such medicines as castor oil and cod-liver oil. The largest of these capsules makes a bolus which may be swallowed with a little effort, as it is quite compressible and changes its shape to suit the calibre of the passage. The ordinary capsules are easily filled by the aid of a paper funnel, and the end of a pen-holder as a packer; but simple devices (capsule-fillers) for facilitating the operation may be purchased.

R̄. Pulv. Opii,..... gr. x.	R̄. Copaibæ,..... ℥jss.
Pulv. Camphoræ,..... gr. xx.	Oleoresinæ Cubebæ,..... ℥ss.
Sacch. Alb., q. s.	M., et fiant capsulæ xij.
Triturat., et fiant capsulæ x.	Sig.—Two capsules to be taken three
Sig.—One at bedtime for chordee; re-	times daily, soon after meals, for gonor-
peat in two hours if necessary.	rhea.

Cataplasmata, Poultices,—are usually prepared at the residence of the patient, the ingredients only being ordered from the druggist. They are gener-

ally employed as a means of applying heat and moisture to a certain portion of the body, but are sometimes medicated with anodyne, counter-irritant or disinfectant agents. An excellent method of preparing poultices is to make several bags of various sizes, of either of the fabrics known as *Swiss* and *Cheese-cloth*, filling each bag half full with the linseed meal or other agent used, then sewing up the open end. When wanted for use one of these bags is submerged in boiling water for a few minutes, and on taking it out the meal is found to have swelled so as to fill the bag, which should then be squeezed to rid it of superfluous water, laid on the part and covered with oiled silk and a bandage.

The ordinary filthy poultice of flaxseed, slippery elm, bread and milk, has no place among the resources of the aseptic surgeon. The common poultice is a hot-bed for bacteria, and as such, it should be discarded. In the treatment of an ordinary furuncle with poultices, almost every surgeon must have seen occasionally the development of innumerable minute daughter-furuncles in the surface covered by the poultice. In phlegmonous inflammation of the fingers or hand, the prolonged use of the poultice is followed by maceration of the skin, extensive edema of the superficial structures, a flabby condition of the granulation—in fact all the evidences which point to the poultice as a means of favoring the extension of the infectious process (Senn).

A *Sinapism* is a poultice or plaster containing Mustard (*Sinapis*), used for the purpose of counterirritation. If applied too hot and kept on too long the skin will become inflamed and ulcerated, and extensive gangrenous sores may result.

The only Cataplasma official in the U. S. Pharmacopœia is the Cataplasma Kaolini, in which Glycerin is the active agent. Poultices of Charcoal, Hemlock, Yeast, Linseed, Mustard, and Chlorine, were formerly official in the British Pharmacopœia, but have been omitted from the edition of 1898.

Cerata, Cerates,—are unctuous preparations similar to ointments, but of a much finer consistence. They all contain Wax (*cera*), and do not melt at temperatures below 104° F. They are intended for external use, and are generally spread on lint before being applied. There are 6 official Cerates, including Ceratum itself, which is made by fusing together 30 of white wax, 50 of benzoinated lard, and 20 of white petrolatum, but for use in southern latitudes and during the heated season in other localities 5 of the lard may be replaced by an equal quantity of wax. The composition of the others may be found in the section on *Materia Medica* under the appropriate titles, but the figures in parentheses below give the percentage of drug to basis in each.

Ceratum.	Ceratum Plumbi Subacetatis (5).
Ceratum Camphoræ (2).	Ceratum Resinæ (35).
Ceratum Cantharidis (32).	Ceratum Resinæ Compositum (22½).

Chartæ, Papers,—consist of strips of paper medicated by impregnation of its fibers with medicinal substances or by being coated therewith. There is only one official Paper, Charta Sinapis, which is made with sized paper, and is in-

tended for external application as a vesicant or counterirritant. The formerly official Charta Potassii Nitratis, is unsized paper impregnated with nitre and intended for the inhalation of its fumes while burning.

Collodia, Collodions,—are liquid preparations having for their base a solution of Pyroxylin in a mixture of Ether and Alcohol. They are intended for external use, being applied to the skin by means of a brush, producing a film on the surface after the evaporation of the menstruum. There are 4 official Collodions, viz.:—

Collodium.	Collodium Flexile.
Collodium Cantharidatum.	Collodium Stypticum.

