

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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PREFACE.

WHEN, in 1874, the first edition of FENNER'S FORMULARY (then a small pamphlet) was issued it was the pioneer in a new field of pharmacy, and furnished the first reliable line of formulas for elixirs and the so-called Elegant Preparations which were then coming rapidly into use.

Several editions of this work, each much enlarged and improved, have succeeded each other; but all have been, necessarily, crude and imperfect, representing, as they did, the developing stage of the art of Elegant Pharmacy.

Such as they were, however, they have been received, and adopted by the mass of American Pharmacists as the standard authority for the preparation of this class of galenicals.

During the past decade the advance of Pharmacy and the introduction of new drugs, chemicals and forms of medicine has been so great, that it has outrun the text-books extant, and there has grown up a great want and demand for. a new and complete work which shall represent the Pharmacy of to-day as it is practiced throughout the land. The Pharmacopoeias and works of authority are all too conservative — representing only a small part of the preparations used. The Dispensatories and other commentaries on the Pharmacopoeias partake of the same general characteristics; while the Pharmaceutical Journals (which are the main repositories of unofficial formulas, the record of new preparations and of the advance of Pharmacy) lack the continuity and unity of purpose which is necessary to the value of books of reference and practical works on Pharmacy.

What druggists want, and demand, is a work that in one volume shall give reliable formulas for all or most of the preparations required in the polypharmacy of the present day, and in which they are certain to find, at a glance, some practical information on all subjects connected with or pertaining to the practice of their profession. To make such a work requires patient research and investigation, extended and repeated experiments, careful analyses and syntheses; a thorough knowledge of

the wants, conveniences and capabilities of pharmacists, and of the practice of pharmacy as it is in all parts of the country; an intimate acquaintance with the standard textbooks and pharmaceutical literature of all countries; and, last but not least, the ability to collate, compare, condense, classify and arrange, and the genius and experience necessary to originate and formulate, preparations useful to those engaged in the trade.

Realizing the requirements of such a work, as well as its necessity, and knowing the great amount of time and labor necessary to produce it, the author, with great reluctance, and only after repeated solicitation from a great number of those who were using the former editions of Fenner's Formulary, undertook the preparation of this volume. To embody in one book whatever is valuable to druggists of pharmacy, chemistry, materia medica, therapeutics and formulae has been his aim and purpose. How far it may fulfill that purpose, those who use it will decide.

The former editions of this work have been chiefly devoted to the Elegant Preparations, such as elixirs, fine syrups, medicinal wines, etc., but it was deemed expedient in this edition to include the official preparations as well, and whatever else was necessary to make, as its title indicates, A COMPLETE FORMULARY, to which those in search of information may turn, avoiding the trouble and annoyance of looking through so many books of reference before finding what they seek.

Many new and, as we think, valuable processes have been introduced, which are the outcome of long experience in the preparation of medicines, and as such are submitted.

We have endeavored to make a volume simple, practical, comprehensive, and plain — an every-day companion, counsellor and friend. It has been written mainly in the workshop or laboratory in the midst of the drugs and operations which it describes or directs. As such, no claim is made for its literary excellence, but it is earnestly hoped that it may contribute something of value to the practice and science of pharmacy, and something of pleasure and profit to Pharmacists into whose hands it may fall.

Westfield, N. Y., August, 1888.

INTRODUCTORY.

IN the arrangement of the formulas in this volume the plan of numbering them has, as in former editions, been adopted. This method saves frequent repetition of the formulas, makes them convenient for reference, and at the same time more particularly designates one from another, as there are in many instances several preparations bearing the same name yet differing in composition.

The official preparations are designated by their Latin titles as given in the Pharmacopoeias; but few others are thus distinguished, as they are generally called for or prescribed by their more common names. Prominence is also given to most of the official and to the elegant preparations by printing them in larger type than those of less importance.

Whenever a material difference exists in the formulas official in the U. S. P. and those of the Br., German, French, or other leading pharmacopoeias, the composition of the preparation as directed by the different authorities is given. Also, when there is any important difference between the U. S. 1880 and 1870 pharmacopoeia preparations, the same is noted in the formula.

In the formulas copied from other works, when the original text is followed, the source from which they are derived is usually mentioned; but when formulas are collated from various sources, and re-arranged, re-written, or readjusted to suit the plan of this work, their authority is not generally given, as they are, mostly, public property, having become such by long usage and frequent publication in standard works.

In conformity with the popular usage in this country the quantities directed in the formulas are mostly in the commercial weight and measure of the U. S. The attempts to introduce metric weight and measure or parts by weight of solids and liquids have not met with a favorable reception in this country, although generally used in Continental Europe.

In the article on weights and measures which follows, directions will be found for readily converting weights or measures of one system into those of another.

As this work is intended mainly as a formulary, the description of pharmaceutical apparatus in general use, and the description of medicinal substances, except as given under general headings, is mostly omitted; for the same reason, the tests of chemicals, etc., are not generally given. A brief general description of crude medicinal substances will be found in PART I., and the general working processes employed in pharmacy are briefly described in PART II. For further descriptions, tests, etc., reference may be made to the pharmacopoeias, chemistries and other technical works. The medicinal uses and doses of most preparations are briefly given under their formulas, for convenient reference.

The formulas are, as far as is practicable, arranged in classes. The official formulas and those employed in regular pharmacy are included in PART III., and are classed according to their pharmaceutical similarity, as *elixirs, extracts, fluid extracts, spirits, syrups, etc.* Chemical elements and radicals are noted in their alphabetical order, their salts and combinations being included under the same general headings — as *Sodium and its salts. Potassium and its salts, etc.*

Standard proprietary remedies are included in PART IV., and classed according to their medicinal properties, uses, etc. — as *Ague Cures, Catarrh Remedies, Cough Remedies, etc.*

Toilet articles and perfumes are given in PART V., and are arranged as far as possible according to their uses as *Hair Preparations, Handkerchief Perfumes, Lotions, etc.*

Miscellaneous Preparations, in which are included those not otherwise classified, make up Part VI., and are arranged as far as possible according to their uses.

WEIGHTS AND MEASURES STANDARDS.

The United States Pharmacopoeia previous to the 1880 revision and all standard American text-books directed troy weight and apothecary measure. The present revision of the United States Pharmacopoeia directs metric weight and measure whenever definite weight and measure is mentioned, but parts by weight are generally directed. The British Pharmacopoeia and text-books direct avoirdupois weight and equivalent fluid measure. All of the Pharmacopoeias of continental

Europe direct parts by weight, or metric weight and measure.

The **Grain** is the equivalent unit of the apothecary, troy and avoirdupois systems of weight. Apothecary and troy weight correspond, the terms of the former only being used by druggists.

The **Scruple** equals 20 grains. It is now seldom used, being expressed in grains instead.

The **Drachm** equals 60 grains or $\frac{1}{8}$ apothecary or troy ounce.

The **Ounce** of **apothecary** or **troy** weight equals 480 grains or $\frac{1}{12}$ of the apothecary or troy pound of 5,760 grains.

The **Ounce avoirdupois** weight (American commercial and British pharmaceutical standard) equals $437\frac{1}{2}$ grains or $\frac{1}{16}$ of the avoirdupois pound of 7,000 grains.

The **Pound** of **apothecary** or **troy** weight equals 5,760 grains or 12 apothecary or troy ounces of 480 grains.

The **Pound avoirdupois** weight (American commercial and British pharmaceutical standard) equals 7,000 grains or 16 avoirdupois ounces of $437\frac{1}{2}$ grains.

The **Gramme** is the unit of **metric** weight. A gramme equals 10 decigrammes or 100 centigrammes or 1,000 milligrammes or 15.43 grains.

The **Kilogramme** equals 1000 grammes or 35.27 av. ounces, and is equivalent to the litre.

A **Cubic Centimetre** of water at 4° C. (39° F.) weighs a gramme; therefore the gramme and cubic centimetre are equivalent. It equals $16\frac{1}{4}$ minims.

The **Litre** is the unit of metric fluid measure, and equals 1,000 cubic centimetres, or 10 decilitres or 100 centiliters or 33.84 Am. fl.ounces.

The **Minim** is a variable expression of fluid measure—the 480th part of

a fluid ounce. The minim of American fluid measure of water at its greatest density weighs about 0.95 grain, being the 480th part of the American fluid ounce of 455.7 grains of water. The British minim being the 480th part of the British fluid ounce of $437\frac{1}{2}$ grains of water—weighs about 0.91 grain.

The **Fluid Drachm** equals 60 minims or $\frac{1}{8}$ fluid ounce.

The **American Fluid Drachm** of water weighs 56.96 grains, being $\frac{1}{8}$ of the American fluid ounce of 455.7 grains of water.

The **British Fluid Drachm** of water weighs 54.68 grains, being $\frac{1}{8}$ of the British fluid ounce of $437\frac{1}{2}$ grains of water.

The **Fluid Ounce** equals 480 minims or 8 fluid drachms.

The **American Fluid Ounce** of water weighs 455.7 grains, and is $\frac{1}{16}$ of the American pint of 7,291.1 grains of water.

The **British Fluid Ounce** of water weighs $437\frac{1}{2}$ grains, and therefore corresponds with their weight standard (avoirdupois) ounce. It is $\frac{1}{20}$ of the British *Imperial* pint.

The **Pint** of American fluid measure (28.875 cubic inches) equals 7,680 American minims; 7,291.1 grains of water or 16 fluid ounces of 455.7 grains of water, at 60° F.

The **Imperial Pint** of British fluid measure (34.659 cubic inches) equals 9,600 British minims; 8,750 grains ($1\frac{1}{4}$ pounds avoirdupois) of water or 20 British fluid ounces of $437\frac{1}{2}$ grains of water at 60° F.

The **Gallon** of American fluid measure (231 cubic inches) equals 61,440 American minims ; 58,328.9 grains of water or 8 American pints.

The **Imperial Gallon** of British fluid measure (277.274 cubic inches) equals 76,800 British minims; 70,000 grains (10 pounds avoirdupois) of water or 8 Imperial pints.

The relation of weight to fluid measure as above stated is calculated for distilled water at 15.6° C. (60° F.). The volume of water increases or decreases in a ratio varying with the temperature. At 15.6° C. (60° F.) its volume is 1.000938, as compared with 1.000000, its volume at its greatest density 4° C. (39° F.).

To convert the WEIGHTS of one system into those of another, the following simple rules may be observed : To convert

Troy to Avoirdupois.—Multiply the weight in tr. ounces by 1.097 for close, or by 1.1 for ordinary calculations. The product is the weight in av.ounces.

Avoirdupois to Troy.—Multiply the weight in av. ounces by 0.911 for close, or deduct one tenth for ordinary calculations. The product, or result, is the weight in tr. ounces.

Metric to Grains.—Multiply the weight in grammes by 15.43.

Metric to Troy Ounces.—Multiply the weight in grammes by 0.032.

Metric to Avoirdupois Ounces.—Multiply the weight in grammes by 0.035. In ordinary calculations, $28\frac{1}{3}$ grammes are considered equal to 1 ounce.

Grains to Grammes.—Multiply the weight in grains by 2, and divide by 13. The quotient is the weight in grammes.

Troy to Metric.—Multiply the weight in tr.ounces by 31.1. The product is the weight in metric grammes.

Avoirdupois to Metric.—Multiply the weight in avoirdupois ounces by 28.35. The product is the weight in metric grammes.

To convert the MEASURES of one system into those of another, the following simple rules may be observed : To convert

Apothecary to Imperial Fluid Measure.—Multiply the measure in apothecary fl.ounces by 1.041. The product is the measure in Imperial fl.ounces.

Imperial to Apothecary Fluid Measure.—Multiply the measure in Imperial fl.ounces by 0.96. The product is the measure in apothecary fl.ounces.

Metric to Apothecary Fluid Measure.—Multiply the measure in cubic centimetres by $16\frac{1}{4}$ to reduce to minims, or by 0.034 to reduce to fl.ounces. The litre equals about 2 pints, $1\frac{7}{8}$ Am. fl.ounces.

Metric to Imperial Fluid Measure.—Multiply the measure in cubic centimeters by 0.035 to reduce to Imperial fl.ounces.

Apothecary to Metric Fluid Measure.—Multiply the measure in fl.ounces by 29.53. The product is the measure in cubic centimeters. In ordinary calculations 30 cubic centimeters equal 1 fl.ounce.

Imperial to Metric Fluid Measure.—Multiply the measure in fl.ounces by 28.35. The product is the measure in cubic centimeters.

HEAT MEASURES.

The only scales now used to any extent for registering temperature are those of Fahrenheit, Reaumur, and Celsius; the latter being known in most countries as the *Centigrade* scale. The Fahrenheit scale is chiefly used in America and Great Britain, the Reaumur in Germany, and the Centigrade in France and other countries of Europe, and in scientific calculations in nearly all countries.

Thermometric scales are calculated from the expansion of mercury or alcohol in a small vacuum tube having usually a bulb or reservoir at the bottom.

The CENTIGRADE scale assumes the temperature at which water freezes as 0° , and the temperature at which it boils with the barometer at 30 inches, as 100° , making 100° between the freezing and boiling point of water.

The FAHRENHEIT scale assumes the temperature at which water freezes as 32° , and the temperature at which it boils with the barometer

at 30 inches, as 212°, making 180° between the freezing and boiling point of water.

The REAUMUR scale, which is seldom used in this country, assumes the temperature at which water freezes as 0°, and the temperature at which it boils with the barometer at 30 inches, as 80°, making 80° between the freezing and boiling point of water.

The following table shows a comparison of the scales from the freezing to the boiling point of water:

	C.	F.	R.	
Water	100	212	80	boils.
	95	203	76	
	90	194	72	
	85	185	68	
	80	176	64	
	75	167	60	
	70	158	56	
	65	149	52	
	60	140	48	
	55	131	44	
	50	122	40	
	45	113	36	
	40	104	32	
	35	95	28	
	30	86	24	
	25	77	20	
	20	68	16	
	15	59	12	
	10	50	8	
	5	41	4	
Water	0	32	0	freezes.

It will be seen by the foregoing scales that a Centigrade degree is $1\frac{4}{5}$ Fahrenheit, or $\frac{4}{5}$ Reaumur degrees ; that a Fahrenheit degree is $\frac{5}{9}$ Centigrade, or $\frac{4}{9}$ Reaumur degrees ; and that a Reaumur degree is $1\frac{1}{4}$ Centigrade, or $2\frac{1}{4}$ Fahrenheit degrees.

The following rules will be found convenient for reducing or converting one scale to another :

To reduce Centigrade to Fahrenheit.

RULE.—*Multiply the given degrees Centigrade by $1\frac{4}{5}$ ($\frac{9}{5}$), and add 32 to the product.*

EXAMPLE.—How many Fahrenheit degrees in 25 Centigrade degrees?
 $25 \times \frac{9}{5} + 32 = 77$ Fahrenheit degrees.

To reduce Reaumur to Fahrenheit.

RULE.—*Multiply the given degrees Reaumur by $2\frac{1}{4}$ and add 32 to the product.*

To reduce Fahrenheit to Centigrade.

RULE.—*Subtract 32 from the given degrees Fahrenheit and divide the remainder by $1\frac{4}{5}$ ($\frac{9}{5}$).*

EXAMPLE.—How many Centigrade degrees in 176 Fahrenheit degrees?
 $176 - 32 \div \frac{9}{5} = 80$ Centigrade degrees.

To reduce Fahrenheit to Reaumur.

RULE.—*Subtract 32 from the given degrees Fahrenheit and divide the remainder by $2\frac{1}{4}$ ($\frac{9}{4}$).*

To reduce Reaumur to Centigrade.

RULE.—Multiply the given degrees Reaumur by $1\frac{1}{4}$

To reduce Centigrade to Reaumur.

RULE.—*Multiply the given degrees Centigrade by $\frac{5}{4}$*

In reducing Fahrenheit to other scales, or *vice versa*, 32 is added or subtracted, because the Fahrenheit scale is marked 32 where the other

scales are marked 0, viz., at the freezing point of water. Bear in mind that in computing degrees below 0° Centigrade, or Reaumur, the product of the multiplication is a minus quantity, and that adding +32 to the minus quantity is the same as taking the difference between them. Recent American works on Pharmacy and Chemistry give both the Centigrade and Fahrenheit degrees, so there is no reason that the druggist should not soon be as familiar with the one as the other.

The temperature at which the specific gravity of substances is usually taken and recorded, is 15.6° Centigrade, or 60° Fahrenheit, or 12.4° Reaumur. In making experiments or calculations that require accuracy, this must be well understood, and the substances to be used must be brought to this temperature.

SUMMARY.

$$1^{\circ} \text{ C.} = 1.80^{\circ} \text{ F.} = 0.80^{\circ} \text{ R.}$$

$$1^{\circ} \text{ F.} = 0.55^{\circ} \text{ C.} = 0.44^{\circ} \text{ R.}$$

$$1^{\circ} \text{ R.} = 2.25^{\circ} \text{ F.} = 1.25^{\circ} \text{ C.}$$

$$\text{C. degrees} \times 9 \div 5 + 32 = \text{F. degrees.}$$

$$\text{C.} \quad \text{“} \quad \times 4 \div 5 \quad \quad = \text{R.} \quad \text{“}$$

$$\text{F.} \quad \text{“} \quad -32 \times 5 \div 9 = \text{C.} \quad \text{“}$$

$$\text{F.} \quad \text{“} \quad -32 \times 4 \div 9 = \text{R.} \quad \text{“}$$

$$\text{R.} \quad \text{“} \quad \times 9 \div 4 + 32 = \text{F.} \quad \text{“}$$

$$\text{R.} \quad \text{“} \quad \times 5 \div 4 \quad \quad = \text{C.} \quad \text{“}$$

A unit of heat is the amount of heat necessary to raise a certain quantity of water one degree.

The French unit, called a *caloric*, is usually adopted. It is the amount of heat required to raise one kilo (2.2046215 lbs. avoirdupois) of water one degree centigrade ; that is, from 0° to 1° C.

SPECIFIC WEIGHT OR GRAVITY.

Specific weight or gravity is the weight of a substance compared with the weight of an equal volume of some other substance taken as a standard.

Distilled water at 15.6° C. (60° F.) is the standard with which all solids and liquids are compared to calculate their specific gravity.

The specific gravity of water is expressed by unity, as 1, 1.00, 1.000, 1.0000, etc., substances heavier than water being more than a unit, lighter than water, less than a -unit, expressed in decimals.

Air or hydrogen at 15.6° C. (60° F.), and the barometer at 30 inches, are the standards with which gases are compared to determine their specific gravity.

As applied to pharmacy the specific gravities of solids and liquids only are required, therefore the processes for estimating their specific gravity, only, will be considered in this article. For the specific gravity of gases our readers are referred to the standard works on Chemistry.

Few druggists are provided with delicate specific gravity apparatus, and indeed it is unnecessary that they should be, for a few simple articles, always at hand, will suffice for the druggists' purpose as well the most elaborate and costly apparatus. A thermometer, a thin bottle and accurate balances or scales are all the apparatus required for finding the specific gravity of liquids and solids, and druggists seldom need to determine the specific gravity of gases.

The following are the simple directions for...

CALCULATING THE SPECIFIC GRAVITY OF LIQUIDS.

FIRST.—Take a thin bottle that will hold three or four ounces;¹ paste strips of paper on two opposite sides and weigh the bottle accurately, marking the weight in grains,² on one of the strips. Then weigh in the bottle just 1000 grains of distilled water at a temperature of 15.6° C. (60° F.) and mark the strips of paper on each side of the bottle just at the surface of the water, when the bottle is standing perfectly level. Mark 1000, the weight of the water, under the weight of the bottle and add them together for the gross weight, then empty the bottle and it is ready for use.

SECOND.— Having brought the liquid to be calculated to the required temperature, 15.6° C, (60°F.), pour it into the bottle previously used, until its surface comes just level with the water-level marks on the strips of paper; then weigh it accurately, noting the gross weight in grains.

THIRD.— Find the difference between the gross weight of the first and second operations. If the weight of the first operation is greater than the second, *subtract* the difference from 1000 and point off three places as decimals. If the weight of the first operation is less than the second, add the difference to 1000 and point off three places as decimals.

EXAMPLE 1. The gross weight of a bottle with 1000 grains of water is 1723 grains; the gross weight of the same volume of a liquid in the same bottle is 1671 grains. What is the specific gravity of the liquid ?

¹ A long-necked bottle, that 1000 grains of water will fill into the neck, is the most accurate. Specific gravity bottles, made very light and designed to hold 100 or 1000 grains, or 50, 250 or 500 grammes, may be obtained of dealers in chemical ware.

² Metric weight may be used instead of grains. Grains are mentioned because American druggists are so much more familiar with this weight than with the metric system.

1723—1671 = 52 difference.

1000— 52 =0.948 specific gravity of liquid.

EXAMPLE 2. The gross weight of a bottle with 1000 grains of water is 1723 grains; the gross weight of the same volume of a liquid is 2184 grains. What is the specific gravity of the liquid ?

2184—1723 = 461 difference.

1000 + 461 = 1.461 specific gravity of liquid.

This method of determining the specific gravity of liquids is quite accurate, and very convenient when the bottle is once prepared. It is also adapted to small quantities of liquids as it can be calculated for 100 grains or 10 grains in the same general manner. It can be used also for light or heavy liquids, which is another convenience.

The Hydrometer is an instrument used for determining the specific gravity of liquids. There are many kinds, but nearly all act on the same principle, viz.: The depth to which they sink in the liquid, which is shown by the graduated scale in the stem of the instrument. It is not accurate enough for fine work, and cannot be used for small quantities of liquids.

The Hydrometer is principally useful for showing the proof of spirits, the degree of acids, syrups, etc., but is not adapted to the general work of calculating specific gravity in the business of the pharmacist.

The spirit Hydrometer will not answer for heavy liquids, nor the acid nor syrup Hydrometer for the light liquids.

The Government Hydrometer for spirits which has the thermometer scale attached is of much value in estimating the proof of spirits.

CALCULATING THE SPECIFIC GRAVITY OF SOLIDS.