The Flexible Collodion contains 5 per cent. of Canada Turpentine, and 3 per cent. of Castor Oil. Styptic Collodion contains 20 per cent. of Tannic Acid.

Confectiones, Confections,—consist of medicinal substances formed into a mass with Sugar, Honey, Water, etc., with the object of rendering them palatable and preserving them from change. *Electuaries* are similar preparations, but this term is now obsolete. There are only two official Confections, viz.:—

Confectio Rosæ.	Confectio Sennæ.
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Confections and Electuaries are very seldom prescribed, and therefore can have but little place in extemporaneous pharmacy. A few old formulæ for such preparations are given below as pharmaceutical curios. The first is a meritorious prescription, the second is said to have been purchased by Lord Anson for the sum of £300.

Electuary for Piles.

℞. Potassii Bitartratis,
Potassii Nitratis,
Pulv. Jalapæ,.....āā ℥ss.
Confectionis Sennæ,.....℥j.
Syrupi Zingiberis, q. s.
M. Fiat electuarium.
Sig.—A piece the size of a marble to be taken thrice daily.

The Chelsea Pensioner.

℞. Sulphuris Loti,.....℥ij.
Potassii Bitart.,.....℥j.
Pulv. Rhei,.....℥ij.
Guaiaci Resinæ,.....℥j.
Mellis Depurat.,.....℔bj.
Myristicam Pulv.,.....j.
M. Fiat electuarium.
Sig.—A dessertspoonful twice daily, as a laxative in chronic rheumatism.

Confectio Damocratis.

[An ingredient of Warburg's Tincture, see page 231.]

This preparation was official in the London Pharmacopœia of 1745. It contained 1 grain of Opium in ℥ss, and consisted of 45 ingredients, as follows, viz.: Cinnamon, 14 parts; Myrrh, 11 parts;—White Agaric, Spikenard, Ginger, Spanish Saffron, Treacle, Mustard Seed, Frankincense and Chian Turpentine, of each 10 parts;—Camel's Hay, Costus Arabacus, Zedary, Indian leaf, Macé, French Lavender, Long Pepper, Seeds of Harwort, Juice of ripe Cistus, strained Storax, Opponex, strained Galbanum, Balsam of Gilead, Oil of Nutmeg, Russian Castor, of each 8 parts;—Water Germunder, Balsam-tree Fruit, Cubeb, White Pepper, Seeds of Cretian Carrot, Poley Mont, strained Bdellium, of each 7 parts;—Gentian root, Celtic Hard, Leaves of Dittany of Crete, Red Rose, Seeds of Macedonium, Parsley, Sweet Fennel Seeds, Seeds of Lesser Cardamom, Gum Arabic, Opium, of each 5 parts;—Sweet Flag, Wild Valerian, Anise-seed, Sagapenum, of each 3 parts;—Spigrul, St. John's Wort, Juice of Acacia, Catechu, Dried Bellies of Skunk, of each 2½ parts;—the roots finely powdered and the whole mixed thoroughly into a paste with Clarified Honey.

Decocta, Decoctions,—are made by boiling vegetable substances with water. As very few drugs contain active ingredients which are not injured by heat, these preparations have never obtained favor with scientific physicians. The official general formula for Decoctions prescribes that when the strength is not directed by the physician, nor specified by the Pharmacopœia, they shall be prepared in the proportion of 5 grammes of the substance with 100 Cc. of water; but that the strength of decoctions of energetic or powerful substances should be specially prescribed by the physician.

Elixiria, Elixirs,—are sweetened, aromatic, and spirituous preparations, containing active medicinal substances in small quantities. There are 3 official Elixirs, viz.:—

Elixir Adjuvans. Elixir Ferri, Quininae, et Strychninae Phosphatum.
Elixir Aromaticum.

The first-named is a mixture of Licorice and Elixir Aromaticum. The latter is intended to represent a type of the large class of unofficial elixirs employed in manufacturing and extemporaneous pharmacy. It is practically an alcoholized syrup, flavored with Orange, and is designed for use as an excipient for extracts, tinctures, salts, etc. The manufacturers have put on the market a great variety of elixirs, and most druggists keep a stock of them on hand prepared in the shop; but they may be ordered by prescription just as any other mixture would be. The substances generally used in this form are—

Arsenic.	Hydrated Chloral.	Ferric Phosphate.
Bismuth.	Coca.	Ferric Pyrophosphate.
Ammonium Bromide.	Gentian.	Quinine Phosphate.
Lithium Bromide.	Guarana.	Strychnine Phosphate.
Potassium Bromide.	Ammonium Valerate.	Pepsin.
Calisaya Bark.	Ferric Chloride.	Taraxacum.