The druggist is so seldom required to calculate the specific gravity of solids, that mere mention, only, of the methods will be given here.

Solids heavier than water are first weighed in the ordinary way, and then, by suspending them to one side of the balance by a fine thread, are immersed in water and weighed. The ordinary weight divided by the loss of weight in water gives the specific gravity of the solids.

Solids lighter than water are first weighed, and then attached or tied to some heavy metal of known weight and specific gravity; the two substances are then weighed and immersed in water together and the loss of weight of the lighter substance found by deducting the loss of weight of the heavy metal, previously found, from the total loss. The original weight of the lighter substance is then divided by its loss of weight in water, as shown by the former operation and the result is the specific gravity of the substance.

Solids soluble in water are first weighed by the balance and then weighed suspended in some liquid in which they are insoluble, as Naphtha, Alcohol or Oil. The weight in the liquid subtracted from the ordinary weight gives the loss of weight; the ordinary weight is divided by the loss of weight thus obtained, and the quotient multiplied by the specific gravity of the liquid in which the solid was weighed—this gives the specific gravity of the solid.

Powdered substances are first weighed, and their weight added to that of the specific gravity bottle and 1000 grains of water, as described for calculating the specific gravity of liquids. The powder is then put in the bottle and enough distilled water at 15.6° C. (60° F.) added to fill it to

the water-level marks on the bottle. It is then weighed and its weight subtracted from the gross weight previously obtained; this shows the loss of weight in water. The ordinary weight of the powder is now divided by the loss of weight as shown by the subtraction; the quotient is the specific gravity of the powder.

PART I.

DRUGS AND MEDICINAL SUBSTANCES.

The substances used in the art of pharmacy are obtained from every part of the known world, and are selected from all departments of the mineral, vegetable, and animal kingdoms. The mineral kingdom contributes the greater portion, the vegetable a great variety, and the animal a fair percentage of the substances which are known in the commercial world as "Drugs."

The collection and preparation of "drugs" for the market constitutes a very great industry, second in importance to none of the commercial industries of the world. In the limited space which we have to devote to this subject, mere mention only of what is most important to druggists can be made, as its elaboration would, of itself, fill a volume.

MINERAL DRUGS.

Nearly every mineral known is, in some form, made use of in pharmacy. Minerals and mineral salts were the first substances employed in medicine. The science of chemistry owes its early advancement to the researches of the alchemists and apothecaries in mineral substances, and the legends of medicine and pharmacy are mainly based upon the wonderful powers and qualities attributed to minerals.

The collection of native mineral substances does not come within the province of pharmacy, and at present but few mineral salts are prepared by pharmacists. That task, which was formerly a necessary part of the education and business of the apothecary, now being given over to manufacturing chemists, who have better facilities and conveniences for doing it.

In chemistry, all elementary mineral substances are called bases or radicals, from their property of combining with acids to form salts.

The following table of elementary substances includes the minerals, which, with their various combinations and salts, comprise a large share of the so-called "chemicals" used in pharmacy.

TABLE OF ELEMENTARY SUBSTANCES.

U. S. P., 1880.

ELEMENTS.	Sym- bol.	Atomic Weight.	Equiva- lent.	ELEMENTS.	Sym- bol.	Atomic Weight.	Equiva- lent.
Aluminium	Al	27	13.5	Molybdenum	Mo	95.5	42.75
Antimony	Sb	120	120	Nickel	Ni	58	29
Arsenic	As	74.9	74.9	Niobium	Nb	94	94
Barium	Ba	136.8	68.4	Nitrogen ³	N	14	14
Beryllium (Glucium)	Be	9	9	Osmium	Os	198.5	99.25
Bismuth	Bi	210	210	Oxygen ⁴	O	16	8
Boron	B	11	11	Palladium	Pd	105.7	52.85
Bromine	Br	79.8	79.8	Phosphorus	P	31	31
Cadmium	Cd	111.8	55.9	Platinum	Pt	194.4	97.2
Caesium	Cs	132.6	132.6	Potassium	K	39	39
Calcium	Ca	40	20	Rhodium	Rh	104.1	52.05
Carbon ¹	C	12	6	Rubidium	Rb	85.3	85.3
Cerium	Ce	141	70.5	Ruthenium	Ru	104.2	52.1
Chlorine ²	Cl	35.4	35.4	Scandium	Sc	44	22
Chromium	Cr	52.4	26.2	Selenium	Se	78.8	39.4
Cobalt	Co	58.9	29.45	Silicon	Si	28	14
Copper	Cu	63.2	31.6	Silver	Ag	107.7	107.7
Didymium	Di	144.6	72.3	Sodium	Na	23	23
Erbium	E	165.9	82.95	Strontium	Sr	87.4	43.7
Fluorine	Fl	19	19	Sulphur ⁵	S	32	16
Gallium	G	68.8	34.4	Tantalum	Ta	182	182
Gold	Au	196.2	196.2	Tellurium	Te	128	64
Hydrogen	H	1	1	Thallium	Tl	203.7	203.7
Indium	In	113.4	56.7	Thorium	Th	233	116.5
Iodine	I	126.6	126.6	Tin	Sn	117.7	58.85
Iridium	Ir	192.7	96.35	Titanium	Ti	48	24
Iron	Fe	55.9	27.95	Tungsten	W	183.6	91.8
Lanthanum	La	138.5	138.5	Uranium	U	238.5	119.25
Lead	Pb	206.5	103.25	Vanadium	V	51.3	51.3
Lithium	Li	7	7	Ytterbium	Yb	172.7	172.7
Magnesium	Mg	24	12	Ytterium	Y	89.8	89.8
Manganese	Mn	54	27	Zinc	Zn	64.9	32.45
Mercury	Hg	199.7	99.85	Zirconium	Zr	90	45

¹ Carbon: 11.9736.

² Chlorine: 35.370.

³ Nitrogen: 14.021

⁴ Oxygen: 15.9633.

⁵ Sulphur: 31.984.

Inorganic Chemical Products.

The process by which substances unite to form other substances or compounds is called *chemical action*, and the force with which they so unite is called *chemical attraction* or *affinity*; mineral chemical substances are called *inorganic*; vegetable and animal chemical substances are called *organic*.

Inorganic Chemical products are produced by the union of mineral bases with acids, and the salts thus composed constitute a large share of the chemicals of pharmacy and commerce. The salts thus formed bear the names both of the base and acid of which they are composed; for examples, acetate of potassium or potassium acetate, sulphate of iron or ferrous sulphate, bi-chloride of mercury or mercuric chloride, etc.

The names of chemical salts are distinguished by certain prefixes or terminations, which indicate in a measure the proportions of the combinations. For a full understanding of these, and chemical nomenclature in general, the reader is referred to standard words of chemistry.

VEGETABLE DRUGS.

By far the greater number of substances used in medicine are of vegetable origin. Nearly every plant that grows has at one time or another played its part in the history of Pharmacy, and newly-discovered ones, with "wonderful virtues," are still being brought to light from "lands beyond the sea."

But little attention is now given by Pharmacists to gathering and curing

vegetable drugs; that branch of the business, which was in former time an important part of the trade of the Apothecary, being given over to collectors and others who have better facilities for carrying it on. Vegetable substances are, or should be, gathered at the season when they contain the greatest amount of medicinal value, and are prepared for market in various ways, which depend largely upon the intelligence, experience and convenience of the collectors.

A brief mention of crude vegetable drugs, and the methods employed for preparing them for the market may not be superfluous.

Balsams.—Many substances of quite different consistence and composition are classed as Balsams. They are generally gathered by puncturing pustular cells in the bark, or by making cuts or incisions in the bark or wood of certain trees or plants. They are liquid, semi-solid or solid.

Barks.—Barks are gathered in the early spring just after the sap has started to flow. The bark may then be readily stripped from the branches, trunk or root, and it contains as much or more medicinal value than at any other season. The bark from twigs or small branches is easiest removed by heating them over a fire and then pounding them with a billet of wood. The trunk-bark of trees is generally removed in slabs or strips, the outer portion being shaved or hewed off and discarded, the inner bark only being used ; the root-bark has usually to be shaved off. Barks are dried in the open air or by moderate heat in kilns, evaporators, or other heating apparatus, and come into the market in the form of quills, small slabs, stripes, or broken in small pieces. They are then cut, crushed, ground, or powdered as desired for sale or use.

Berries.—Under the common name of berries are included many of the

smaller fruits, like strawberry, raspberry, etc.; the small fleshy fruits, like juniper, ash, and laurel, and the dry, unripe berries, like cubeb, spice, and pepper. The juices of some berries are used, while others are gathered and dried by suitable heating apparatus, to prepare them for the market.

Buds.—A few kinds of leaf-buds, like Balm of Gilead, are gathered, dried, and used in medicine; but the term is usually used in Pharmacy to designate undeveloped flower-buds, of which cloves and cassie-buds are examples. They are gathered in their proper season, and dried in the open air for the market.

Flowers.—Flowers should be gathered in their early blossoming before they have passed their prime; many, even, are best gathered when the buds are opening. They are usually gathered with as little of the stalk as possible, except in the case of plants and herbs, which are gathered entire at the season of flowering. Flowers should be dried with as little exposure as possible, and packed away in a dry, cool place.

Fruit.—Fruit is a botanical name for all kinds of vegetable-growths enclosing and including seeds; but different kinds of fruit are classed - and named according to their peculiarities: as fleshy fruits, of which apples and berries are examples, stone fruits, of which the peach and cherry are examples, and dry fruits, which include nuts, capsular and other dry fruits, seeds, etc. Fruits are generally gathered when the seeds are ripe, and are dried, preserved, or otherwise treated according to their nature and use. Fleshy and stone fruits should be dried in an evaporator or other suitable drying apparatus, while the dry fruits are either sufficiently dry when ripe, or may be dried in the open air. Many of the fruits are classed commercially as berries, nuts, seeds, capsules, etc.

Gums and Gum-Resins.—Among the natural vegetable substances which are collected and put upon the market, a certain class of gums and gum-resins may be included. They are the exudations from plants either from the stings of insects, or from incisions made for the purpose of collecting the gum or gum-resin. The collection of gums and their preparation for the market forms a very large and important industry.

Besides the gums and gum-resins, there are many substances known commercially as gums which are of an entirely different character—as opium, which is a concreted juice, and catechu, which is properly an extract.

Herbs.—In pharmacy herbs are understood to be the upper portion of small plants, including the leaves, flowers and small stalks, the larger stalks and roots being discarded. Commercially, the smaller plants, which are gathered entire, are also classed with herbs. Herbs should generally be gathered when in blossom, carefully dried without artificial heat, and packed away in a cool, dry place.

Plants.—Plants, as the term is understood botanically, include all vegetable-growths, great or small; but in pharmacy the name is generally applied to small plants which are gathered and used entire. They should be gathered about the season of flowering, and dried without artificial heat.

Leaves.—Leaves should be gathered when the plants or trees are at their fullest prime. With plants, this is generally a little before the flowering season ; and with trees and shrubs, usually a little before the ripening of the fruit. Leaves should be dried without artificial heat and packed away in a cool, dry place.

Nuts.—Nuts are properly classed with fruits. They are gathered when

ripe, thoroughly dried and prepared in various ways for the market.