Many of these agents may be combined with one another, as the Elixir of Bismuth and Strychnine; Elixir of Calisaya, Iron and Strychnine; Elixir of Gentian with Tincture of Chloride of Iron; Elixir of Iron, Quinine and Strychnine Phosphates.

Emplastra, Plasters,—are solid compounds, insoluble in water, of a tenacious but pliable consistence and intended for external application to limited areas of the body surface. They are prepared by incorporating medicinal substances with certain bases, which are usually Lead Plaster or Adhesive Plaster. The heat employed should be low, to avoid decomposing the active agents, and should not be continued long enough to drive off any volatile constituents. The plaster mass is then spread on chamois skin, kid skin or muslin. The constituents of the following-named 7 official Plasters may be found in the section on Materia Medica, under their appropriate headings.

Emplastrum Adhæsivum.	Emplastrum Capsici.	Emplastrum Opii.
Emplastrum Belladonnæ.	Emplastrum Hydrargyri.	Emplastrum Plumbi.
		Emplastrum Saponis.

Plasters are rarely prepared extemporaneously, the official and many others being produced on a large scale by the manufacturers, and are kept in stock

by all druggists. As a consequence the compounding and spreading of a plaster by the pharmacist has become a lost art. The official plasters may be ordered by prescription in the manner illustrated below. *Blisters* may be produced by the application of any preparation of *Cantharides* sufficiently strong for the purpose. The official *Cerate of Cantharides* may be spread on adhesive plaster making a blistering plaster, or *Cantharidal Collodion* may be painted over the surface. Plasters are usually ordered by the square inch, but a diagram of the shape and size may be drawn on paper, and the plaster be directed to conform thereto, as in the first following prescription.

Emplastrum Vesicatorium.
 ℞. Cerati Cantharidis, q. s.
 Extende supra Emplastrum Adhæsivum
 hujus formæ et magnitudinis.
 Sig.—Blistering Plaster, to be applied
 over the region of the heart.

Counter-irritant and Anodyne.
 ℞. Chartæ Sinapis,
 Emplas. Belladonnæ, āa 3" x 6".
 Sig.—Apply the mustard paper first, to
 be followed by the plaster when the surface
 has been well reddened.

Emulsa, Emulsions,—are aqueous, liquid preparations containing an insoluble medicinal substance, as an oil or a resin, in a state of minute subdivision, and suspended by the aid of some viscid excipient, as gum, which may be contained in the medicinal ingredient itself (*e. g.*, *asafoetida*), or may be added by the pharmacist. The official Emulsions are 6 in number, viz.—

Emulum Amygdalæ.	Emulum Olei Morrhuæ.
Emulum Asafetidæ.	Emulum Olei Morrhuæ cum Hypophosphitibus.
Emulum Chloroformi.	Emulum Olei Terebinthinæ.

Natural Emulsions comprise two classes of substances,—(1) those emulsions which exist ready formed in nature, as milk, yolk of egg, the milky juices of plants, etc., and (2) the mixtures formed by rubbing up gum-resins (as *ammoniacum*, *myrrh*, *asafoetida*) with water. Each of these substances contains, together with its resin, enough gum to make a perfect emulsion when triturated with water. The manufactured emulsions are simply imitations of the natural ones, sufficient gum being added in case of a resinous substance to cause its suspension in the aqueous diluent.

Emulsification consists in the division of the oily or resinous substance into very minute globules, and the surrounding of each globule with a thin envelope of the excipient. If properly done the globules will remain mechanically suspended in the water, without any tendency towards recombination. Milk is the best illustration of a natural emulsion, its butter existing in the aqueous portion as very minute globules, each surrounded by a thin film of casein. Yolk of Egg is a dense emulsion, consisting of oil suspended in water by means of albumin.

Excipients which may be used for emulsification are the following, arranged in the order of their most frequent employment, viz.—

Mucilage of Acacia,—used for oils and resins. Powdered Acacia is even better, being made into a mucilage by the process of emulsification; such a mucilage having the advantage of being perfectly fresh when incorporated with the other ingredients. To give good results the following proportions in parts by weight should be used,—

	Gum Acacia.	Water.
1 part of Fixed Oil or Copaiba requires,	$\frac{1}{2}$	$\frac{3}{4}$
1 " " Balsam of Peru "	2	1 $\frac{1}{2}$
1 " " Oil of Turpentine "	1	1

Mucilage of Tragacanth,—may be used for oils and resins, but it has not proved so satisfactory as the preceding. The same may be said of powdered Tragacanth.

Vitellus, Yolk of Egg,—is an excellent agent for emulsifying oils, but mixtures made with it must be used within a few days, as they will not keep long. One yolk will emulsionize an ounce of fixed oil, and is about equal to half an ounce of acacia. It is best suited to emulsions of cod-liver oil intended for immediate administration.

Liquor Potassii Hydroxidi,—may be used for oils, the resulting compound being however a soap rather than an emulsion. Copaiba is usually emulsified by using both a gum and an alkali; a similar process being employed for many of the fixed oils.

Tincture of Senega,—will emulsify fats and oils very efficiently, even in very small quantities, xxx emulsifying an ounce of fixed oil.

Tincture of Quillaja (Soap-bark),—is a good emulsifier of oils, and is much used in Europe for this purpose.

Milk,—is used to emulsify Scammony in the *Mistura Scammonii*, which was formerly official in the British Pharmacopœia.

Syrups, Confections and Extracts,—may be used in making emulsions, but are rarely so employed.

The method of preparing an emulsion which experience has shown to be the best is as follows:—Add the oil, resin, etc., to a proper quantity of the excipient and mix both in a mortar. Then add enough water to equal one-half the weight of the previous mixture, and triturate the whole rapidly and unceasingly until the emulsion is homogeneous and of a whitish color. Next, add the remainder of the water slowly, with continual stirring; finally incorporating the other ingredients, if any.

Emulsions are sometimes flavored and at the same time colored with such a preparation as the Compound Tincture of Cardamom, but they present a better appearance when white. Alcoholic preparations should not be added in large quantity to emulsions made with acacia or yolk of egg, as alcohol will precipitate the emulsifying agent. Volatile Oils require admixture with a fixed oil before being made into an emulsion. Soluble salts should never be prescribed with emulsions of oils. Acids are incompatible with mixtures which have been emulsified by an alkali. Mucilage used for emulsions should always be freshly prepared.

The following examples of prescriptions for emulsions will represent those generally met with, but an official formula differing from the first is given in the pharmacopœia.

Cod-Liver Oil Emulsion.
 ℞. Olei Morrhuæ,..... ℥ij.
 Vini Albi,..... ℥jss.
 Acidi Phosphorici Dil.,..... ℥ij.
 Syrupi,..... ℥v.
 Vitellum,..... j.
 Aq. Amygd. Amar., q. s. ad ℥viiij.
 Misce, et fiat emulum.
 Sig.—Tablespoonful doses as directed.

Alkaline Emulsion of Copaiba.
 ℞. Copaibæ,
 Liq. Potassii Hydroxidi, .āā ℥ij.
 Misce, et adde—
 Pulv. Acaciæ,
 Pulv. Sacchari,..... āā ℥ij.
 Aq. Menth. Viridis, q. s. ad ℥iv.
 Misce, et fiat emulum.
 Sig.—Tablespoonful doses.

Extracta, Extracts,—are solid or semi-solid preparations obtained by evaporating solutions of vegetable principles. The drug is first powdered, then percolated with the appropriate menstruum to exhaustion. The first third of the percolate is reserved, the remainder is evaporated at a temperature not above 122° F., until its weight is ten per cent. of that of the drug used, then mixed with the reserved portion, and both are evaporated to a pilular consistence. The above is the general rule, but in several instances maceration is directed for 1 to 4 days before percolation; and in other cases, instead of reserving a portion of the percolate, the whole quantity is distilled until the alcohol is removed and the residue is evaporated to a pilular consistence. The menstrua used are,—in 3 cases Alcohol, in 5 cases Diluted Alcohol of varying strength, in 7 Water, in 1 Water with Aqua Ammonia, in 1 a diluted Acetic Acid, and in 1 Acetic Acid and Diluted Alcohol. One extract is an inspissated juice (ext. taraxaci); 9 are made by evaporating a fluidextract, one by mixing an extract with other ingredients (ext. colocynthidis comp.), and one (ext. glycyrrhizæ) is an ordinary commercial product. The official extracts number 28 and are named as follows;—