Roots.—Commercially considered, roots are the parts of plants which grow in the ground; in pharmacy, however, they are divided into several classes according to their nature—as root, rhizome, rootlets, bulb, cormus, tuber, etc., the three latter not being properly classed with roots. Roots should generally be gathered after the leaves are off the plants in the fall, or before they start in the spring. The bark, only, of many woody roots is used, while some are gathered, entire, being cut, sliced, crushed or otherwise prepared for market. The rhizome is the main portion of the root or rootstock, to which the rootlets, if any, are attached. Of the roots which consist of rhizome and rootlets, some are used entire, while others, only the rhizome or rootlets may be used.

The bulb, cormus and tuber are classed with roots commercially, but are botanically dissimilar. Bulbs are usually sliced and dried ; cormus and tuber may be sliced or dried whole.

Seeds.—Many of the so-called "seeds," as caraway, cardamom, coriander, fennel, etc., are classed in pharmacy as fruit. The botanical distinction being, that when two or more separate seeds are enclosed by a pericarp or envelope, the structure is called fruit, while the seed itself is a single ovule, containing the embryo and its nutriment. Seeds are generally gathered when ripe and dried if necessary by natural heat. Some of the fruits which are commercially classed as seeds require artificial heat.

Woods.—The greater part of the woods used in the drug-business are for dyeing purposes. A few, however, are used as medicine. They are generally furnished to druggists in chips, or shavings, or ground to the proper fineness for use.

Pharmaceutical and Chemical Products.

The many products which are derived from vegetable substances may conveniently be classed as pharmaceutical and chemical. In the former class may be included such as are generally prepared by pharmacists in their business, and in the latter, such as are usually prepared by the larger manufacturing chemists. Of the former class, fluid extracts, solid extracts, tinctures, spirits, syrups, etc., and of the latter, the alkaloids and their salts, vegetable acids, alcohol and distilled spirits, etc., may be mentioned.

ANIMAL DRUGS.

But few animal substances, comparatively, are used in medicine, yet in the aggregate the drugs derived from the animal kingdom form quite a percentage of the druggists' stock.

In the early days of medicine, animal substances were used to a great extent—the most ridiculous and foolish use being made of them—but, as the science of medicine has emerged from its early superstitions, they have been mostly dropped, and only such as are of known value retained.

The fats and oils obtained from animal tissue constitute the greater portion of animal-matter used in pharmacy. Some expensive animal substances, such as musk and ambergris are used quite extensively in perfumery. Pepsin, pancreatin, albumen, the meat extracts, etc., are used internally. Cantharides is most used externally, and many other animal substances have various uses in medicine or pharmacy.

Pharmaceutical and Chemical Products.

The pharmaceutical products prepared from animal substances are mainly the cerates, ointments and plasters, in which animal fats and wax are used as bases. Several tinctures also are prepared from animal substances, such as cantharides, castor, musk, etc. The chemical products consist mainly of a few alkaloids and their salts, and may include pepsin, pancreatin, etc., as they are not usually prepared except by manufacturing establishments.

PART II.

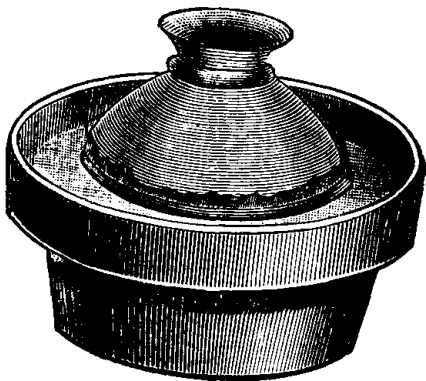
WORKING PROCESSES.

The processes which are here noted are such as druggists do or may employ in their business, without expensive apparatus or special pharmaceutical education. Many other processes are employed by chemists and large manufacturers which it would be needless to detail here, as they would not be used by druggists generally.

DIALYSIS.

The process by which certain substances are separated from other substances with which they are combined in solution, by means of the diffusibility of liquids through a thin membrane, is called Dialysis.

The physical principle, involved in this operation, is that of the diffusion of liquids, called *endosmosis* and *exosmosis*. Although this process is not officinal, it may be frequently employed to advantage in pharmacy, and it no doubt merits more consideration than it has heretofore received.



In pharmacy, dialysis is employed to separate what are known as *colloid* (glue-like) substances, from their combination in solution with crystallizable substances. This is accomplished by means of an apparatus called a Dialyzer, a simple form of which is here illustrated.

This apparatus may be made by any druggist, without expense, and is sufficient for the requirements of most retail dealers. Larger apparatus

may be made on the same principle. It consists of an ordinary white glass 7-inch lamp-shade, the bottom of which is covered over with parchment paper, which is large enough to extend up the sides of the shade nearly two inches, and which is held in place by two rubber bands. The solution to be dialysed is placed in the apparatus thus constructed, and floated on distilled water, contained in any convenient earthenware vessel. (An earthenware milk-pan which is shown in the cut, is convenient for this purpose, or an ordinary wash-bowl may be used.) The dialyzer may be suspended by a string from above, or set upon bottles in the earthenware vessel, so that the surface of the liquid in the dialyzer may be about on a level with the surface of the water in the vessel.

Parchment paper for this purpose may be made by immersing firm, unsized paper in a mixture of two measures of Sulphuric Acid with one measure of water, and afterward washing it thoroughly with pure water to remove all traces of acid. It may also be bought, at a small price, of jobbers or dealers in pharmaceutical apparatus.

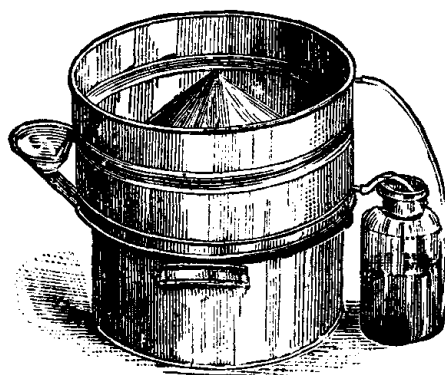
Dialysis is applicable only to aqueous solutions, and the process is used sometimes to obtain the colloid, and sometimes the crystalloid, principles from their solutions. The colloid substances are always retained in the floating vessel or dialyzer, while the crystalloid substances are found in the water with which the dialysis is conducted. In working the process to obtain the colloid substances, the water in the vessel should be changed every day; but in working it to obtain the crystalloids, as little water as is necessary for the purpose should be used, for it has subsequently to be evaporated to obtain the crystallizable substance. Gum arabic is a familiar example of a colloid, and sugar, of a crystalloid substance. If they are both represented in a solution, the gum will be retained in the floating vessel, while the sugar will gradually be transferred to the water, in which it floats.

In conducting the process of dialysis it should be continued so long as the water in the lower vessel contains appreciable traces of the soluble crystalloid, or other substance, which the process is designed to remove. Dialysed iron is probably the most familiar colloid preparation made by dialysis.

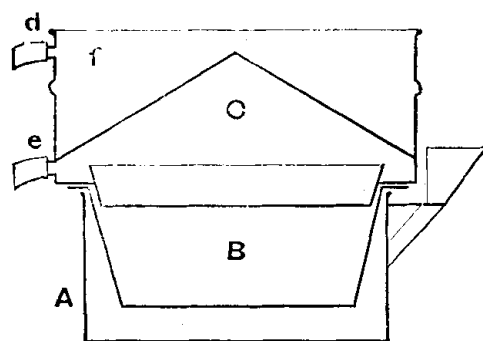
DISTILLATION.

The process of vaporizing a liquid or other substance, by the aid of heat, and then condensing the vapor to a liquid by cold, in an apparatus called a still, is known as Distillation.

FENNER'S WATER-BATH AND STILL is a convenient, simple apparatus for evaporating and distilling. It consists of a cylindrical, shallow vessel, A, into which is fitted the shallow evaporating pan, B (which serves as the vessel for open evaporation, and also for evaporation during distillation); and the conical still top, C, in which the vapor, which rises,



FENNER'S WATER-BATH AND STILL.



SECTIONAL VIEW.

is condensed during the process of distillation. This apparatus is constructed specially for evaporating and distilling; it is low and shallow, having a large bottom surface, fitting it well for rapid evaporation and distillation. Fenner's Water-bath Percolator and Still may be employed for the same purposes, but as it is constructed for percolation also, corresponding sizes do not present so large a surface for evaporation and

distillation as does the Water-bath and Still.

Druggists will find it a great convenience to have the Water-bath and Still, as well as the Water-bath Percolator and Still, for they are often both required at the same time.

This process is used for separating liquids of a less from those of a greater specific gravity; for separating liquids from soluble substances which they hold in solution; for separating volatile substances from grosser matter with which they are associated, and for purifying and freeing liquids from objectionable matter.

As applied to pharmacy, distillation is employed for recovering alcohol from many preparations which are required to be concentrated by evaporation, such as fluid extracts, solid extracts, etc., for distilling medicinal waters and spirits, for obtaining ethers, essential oils, etc., and for many other purposes.

Although distillation is frequently directed in the Pharmacopoeia, no advice nor instructions are given in regard to it, it being assumed that druggists are sufficiently familiar with the process to enable them to conduct it properly. A few suggestions, however, may not here be amiss.

To distill medicated waters or other aqueous substances no water-bath is required, the distillation of such liquids being more rapid, and equally as satisfactory, without it. If herbs, leaves, flowers, seeds or other similar substances are to be distilled, they should be protected from contact with the bottom of the still by a false bottom, so that they may not "scorch," and sufficient water should be used with them to prevent the extract which collects at the bottom from "burning down." At least, double the quantity of water that is taken of the drug should be used.

To obtain oils from medicinal plants, seeds, etc., the most approved method is to pass a current of steam through the herbs, or other substances, by which the particles of oil are vaporized and carried over with the steam and condensed, being afterwards gathered from the surface of the water.

To distill or recover Alcohol or any substance of less specific gravity than water, the liquid should be placed in the water-bath and the heat communicated to it, by heating the water surrounding it. The boiling point of the alcohol or other lighter liquid being lower than the boiling point of water, it is vaporized and condensed in the still; the heavier liquids and extractive matter remaining in the water-bath.

When drugs are percolated with alcohol, or a partly alcoholic menstruum, the menstruum remaining in the drug can be recovered by transferring the moist drug to the water-bath of the still and distilling in the usual manner. If the water-bath percolator and still is used, it is unnecessary to transfer the drug, as the still top can be adjusted, heat applied, and the distillation completed without further trouble.

The process of distillation is a very important and economical one in pharmacy, and is much less employed than it should be.

EVAPORATION.

As applied to pharmacy, evaporation is the process by which, with the aid of heat, the volume of liquids or other substance may be reduced. It is employed for many purposes in the practice of pharmacy, and is so familiar to druggists, that but little need be said regarding it in this article.

The vessels used for evaporating should be broad and low, or shallow, to

give a larger surface for the application of heat and the escape of vapor. Evaporating dishes are made of glass, iron (enameled or glazed), platinum, porcelain, tin, etc.

Heat is applied in various ways for the purpose of evaporating—by the ordinary methods, by water-bath, sand-bath, steam, heated air, etc.