Extractum Aloes.	Ext. Euonymi.	Ext. Opii.
Extr. Belladonnæ Foliorum.	Ext. Gentianæ.	Ext. Physostigmatis.
Ext. Cannabis Indicæ.	Ext. Glycyrrhizæ.	Ext. Quassia.
Ext. Cimicifugæ.	Ext. Glycyrrhizæ Purum	Ext. Rhamni Purshianæ.
Ext. Colchici Cormi.	Ext. Hæmatoxyli.	Ext. Rhei.
Ext. Colocynthidis.	Ext. Hyoscyami.	Ext. Scopolæ.
Ext. Colocynthidis Composi- tum.	Ext. Krameria.	Ext. Stramonii.
Ext. Digitalis.	Ext. Leptandrea.	Ext. Sumbul.
Ext. Ergotæ.	Ext. Malti.	Ext. Taraxaci.
	Ext. Nucis Vomica.	

The *Proximate Principles* generally present in extracts, besides the peculiar principles of plants, are sugar, tannin, extractive, chlorophyll, coloring-matter and salts. When an alcoholic solvent is used there are also present resins, fats and often a volatile oil, and when the menstruum is not purely alcoholic there is more or less of gum and starch. One of these ingredients, named *Extractive* or *Apothème*, is a deposit, soluble in water and alcohol, which has the singular property of passing into an insoluble substance under the influence of the atmospheric air with heat. It also has a tendency, when precipitated from solutions, to unite with other principles carrying them down with it. It is frequently present in extracts, hence its name.

Fluidextracta, Fluidextracts,—are permanent and concentrated solutions of vegetable drugs, of uniformly definite strength if the crude drugs are so, a cubic centimeter (m 16.23) in each case representing the medicinal powers of one gramme (gr. 15.43) of the drug, or approximately a minim of the finished preparation representing the active constituents of a grain of the drug. They are officially directed to be prepared by percolation and partial evaporation, the menstrua employed being usually Alcohol, diluted Alcohol, or Alcohol and Water in various proportions, though a few are percolated with water, the alcohol

being afterwards added. In several instances Glycerin in different proportions is added to the first menstruum; and in the menstrua used for the fluidextracts of Conium, Ergot, Lobelia, Nux Vomica, Sanguinaria, and Squill, Acetic Acid is an ingredient. In the preparation of the fluidextract of Prunus Virginiana, the extraction is preceded by maceration with water and glycerin, in order to permit of the formation of hydrocyanic acid by the reaction of the amygdalin and emulsin of the bark upon each other, which takes place only in the presence of water. The glycerin aids to keep the dissolved matters in perfect solution, and also to better retain the acid and volatile oil formed during the process. The menstruum directed in each case is intended to be that which will thoroughly extract all the active constituents of the drug and at the same time leave the inert soluble matters behind in the rejected portion, known as the *marc*. In manufacturing fluidextracts on a large scale modifications of the official processes are necessary, the methods used being generally percolation and maceration with hydraulic pressure, vacuum maceration followed by percolation, percolation with incomplete exhaustion, or repercolation. The official fluidextracts number 85, and are named in the following list.