For rapid evaporation, heat over an open fire or by means of steam is best; but for making many preparations, such as extracts, fluid extracts, etc., slower evaporation is necessary, that the preparation may not be injured by the heat. For this purpose the water-bath³ is the most convenient for druggists' use, as by it the heat can be regulated and maintained at any desired temperature. In large establishments the vacuum pan, which is still better for the purpose, is employed. This consists of a large pan and chamber covering it, from which the air is removed by means of an air-pump, causing the liquid in the pan to evaporate at a much lower temperature than in the open air.

The most serviceable, cheap, evaporating dish, is the ordinary granite-iron stove skillet, or frying-pan. Any ordinary evaporating dish may be set in a vessel of water, which will answer as a water-bath. A sand-bath may be made by partly filling an iron basin with sand and setting the evaporating dish in it.

For very slow evaporation a warming closet may be made, by fastening a box against the wall and heating it with a lamp placed underneath a hole in the bottom; smaller holes should also be provided in the upper surface for the escape of vapor. This box can be so arranged with shelves that a number of evaporating dishes may be placed in it at the

³ The water-bath which forms a part of FENNER'S WATER-BATH AND STILL is very convenient for the purpose of evaporation. It is shown in the sectional view on page 28 by the vessels A and B. FENNER'S WATER-BATH PERCOLATOR (see page 46) may also be used for the same purpose, it being necessary only to put the liquid to be evaporated into the percolator and leave off the cover.

same time.

EXPRESSION.

The process of expression is employed more or less for many uses in pharmacy, the apparatus and manner of working being governed by what is required to be done.

In making tinctures, fluid extracts, etc., a considerable quantity of menstruum is left in the drug after the percolation is completed, and it is economy to recover it by pressure in a tincture press or other suitable apparatus; pressure is also employed as the chief operation in some processes for making fluid extracts (see Fluid Extracts). In choosing a tincture press for any purpose, it is not economy to get the smallest sizes, a one- or two-gallon press being none too large for most pharmaceutical work. The drugs to be expressed should be inclosed in a coarse burlap bag or cloth, and the pressure should be long continued rather than too quick and forcible, that the liquid may have time to become separated from the drugs. In pressing pulpy or mucilaginous drugs it is an advantage to mix them with some loose non-absorbing material, rice chaff, for example, to facilitate the operation. Fruit juices, in a small way, are best expressed by hand pressure, except such fruits as lemon, orange, etc., which can be pressed with a lemon squeezer. In a large way, fruit may be pressed in large wooden presses, the layer presses being the best variety for this purpose. In using small presses nothing is gained by trying to press too much at a time, the operation being more satisfactory in moderate quantities.

There are several good kinds of presses to be had for pharmaceutical purposes, the "Enterprize" being as convenient and serviceable as any. There are several so-called "pressure percolators" now sold, but, in our opinion, they are not convenient percolators, and they certainly fail to

do the work of a press.

FILTRATION.

The process of separating insoluble matter from liquids, by means of any substance or medium which will prevent its passage, is called filtration.

Filtration, as it is employed in pharmacy, is usually conducted by means of filtering paper contained in a conical receptacle called a funnel;* but larger operations are carried on by other contrivances which will admit of a more rapid filtration.

The process of filtration is so familiar that it needs no explanation; but a few suggestions are here made for the benefit of the inexperienced.

*FENNER'S SPIRAL FILTER RACK is a convenience for keeping the filtering paper off the sides of the funnel when filtering. It is made of tinned steel wire, of different sizes to fit different size funnels.

It is simple, cleanly, durable, efficient and cheap. The cut shows it as it is adjusted in the funnel ready for use.

Heat often assists the process of filtering heavy liquids or oils. It may be conveniently applied by putting a filter inside of Fenner's water-bath percolator, and applying heat by means of the water-bath. For supporting the funnel during filtration, Fenner's Funnel Rack, which is shown in the cut, is very convenient.

Further remarks on filtering will be found in the article on " Economy in Percolating and Filtering," page 43.



In filtering a liquid which contains a precipitate (unless the precipitate is designed to clear the liquid, as magnesia or pumice-stone are used) the liquid should be poured carefully off and filtered first, the precipitated portion being added after most of the liquid has passed through the filter; this makes the process more rapid.

The first portion that passes through the filter should be returned to it and re-filtered, as, when the filter is dry, it admits of the passage of small particles which are retained when its fibers have had time to swell by the absorption of moisture.

In filtering liquids containing albuminous or gummy precipitates, it is also advantageous to put a coarse cotton cloth strainer on the inside of the filter paper; this catches the precipitate or albuminous substance, which may be removed with it, or in which it may be pressed to strain out the liquid, and thus make the filtration more rapid.

A plaited filter is generally used, except when a filter-rack is employed, then the ordinary folded (quartered) filter is used.

Besides filtering through paper, other means are often employed by druggists. Syrups and heavy liquids may be filtered through a flannel or cotton strainer, or felt filters that are made expressly for this purpose. Charcoal and sand, in alternate layers, are employed for filtering light liquids when larger quantities are to be filtered.

A little charcoal in powder, or powdered pumice-stone sprinkled in the filter, will often assist to clear preparations that are difficult to filter clear.

FINENESS OF POWDER.

To properly obtain the soluble constituents of drugs by the process of percolation, they should be so comminuted or divided that the menstruum may readily dissolve all soluble matter.

To this end, different drugs are directed to be reduced to different degrees of fineness as experience has shown to be best suited to their nature.

The United States Pharmacopoeia has adopted the following standard for the fineness of powders:

<i>A very fine</i> powder	{ should pass through a sieve having 80 or more meshes to the linear inch,	} equals No. 80 powder.
<i>A fine</i> powder	{ should pass through a sieve having 60 meshes to the linear inch,	} equals No. 60 powder.
<i>A moderately fine</i> powder	{ should pass through a sieve having 50 meshes to the linear inch,	} equals No. 50 powder.
<i>A moderately coarse</i> powder	{ should pass through a sieve having 40 meshes to the linear inch,	} equals No. 40 powder.
<i>A coarse</i> powder	{ should pass through a sieve having 20 meshes to the linear inch,	} equals No. 20 powder.

Other degrees of fineness than the foregoing are often directed.

It is desirable for the purpose of percolation that the powder used should be as uniform as possible, it is therefore directed in the Pharmacopoeia that "not more than a small proportion of the powder should be able to pass through a sieve having ten meshes or more to the linear inch."

While this direction is valuable for securing a uniform powder and thereby promoting the process of percolation, it is, in our opinion, unwise to specify this limit; for in reducing drugs to different fineness of powder by any process which druggists may command, it is obvious that, unless the powder is very fine, quite a proportion of it will be much finer than the coarsest powder which will pass through the sieve having the required number of meshes to the inch. If this portion is separated from the coarser powder by sifting, that which remains will not truly represent the entire substance of the drug from which it was prepared.

In preparing a powder, therefore, for percolation the entire quantity of drug which is taken should be reduced to a powder that will pass through a sieve having the required number of meshes; or, if this produces a powder too fine for successful percolation, a coarser sieve should be used; for it is better to use a coarser powder than to remove any portion of the drug which would be represented by the finer powder.

For the reasons stated the powders directed in the formulae of the U. S. P., are, as a rule, too fine for successful percolation by the majority of druggists, and better results will be secured by using about one grade coarser powder than is designated.

Drugs are usually reduced to the required degree of fineness for percolation by grinding in a drug mill, but when finer powders are required the old, time-honored mortar and pestle comes into play. But few druggists, however, attempt to make what are known in the market as "powdered drugs." They are usually bought of reliable houses who make a business of putting them up.

Drugs "ground for percolation " may also be bought in the market, but as they always come in bulk without the guarantee of a reliable house,

they are liable to adulteration, or to be ground from old or worthless drugs, and it is much better for the druggist to grind them himself, as needed, from reliable crude drugs.

INFUSION AND DECOCTION.

The process of INFUSION consists in steeping drugs at a temperature below the boiling point of water, in an aqueous or other menstruum, for the purpose of extracting their soluble medicinal constituents. For this purpose, "infusion pots," which contain a perforated cup or receptacle for the drug, which is surrounded by hot water during the operation, are furnished by manufacturers of chemical ware. A covered granite-ware, or earthen-ware, vessel will answer the same purpose; the water-bath percolator is however the best adapted of any apparatus for the purpose of infusion, as the heat can be maintained and the liquid drawn off by the stop-cock whenever it is desired. For making infusions, boiling water is usually poured upon the drug and the heat continued to nearly the boiling point for from one to two hours.

The process of DECOCTION consists in boiling the drugs in an aqueous menstruum for fifteen minutes or longer to obtain their soluble properties. This may be done in an open' or covered vessel, but the process is now but little employed. The water-bath percolator is a very convenient apparatus for decoctions, as the heat may be maintained to boiling for any length of time, and the liquid then drawn off by the stop-cock.

MACERATION.

When percolation came to be the officinal process for exhausting drugs, maceration, the process of our forefathers, was mostly abandoned, but we are glad to see that in the present pharmacopoeia its value is again

recognized, and that many preparations, which have of late been made by percolation, are now again made by maceration. In addition to this, the new pharmacopoeia, in making most of the tinctures and some extracts, gives the very much needed direction to macerate twenty-four hours with a portion of the menstruum before packing in the percolator. Maceration is the necessary primary step to successful percolation. It softens the drug, dissolves its soluble properties and loads the menstruum with them, ready to be carried away by the subsequent process of percolation.

The new British Pharmacopoeia (1885) directs maceration for from twenty-four to forty-eight hours as a preliminary step to percolation in making tinctures, etc. The German, French, and other continental European authorities direct maceration mainly for obtaining the strength of drugs; and although percolation, when properly conducted, has great advantages over any other process for obtaining the strength of drugs, without maceration it fails to accomplish its full purpose.

Whenever percolation is employed, sufficient time should be given for maceration to loosen and dissolve the soluble properties of the drug. If alcohol is the menstruum employed, the maceration may be conducted after packing the percolator; but if water forms a portion of the menstruum, the drug should first be macerated with a portion of the menstruum sufficiently long to allow it to swell before it is packed in the percolator.

Any convenient covered vessel may be used for macerating drugs designed to be percolated. For small quantities, glass, specie or salt mouth jars, earthen-ware fruit jars, or covered granite-ware stew-pans, are very convenient, even tin cans will not be injurious for most drugs. Drugs to be thus macerated should be thoroughly moistened with a portion of the menstruum and covered to prevent exposure and

evaporation. When preparations are prepared entirely by maceration, the drugs should be put in a suitable glass jar or vessel, the menstruum added, and be frequently agitated for several days.

PERCOLATION.

The directions for percolation are very complete and minute in the present pharmacopoeia; they are therefore repeated here in full;

"The process of percolation or displacement directed in this (1880) Pharmacopoeia consists in subjecting a substance or substances in powder contained in a vessel called a percolator, to the solvent action of successive portions of menstruum, in such a manner that the liquid as it traverses the powder in its descent to the recipient, shall be charged with the soluble portion of it, and pass from the percolator free from insoluble matter.

"When the process is successfully conducted, the first portion of the liquid or percolate, passing through the percolator will be nearly saturated with the soluble constituents of the substance treated; and if the quantity of menstruum be sufficient for its exhaustion, the last portion of the percolate will be destitute of color, odor and taste, other than that possessed by the menstruum itself.

"The percolator most suitable for the quantities contemplated by this Pharmacopoeia should be nearly cylindrical, or slightly conical, with a funnel-shaped termination at the smaller end. The neck of this funnel-end should be rather short, and should gradually and regularly become narrower toward the orifice, so that a perforated cork, bearing a short glass tube, may be tightly wedged into it from within until the end of the cork is flush with its outer edge. The glass tube, which must not protrude above the inner surface of the cork, should extend from one and one-eighth to one and one-half inch (three or four centimetres), beyond the outer surface of the cork, and should be provided with a closely fitting rubber tube, at least one-fourth longer than the percolator itself, and ending in another short glass tube, whereby the rubber tube may be so suspended that its orifice shall be above the surface of the menstruum in the percolator, a rubber band holding it in position.

"The dimensions of such a percolator, conveniently holding 500 grammes of powdered material, are preferably the following: Length of body, fourteen inches (36 centimetres); length of neck, two inches (5 centimetres); internal diameter at top, four inches (10 centimetres) ; internal diameter at beginning of funnel-shaped end, two and one-half inches (6.5 centimetres) ; internal diameter of the neck, one-half inch (12 millimetres), gradually reduced at the end to two-fifths of an inch (10 millimetres). It is best constructed of glass, but, unless so directed, may be constructed of a different material.

"The percolator is prepared for percolation by gently pressing a small tuft of cotton into the space of the neck above the cork, and a small layer of clean and dry sand is then poured upon the surface of the cotton to hold it in place.

"The powdered substance to be percolated (which must be uniformly of the fineness directed in the formula, and should be perfectly air-dry before it is weighed) is put into a basin, the specified quantity of menstruum is poured on and it is thoroughly stirred with a spatula, or other suitable instrument, until it appears uniformly moistened. The moist powder is then passed through a coarse sieve—No. 40 powders, and those which are finer, requiring No. 20 sieve, whilst No. 30 powders require a No. 15 sieve for this purpose. Powders of a less degree of fineness usually do not require this additional treatment after the moistening. The moist powder is now transferred to a sheet of thick paper and the whole quantity poured from it into the percolator. It is then shaken down lightly and allowed to remain in that position for a period varying from fifteen minutes to several hours, unless otherwise directed; after which the powder is pressed, by the aid of a plunger of suitable dimensions, more or less firmly, in proportion to the character of the powdered substance and the alcoholic strength of the menstruum; strongly alcoholic menstrea, as a rule, permitting firmer packing of the powder than the weaker. The percolator is now placed in a position for percolation, and, the rubber tube having been fastened at a suitable height, the surface of the powder is covered by an accurately fitting disk of filtering paper, or other suitable material, and a sufficient quantity of the menstruum poured on through a funnel reaching nearly to the surface of the paper. If these conditions are accurately observed, the menstruum will penetrate the powder equally until it has passed into the rubber tube and has reached, in this, the height corresponding to its level in the percolator, which is now closely covered to prevent evaporation, and the apparatus allowed to stand at rest for the time specified in the formula.

"To begin percolation, the rubber tube is lowered and its glass end introduced into the neck of a bottle previously marked for the quantity of liquid to be percolated, if the percolate is to be measured, or of a tared bottle, if the percolate is to be weighed; and by raising or lowering this recipient, the rapidity of percolation may be increased or lessened as may be desirable, observing, however, that the rate of percolation, unless the quantity of material taken in operation is largely in excess of the pharmacopoeial quantities, shall not exceed the limit of ten to thirty drops in a minute. A layer of menstruum must constantly be maintained above the powder, so as to prevent the access of air to its interstices, until all has been added, or the requisite quantity of percolate has been obtained. This is conveniently accomplished, if the space above the powder will admit of it, by inverting a bottle containing the entire quantity of menstruum over the percolator in such a manner that its mouth may dip beneath the surface of the liquid, the bottle being of such shape that its shoulder will serve as a cover for the percolator.

"When the dregs of a tincture, or similar preparation, are to be subjected to percolation, after maceration with all or with the greater portion of the menstruum, the liquid portion should be drained off as completely as possible, the solid portion packed in a percolator, as before described, and the liquid poured on, until all has passed from the surface, when, immediately, a sufficient quantity of the original menstruum should be poured on to displace the absorbed liquid, until the prescribed quantity has been obtained."

The foregoing officinal directions cover the whole *general* subject of percolation, and the remarks which follow are intended as *special* consideration of improved methods, and the difficulties which may arise in applying a general rule to the treatment of a variety of substances.

The fineness of powder to be used for percolation has been discussed under the article on fineness of powders, but it may be here repeated that the powders directed in the formulae of the pharmacopoeia are, as a rule, too fine for successful percolation, and that the mass of druggists will have "better luck" to choose a grade coarser powder than is specified in the officinal formulae.

Moistening the drug is discussed in the officinal process, and in the article on maceration, and it need only be remarked that it is of great importance to have the drug thoroughly and evenly moistened. Many druggists are in the habit of putting the drug in the percolator and pouring the menstruum upon it to moisten it, without even stirring it up; this should never be done, for, frequently, a portion of the drug will "cake" so that it will not become moistened during the entire process of percolation. The drug should always be moistened in a basin or other vessel, before putting into the percolator.

Macerating before percolating is discussed in the article on maceration. It may be here repeated, however, that when water is used as a portion of the menstruum for percolation, the drug should be moistened with the menstruum and allowed to macerate for twenty-four hours, in order that it may swell before, instead of after, packing in the percolator.

Packing the percolator. In packing the percolator much depends upon the nature of the drug, the fineness of the powder, etc. Loose, fibrous, or bulky drugs, such as arnica, stillingia, buchu, etc., cannot be packed very firmly, but should be made as compact as possible; heavy drugs, such as aconite root, valerian, golden seal, etc., do not require so much pressure, but will pack much firmer; soft, spongy, or gummy drugs, such as rhubarb, colocynth or squill, should not be packed very firmly; coarse powders, as a rule, should be packed more firmly than fine. The percolator should be packed from the outside towards the centre and as evenly as possible. A disc of paper and then a cover of perforated tin should be placed upon the surface of the powder after it is packed to secure the even distribution of the menstruum as it is poured upon the drug. A glass or earthenware weight may be used with advantage to hold the drug in its place. It should generally be allowed to macerate for some time after the menstruum is poured on before beginning to

percolate.

The flow of percolate maybe regulated by the rubber tube, as directed in the officinal process; by a loose cork in the bottom of the percolator; or, if the water-bath percolator is used, by the stop-cock. The rapidity with which the percolate should flow, depends very much upon the nature of the drug, and the quantity required to be obtained as compared with the quantity of drug being percolated; for example, fluid extracts should not be percolated so rapidly as tinctures, nor aconite as rapidly as buchu.

With a certain class of drugs, the alcoholic or hydro-alcoholic menstruum, with which the percolation is conducted, may be forced out by adding water after the menstruum has disappeared from the surface of the drug, and thereby make a saving of alcohol; but with others, which soften or make precipitates with an aqueous menstruum, the percolation must be conducted to the end with the same menstruum. The menstruum remaining in the drug after percolation, may be pressed out with a tincture press and the alcohol recovered from it by distillation.

Drugs Difficult to Percolate.

Many drugs present difficulties to the ordinary methods of percolation and require special treatment; this is generally given in the formulae in which they are found ; but they may be classed in a general way as follows :

1. Drugs that soften or make a pulpy mass upon the addition of the menstruum, such as orange, gentian, rhubarb, squill, colocynth, etc. Such drugs should be well moistened and macerated before packing; they should be rather coarsely powdered and rather loosely packed, and

the percolation, when begun, should be conducted rapidly, and continued to the end with the same menstruum.

2. Gums and gum-resins which agglutinate or mass together when the menstruum is added. These should be mixed with an equal bulk of sand, sawdust, or rice chaff, and not packed, but placed loosely, in the percolator, and the percolation conducted in the usual manner.

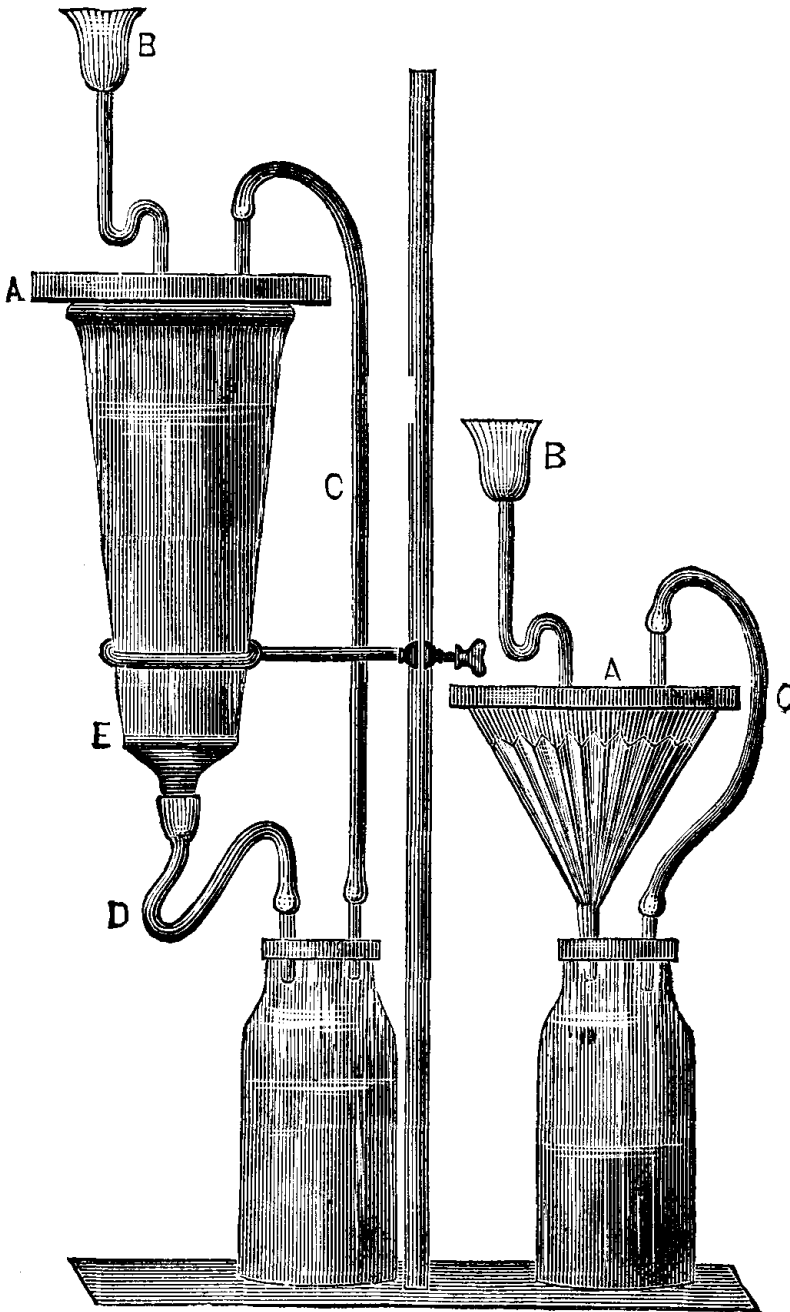
3. Bulky drugs, like arnica, buchu, chamomile, etc. Although these drugs are not difficult to percolate, they absorb so much menstruum that the expense of making their preparations is considerably increased. These should be packed as firmly as possible, and held down in the percolator with a weight during the process of percolation.