Fluidextractum Aconiti.	Fluidextr. Gelsemii.	Fluidextr. Rhei.
Fluidextr. Apocyni.	Fluidextr. Gentianæ.	Fluidextr. Rhois Glabra
Fluidextr. Aromaticum.	Fluidextr. Geranii.	Fluidextr. Rosæ.
Fluidextr. Aurantii Amari.	Fluidextr. Glycyrrhizæ	Fluidextr. Rubi.
Fluidextr. Belladonnæ Radicis.	Fluidextr. Granati.	Fluidextr. Sabinæ.
Fluidextr. Berberidis.	Fluidextr. Grindeliæ.	Fluidextr. Sanguinaria.
Fluidextr. Buchu.	Fluidextr. Guaranæ.	Fluidextr. Sarsaparilla.
Fluidextr. Calami.	Fluidextr. Hamamelidis Fol	Fluidextr. Sarsaparilla Comp.
Fluidextr. Calumbæ.	Fluidextr. Hydrastis.	Fluidextr. Scilla.
Fluidextr. Cannabis Indicæ.	Fluidextr. Hyoscyami.	Fluidextr. Scopolæ.
Fluidextr. Capsici.	Fluidextr. Ipecacuanhæ	Fluidextr. Scutellaria.
Fluidextr. Chimaphilæ.	Fluidextr. Krameria.	Fluidextr. Senegæ.
Fluidextr. Chirate.	Fluidextr. Lappæ.	Fluidextr. Sennæ.
Fluidextr. Cimicifugæ.	Fluidextr. Leptandrea.	Fluidextr. Serpentaria.
Fluidextr. Cinchonæ.	Fluidextr. Lobelia.	Fluidextr. Spigelia.
Fluidextr. Cocæ.	Fluidextr. Lupulini.	Fluidextr. Staphisagria.
Fluidextr. Colchici Seminis.	Fluidextr. Matico.	Fluidextr. Stillingia.
Fluidextr. Conii.	Fluidextr. Mezerei.	Fluidextr. Stramonii.
Fluidextr. Convallaria.	Fluidextr. Nucis Vomica.	Fluidextr. Sumbul.
Fluidextr. Cubebæ.	Fluidextr. Pareira.	Fluidextr. Taraxaci.
Fluidextr. Cypridii.	Fluidextr. Phytolacæ.	Fluidextr. Tritici.
Fluidextr. Digitalis.	Fluidextr. Pilocarpi.	Fluidextr. Uva Ursi.
Fluidextr. Ergotæ.	Fluidextr. Podophylli.	Fluidextr. Valeriana.
Fluidextr. Eriodictyi.	Fluidextr. Pruni Virginiana.	Fluidextr. Veratri.
Fluidextr. Eucalpyti.	Fluidextr. Quassia.	Fluidextr. Viburni Opuli.
Fluidextr. Euonymi.	Fluidextr. Quercus.	Fluidextr. Viburni Prunifolii.
Fluidextr. Eupatorii.	Fluidextr. Quillaja.	Fluidextr. Xanthoxyli.
Fluidextr. Frangula.	Fluidextr. Rhamni Purshianæ.	Fluidextr. Zingiberis.
	Flect. Rham. Pursh. Aromat.	

Gargarisma, A Gargle (Unofficial),—is a mixture or solution for application to the pharynx or the mouth (mouth-wash). It should not contain any very active drug, which would produce dangerous symptoms if swallowed, or any agent which would injure the teeth or the mucous membrane. Gargles are ordered and compounded in the same manner as mixtures. They usually contain astringent or disinfecting salts (alum, borax, potassium chlorate, zinc

sulphate), with a vegetable astringent and often honey. The following formulæ will illustrate prescriptions of this class:—

<p>R̄. Tinct. Guaiaci Ammoniatæ, Tinct. Cinchonæ Comp., āā ʒss. Mellis Depurat.,..... ʒjss. Bene simul agita, et adde— Potassii Chloratis,..... ʒijss. Aquæ, q. s., ad..... ʒviij. at gargarisma. Sig.—Gargle.</p>	<p>R̄. Aluminis,..... ʒij. Granati Corticis,..... ʒiv. Petal. Rosæ Rubr.,..... ʒj. Mellis Depurat.,..... ʒj. Aquæ Bullientis,..... ʒvj. M. Sig.—Gargle. (Goddard.)</p>
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Glycerita, Glycerites,—are mixtures of medicinal substances with Glycerin, in which some of them are dissolved. They are very useful preparations for dispensing purposes, as they can be readily diluted with water or alcohol without precipitation. There are 6 official Glycerites, the figures following their names in the list below indicating the percentage of drug in each. The Glycerite of Starch contains 10 per cent. of water, and that of Hydrastis has for its menstruum a mixture of glycerin, alcohol and water.

Glyceritum Acidi Tannici (20).	Glyceritum Ferri, Quininae, et Strychninae
Glyceritum Amyli (10).	Phosphatum.
Glyceritum Boroglycerini (31).	Glyceritum Hydrastis (100).
	Glyceritum Phenolis (20).