Economy in Percolating and Filtering.

Much loss of Alcohol occurs by evaporation when the ordinary percolator or filtering funnel are left uncovered during percolation or filtration. To remedy this difficulty a simple apparatus may be constructed by any druggist who will take the trouble. It is shown in use in the following cut:

A, is the wooden cover, large enough to fit the top of a percolator or funnel; it is bound with a wooden hoop, whose lower edge projects about half an inch below the under surface of the cover; to the wooden hoop is tacked a piece of moderately thin-sheet rubber, so that the cover when completed, is like a drum-head, and, when it is used to cover a percolator or funnel, will make, by its elasticity, an air-tight covering.

B, is a funnel tube, so bent as to prevent evaporation or access of air. Through it, fresh menstruum or other liquid may be introduced into the percolator or funnel. A glass or metal tube answers the same purpose,



and may be stopped with a cork. This tube may be adjusted by boring a hole in the wooden cover and punching a smaller hole in the rubber, so that it will fit snug around the tube.

C, is a rubber tube attached at one end to a glass tube in the cover (which passes through the rubber as heretofore described), and at the other end to a tube in the stopper of the receiving bottle. This tube allows the air to pass from the receiving bottle into the percolator, and as the liquid fills the bottle the air is forced from it into the percolator or funnel.

D, is a rubber tube attached to the percolator that connects with a tube in the stopper of the receiving bottle, through which the percolate passes; if the lower end of the percolator is too large for the rubber tube, a perforated cork, into which a glass tube is inserted, may be placed in

the neck of the percolator for this purpose, as is directed in the pharmacopoeia process. By raising or lowering the percolator or the receiving bottle the flow of the percolate can be made more or less rapid, as it works on the principle of the syphon. The receiving bottle may be made of any wide-mouth bottle, holes being bored in the cork for the insertion of the tubes to which the rubber tubing is attached.

E, shows the perforated diaphragm of the percolator.

With this simple arrangement percolation or filtration can be carried on for any length of time without exposure or loss by evaporation.

WATER-BATH PERCOLATION.

The process of water-bath percolation consists in subjecting the powder contained in a percolator, surrounded by water, to the action of a warm menstruum during the entire process of maceration and percolation. By the means of the water-bath the menstruum and powder are kept at any desired degree of heat for any length of time.

It is claimed for this process, that the heat employed is of great aid in effecting the solution of the soluble constituents of the substance or substances which are being exhausted, and therefore, that it is much more rapid, efficient and economical than the ordinary method of percolation.

By consulting the solubility tables, which may be found in the pharmacopoeia and other standard works, it will be seen that the medicinal principles of vegetable drugs (especially the alkaloids and other substances in which their value chiefly consists), are from several to several hundred times more soluble in boiling water or alcohol than

in cold. Although the heat employed in water-bath percolation is seldom so high as boiling alcohol or water, yet the solubility of the medicinal principles is relatively increased according to the heat employed ; and, as the object of percolation is to exhaust the drug of its soluble medicinal agents no other argument than this for the application of heat during percolation seems necessary, for it is evident that the value of the drug is much more faithfully represented in preparations made in this manner, and, that in making fluid or solid extracts, or other concentrated preparations, a much less quantity of menstruum is required to exhaust the drug, than when cold percolation is employed.

As the question may be asked by many if heat does not injure the preparations, it may be here stated that the degree of heat directed cannot be injurious, as it is insufficient to volatilize any of the medicinal principles of the drugs.

The process of water-bath percolation as applied to pharmaceutical preparations and the apparatus,

FENNER'S WATER-BATH PERCOLATOR AND STILL,

were patented February 7, 1882.

The process is an application of the well-known fact that a heated menstruum dissolves the soluble portions of drug's much more readily and to a much greater extent than the same menstruum when cold.

The apparatus is constructed with the view of serving its purpose in the best possible manner, and since its introduction it is coming rapidly into use in all parts of the country.

The following is a description and sectional view of the apparatus :

It consists of a Percolator, A, suspended in a water-bath and connected externally by a stop-cock through which the percolate is received, and a Still, B, which may be adjusted whenever it is needed.

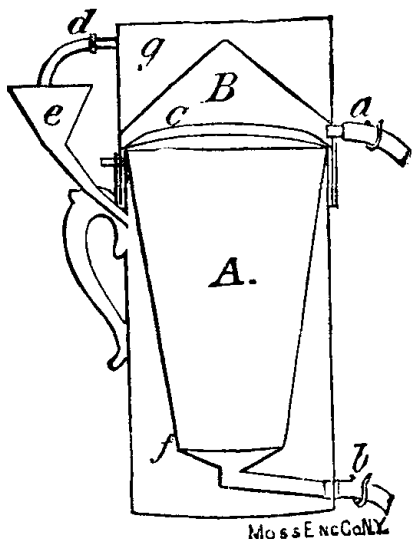
The percolator. A, is also the vessel into which liquids are put for evaporation and distillation.

The percolator may be removed by unscrewing the stop-cock at b, and lifting it

out of the water-bath. It should be removed after using in order to dry the apparatus.

The perforated diaphragm at / prevents the drug packing in the neck of the percolator and thereby hindering percolation.

The flow of the percolate can be regulated by the stop-cock ; it also serves to draw off the residue after distillation or evaporation.

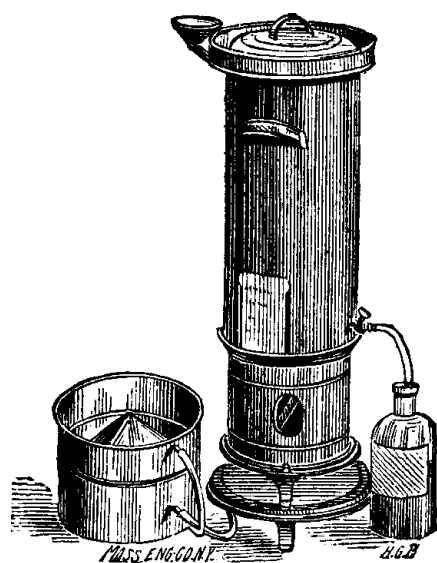


The vessel surrounding the Percolator is designed for water which is to be heated when desired, forming a water-bath for the Percolator and its contents. The Still B, can be adjusted when desired, by setting it into the percolator or water-bath. The vapor rises to the inner surface of the cone of the Still, is condensed by the cold water on the outer surface of the cone, and the distillate is discharged in the form of a liquid at a, being conducted through a rubber tube to any convenient receptacle.

The following cut represents the Water-bath Percolator and Still detached and in use as a percolator. When used for distilling, the cover of the percolator is to be removed and the still top adjusted as heretofore described. When used for evaporating, the cover of the percolator is to be removed, and the evaporation conducted in the ordinary way.

The water-bath percolator can be used as readily for cold percolation as for warm, and, in short, when all things are considered it is the most serviceable, economical and convenient percolator in use.

These Water-bath Percolators and Stills are now being used to a large extent in all parts of the country, and the reports received from parties who have thoroughly tested them are very flattering.



At no distant day the process of water-bath percolation is bound to supersede the ordinary method of percolating as completely as percolation, when it was introduced, superseded the process of maceration.

The method of conducting water-bath percolation is as follows:

The powdered drug is to be moistened with a portion of the menstruum and either packed in the percolator at once, or after macerating twenty-four hours, as the formula may direct. A certain quantity of menstruum (as directed in the formula) is then to be poured upon the drug and it is allowed to macerate for a specified time in a warm place. It is then to be heated (as directed in the formula) for a certain length of time and the percolation then begun and continued until the drug is exhausted, or until the required amount of percolate is obtained.

The same general directions for packing the percolator, keeping the drug covered with the menstruum, regulating the flow of the percolate, etc., as are specified in the officinal process, should be observed.

In the formulae contained in this book for making preparations by water-bath percolation, it is directed after packing in the percolator and adding menstruum to the drug, to "set in a warm place" for a certain length of time to macerate; by this it is meant that the percolator and its contents should be heated from 30° to 35° C. (86° to 95° F.) by any convenient means. In summer a warm place in the store will suffice; in winter a shelf by the stove or other heating apparatus will do; or a box, with a hinged door and holes in the bottom about the size of the bottom of the percolators, may be fastened to the side of the wall and the heat may be maintained by a coal oil lamp placed beneath the percolator.

In large establishments warming closets heated by steam pipes or other means may be arranged. It is not absolutely necessary that heat should be maintained during maceration, but better results will follow if it is.

The direction in the formulae "heat very moderately" means that the temperature should not be higher than from 40° to 45° C. (104° to 113°

F.); "heat moderately" means that the temperature should not exceed 60° to 65° C. (140° to 149° F.) — a higher temperature than this is seldom necessary.

After the percolation is concluded, if sufficient Alcohol is retained in the drug to be of value, it may be recovered by distillation. The amount of alcohol or other menstruum retained varies with the nature of the drug—from one-fourth to more than its entire original weight. In making any considerable quantity of a preparation, it is important to save this menstruum, which would otherwise be wasted, by distillation, as stated in the article on distillation.

SOLUTION.

Solution is the process of dissolving solids or fluids by means of other solids or fluids which combine with them and hold them in a liquid state. The most common forms of solutions are those in which a liquid is dissolved in another liquid, as, for example, an essential oil in alcohol, or a solid in a liquid, as sugar in water; but some solutions are made by the action of solid substances upon each other, as when camphor and hydrate of chloral are combined.

No special apparatus is required for making solutions. Many are made cold, while some are aided by heat with such appliances as druggists usually possess. The solution of some substances is facilitated by reducing them to a fine powder, while others, as scale salts, etc., are best dissolved without being made fine. In dissolving by the aid of heat the water-bath is much employed.

WASHING PRECIPITATES.

The object of washing fresh precipitates is to free them from soluble salts, or other substances with which they are associated, which are soluble in water.

The usual manner of washing fresh precipitates, in a small way, is to pour them upon a wet muslin strainer and filter water through them until the soluble matter has all been washed out.

This method is open to several objections: 1st, exposure to the atmosphere, which rapidly oxidizes many salts, especially the iron salts, rendering them insoluble; 2d, waste, as considerable of the precipitate is washed away by this method; 3d, inconvenience, as it requires the continued attention of the operator.

Another method is to wash the precipitate in a large jar or earthenware crock, by pouring upon it a quantity of water and stirring thoroughly, then allowing the precipitate to settle, drawing off the supernatant fluid with a syphon, pouring on more fresh water, and thus continuing until the soluble matter is washed out; and then draining the precipitate upon a muslin strainer.