Haustus, A Draught (Unofficial),—is an extemporaneous mixture consisting of a single dose, and usually ordered in a vial containing from one to two fluid-ounces.

Effervescing Draught is one of the best known. It is prepared by neutralizing a watery solution of Potassium Bicarbonate with Lemon-juice or Citric Acid, and may be drunk during effervescence. When the CO₂ has escaped it is a solution of Potassium Citrate in water, and corresponds to the official Liquor Potassii Citratis.

Black Draught is another well-known preparation of this class. It is official as Infusum Sennæ Compositum.

Infusa, Infusions,—are prepared by treating vegetable substances with boiling water. The drug should be coarsely comminuted, sliced or bruised, and treated by maceration with the proper quantity of water, which in the absence of specific directions to the contrary should be 5 parts by weight of the drug to 100 of water, or 5 grammes in 100 Cc. Infusions should be freshly made as required for they are very prone to decomposition. Those official number 3 and are named in the following list, the figure after each representing the percentage of drug to menstruum, viz.—

Infusum Digitalis (1½).	Infusum Pruni Virginianæ (4).
	Infusum Sennæ Compositum (6).

The last-named infusion contains also 12 per cent. each of Manna and Magnesium Sulphate and 2 of Fennel. Alcohol, in the proportion of 10 per cent. is an ingredient of the Infusion of Digitalis to prevent decomposition.

Many dispensing pharmacutists are in the habit of making infusions from concentrated alcoholic tinctures or from fluidextracts. This is a very repre-

hensible practice, especially in those cases where the active ingredients are of a resinous nature and therefore precipitate when the alcoholic solution is added to water.

Inhalationes, Inhalations, and Vapores, Vapors, (both Unofficial), are medicines in the form of a vapor, a gas or an atomized spray, to be inhaled by the patient for their local action on the respiratory tract. The well-known steam-atomizer is the agent by which most of these preparations are administered, though many substances may be inhaled from the surface of hot water, from a sponge in a bottle surrounded by a hot cloth, or from a heated shovel. They are prescribed in the usual manner, as follows:—

Stimulant Inhalation.

R̄. Olei Cubebæ,..... ʒij.	
Magnesii Carbonat.,..... ʒj.	
Aquæ,..... ʒiiij.	
M. Sig.—A teaspoonful in a pint of water at 150° F., for each inhalation.	

Oil of Pine.

R̄. Ol. Pini Sylvestris,..... ʒij.	
Magnesii Carb.,..... ʒj.	
Aquæ,..... ʒiiij.	
M. Sig.—A teaspoonful on a pint of hot water for each inhalation.	

Phenolized Inhalation.

R̄. Phenolis,..... ℥xlviij.	
Aquæ, q. s. ad..... ʒij.	
M. Sig.—Use one-half in the cup of a steam-atomizer for each inhalation.	

Tar and Turpentine.

R̄. Ol. Picis Liquidæ,	
Ol. Terebinth.,..... āā ʒij.	
M. Sig.—Pour slowly on a hot shovel in the sick-room, keeping the vapor confined therein.	

The Charta Potassii Nitratis (Nitro-paper), is a preparation intended for use as an inhalation, its vapors while burning being taken into the lungs.

Injectiones, Injections, (Unofficial),—are liquid preparations intended for introduction into the cavities of the body by means of a syringe. When thrown into the rectum they are termed *Enemata* (enemas or clysters), and are usually prepared at the bedside. Enemata may be demulcent, laxative, nutritive, stimulant or vermifuge in character; and always have warm or tepid water as their diluent, with which are incorporated such medicaments as may be desired. They may consist simply of water as a wash for the cleansing of the bowel. Injections are termed vaginal, urethral, vesical, nasal, hypodermic, etc., according to the locality in which they are employed. A special form of syringe is used in each case, the discussion of which belongs rather to the domain of surgery than to medicine. Those used for the nasal cavities are often arranged with small holes or an atomizing attachment, so as to deliver the injection in the form of a fine spray. A *Collunarium* is a nasal douche or wash. In the British Pharmacopœia four hypodermic injections are official; those of Apomorphine, Cocaine, Ergot, and Morphine, the formula for which are stated under the titles of their principal ingredients. In the Appendix will be found a number of formulæ for hypodermic injections; a few prescriptions for other forms are the following:—