The best method, however, is to make the precipitate in a tall jar or crock, filled full of water; then, having fastened a piece of rubber tubing to each end of a stick, insert it in the jar in such a manner that a stream of water passing through one rubber tube will reach to the bottom of the vessel, while the water at the top of the jar will be carried off by means of the other tube, which acts as a syphon. The water to wash the precipitate can be supplied from a water-pipe, or from a bucket set above the washing apparatus, into which the tube is inserted as a syphon. The same result will be accomplished by running the tube,

through which the water is supplied, to the bottom of the jar and allowing the water to overflow at the top.

It will be seen that by this means the precipitate is continually washed, and that it is not exposed, nor wasted, as only clear water is drawn off at the top of the jar, because the precipitate has time to settle away from the surface of the water where the waste tube is attached. Precipitates are rapidly and thoroughly washed by this method. When the soluble substances have all been washed out, the precipitate should be poured upon a muslin strainer to drain, the water may then be pressed out and the precipitate dissolved, or dried, as required.

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Compiled and written by

B. F E N N E R,

AUTHOR OF FENNER'S FORMULARY, FENNER'S WORKING FORMULÆ
AND EDITOR OF THE FORMULARY.

Sixth Edition.

WESTFIELD, N. Y.
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1888.

PART III.

WORKING FORMULA.

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

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

ABSTRACTA—ABSTRACTS.

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

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

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

The quantitative formulae for the officinal abstracts are as follows:

1. Abstractum Aconiti.
Abstract of Aconite.

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

2. Abstractum Belladonnae.
Abstract of Belladonna.

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

3. Abstractum Conii.
Abstract of Conium.

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

4. Abstractum Digitalis.
Abstract of Digitalis.

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

5. Abstractum Hyoscyami.
Abstract of Hyoscyamus.

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

6. Abstractum Ignatiae.
Abstract of Ignatia.

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

7. Abstractum Jalapae.
Abstract of Jalap.

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

8. Abstractum Nucis Vomicae.
Abstract of Nux Vomica.

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

9. Abstractum Podophylli.
Abstract of Podophyllum.

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

10. Abstractum Senegae.
Abstract of Senega.

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

11. Abstractum Valerianae.
Abstract of Valerian.

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

12. Abstracts, by Water-Bath Percolation.

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

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

13. Abstract of Aconite.

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

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

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

ACETA—ACETATES—VINEGARS.

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

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

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

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

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

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

14. Acetum—Vinegar.

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

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

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

15. Acetum Aromaticum.

Aromatic Vinegar.

(Adapted from the German and French Pharmacopoeias.)

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

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

This is used as an Aromatic toilet preparation and sometimes internally

as a mild Aromatic Acid.

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

16. Acetum Cantharidis.

Vinegar of Cantharides.

(ADAPTED FROM THE BRITISH PHARMACOPOEIA, 1885.) .

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

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

17. Acetum Colchici.

Vinegar of Colchicum Seed or Tuber (Root).

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

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

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

18. Acetum Digitalis.

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Vinegar of Digitalis.

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

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

19. Acetum Lobeliae.
Vinegar of Lobelia.

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

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

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

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

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

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

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

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

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

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

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

22. Acetum Sanguinariae.
Vinegar of Blood Root.

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

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

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

23. Acetum Scillae.
Vinegar of Squill.

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

Make in the same manner as *Acetum Colchici*.

Expectorant and Diuretic. Dose 10 to 60 minims.

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

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

ACIDA—ACIDS.

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

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

24. Acidum Aceticum. *Acetic Acid.*

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

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

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

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

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

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

49. Adeps Praeparatus.
Prepared Lard— Washed Lard.

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

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

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

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

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

50. Adeps Benzoinatus.

Benzoinated Lard— Benzoinated Ointment.

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

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

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

ALBUMEN.

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

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

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

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



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

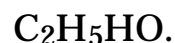
The combinations of Albumen with medicines are frequently called *nitrogenized* medicines or *protein* compounds.

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

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

ALCOHOLES—ALCOHOLS.

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



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

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

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

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

It is composed of

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

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

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

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

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

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

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

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

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

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

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

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

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

recipes, and Alcohol should be dispensed.

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

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

65. Alcohol Dilutum.

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

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

DILUTED ALCOHOL, U. S. 1880.

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

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

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

DILUTED ALCOHOL, U. S. 1870.

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

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

volume 46.6.

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

DILUTED ALCOHOL, TO BE USED IN THESE FORMULAS.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ALKALOIDES — ALKALOIDS.

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

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

partly for the hydrogen of the typical ammonia base.

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

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

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

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

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

70. General Directions for Preparing Alkaloids.

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

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

II. FOR ALKALOIDS INSOLUBLE IN WATER.

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

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

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

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

Important Alkaloids and their Salts.

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

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

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

76. Beberina.

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

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

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

77. Beberinae Sulphas, Br.

Sulphate of Beberine—(Sulphate of Beberia.)

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

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

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

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

78. Berberina.

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

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

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

79. Berberinae Hydrochloras.

Hydrochlorate of Berberine.

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

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

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

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

80. Berberinae Sulphas.

Sulphate of Berberine.

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

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

81. Caffeina.

Caffeine — Theine — Guaranine. C₈H₁₆O₂,H₂O.

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

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

82. Caffeinae Citras, Br.

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

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

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

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

96. Hydrastina.

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

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

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

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

122. Sanguinarina.

Sanguinarine. C₁₉H₁₇NO₄.

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

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

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

ALOE—ALOES.

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

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

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

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

Various preparations of Aloes will be found under their proper

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

131. Aloe Purificata, U. S.

Purified Aloes.

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

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

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

132. Aloin, Br.

$C_{16}H_{18}O_7$

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

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

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

AQUÆ — WATERS.

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

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

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

The processes by which they are made are as follows :

208. By Solution.

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

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

209. By Distillation.

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

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

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

210. By Filtration or Percolation.

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

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

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

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

211. Aqua Amygdalae Amarae.

Bitter Almond Water.

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

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

This is an agreeably flavored vehicle.

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

212. Aqua Anethi, Br.

Dill Water.

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

Distill 10 pounds, (209 a.)

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

213. Aqua Anisi, U. S.

Anise Water.

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

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

The British Pharmacopoeia directs :

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

Distill 10 pounds, as directed (209 a.)

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

214. Aqua Aurantii Florum.

Orange Flower Water.

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

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

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

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

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

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

215. Aqua Camphorae.

Camphor Water (U. S., 1880).

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

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

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

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

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

217. Aqua Carvi, Br.

Caraway Water.

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

Distill 10 pounds as directed, (209 a.)

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

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

219. Aqua Cinnamomi.

Cinnamon Water (U. S., 1880).

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

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

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

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

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

222. Aqua Foeniculi.

Fennel Water.

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

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

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

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

Distill 10 pounds.

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

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

223. Aqua Gaultheriae.

Wintergreen Water.

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

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

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

It may be made by distillation as follows :

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

Distill 8 pints.

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

224. Aqua Lauro Cerasi, Br.

Cherry Laurel Water.

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

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

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

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

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

225. Aqua Menthae Piperitae.

Peppermint Water.

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

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

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

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

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

226. Aqua Mentha Viridis.

Spearmint Water.

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

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

228. Aqua Pimentas, Br.

Pimento Water.

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

Distill 10 pounds.

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

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

229. Aqua Rosae.

Rose Water.

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

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

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

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

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

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

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

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

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

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

230. Aqua Sambuci, Br.

Elder Flower Water.

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

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

Other Medicinal Waters.

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

BALSAMA — BALSAMS.

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

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

True Natural Balsams.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Other Natural "Balsams."

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

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

Factitious Balsams.

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

266. Factitious Canada Balsam.

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

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

267. Factitious Balsam Copaiba.

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

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

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

268. Factitious Balsam of Mecca or Balm of Gilead.

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

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

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

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

269. Factitious Balsam of Peru.

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

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

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

270. Factitious Balsam of Tolu.

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

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

Balsamic Compounds.

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

271. Balsam of Honey.

(Pectoral Balsam.)

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

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

272. Balsam of Guaiacum.

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

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

273. Green Balsam.

(Balsam Viride)

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

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

Verdigris, in powder, 3 drachms.

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

277 Balsam of Turpentine.

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

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

278. Universal Balsam or Balm.

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

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

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

It is similar to compound Tincture of Benzoin.

327. Butyrum.

Butter.

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

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

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

329. Butterine.

Artificial Butter — Oleomargarine.

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

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

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

354. Carbo Animalis.

Animal Charcoal.

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

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

355. Carbo Animalis Purificatus.

Purified Animal Charcoal.

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

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

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

chemicals.

356. Carbo Ligni.

Charcoal— Wood-Charcoal.

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

For pharmaceutical use, charcoal prepared from willow is preferred.

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

CERÆ—WAXES.

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

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

364. Cera Flava.

Yellow Wax, Beeswax.

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

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

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

365. Cera Alba.

White Wax.

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

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

Other kinds of Wax.

The following are varieties of wax obtained from natural sources:

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

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

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

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

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

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

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

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

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

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

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

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

Cheaper Sealing Wax may be made as follows :

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

Melt together and stir in the coloring.

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

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

Melt together and stir in the coloring.

Bottle Wax may be made from :

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

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

CERATA—CERATES.

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

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

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

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

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

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

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

374. Ceratum.

Cerate or Simple Cerate.

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

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

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

375. Ceratum Camphorae.

Camphor Cerate.

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

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

MADE WITH PETROLATUM.

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

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

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

380. Ceratum Resinae.

Resin Cerate, Basilicon Ointment.

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

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

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

381. Ceratum Resinae Compositum.

Compound Resin Cerate.

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

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

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

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

382. Ceratum Sabinae.

Savine Cerate.

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

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

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

383. Ceratum Saponis.

Soap Cerate.

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

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

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

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

Other Cerates.

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

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

386. Cerate Cosmetic, or Cold Cream.

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

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

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

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

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

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

387. Cerate of Galen.

Cerat de Galien, Fr.

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

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

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

389. Rose Cerate, or Lip Salve.

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

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

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

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

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

CHARTÆ — PAPERS.

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

407. Charta Sinapis.

Mustard Paper.

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

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

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

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

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

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

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

Other Papers.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

427. CHOCOLATA.

Chocolate and Cocoa.

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

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

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

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

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

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

COLORES—COLORS.

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

Coloring Liquids.

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

438. Caramel.

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

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

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

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

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

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

439. Carmine Coloring.

Solution of Carmine. (Red.)

Carmine, No. 40,	120 grains.
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Carbonate of Potassium (Salts of Tartar),	60 grains.
Glycerin,	2 fl.ounces.
Water of Ammonia,	1/2 fl.ounce.
Water,	5 fl.ounces.

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

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

440. Cochineal Red.

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

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

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

441. Cochineal Fruit Red.

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

Make in the same manner as No. 440.

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

442. Cudbear Red.

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

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

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

443. Grass-Green.

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

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

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

444. Lemon-Yellow.

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

445. Fustic-Yellow.

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

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

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

446. Litmus Blue.

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

447. Orange.

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

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

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

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

448. Butter Color.

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

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

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

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

Colors for Powders, Etc.

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

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

Show Bottle Colors.¹

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

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

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

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

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

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

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

449. Amber, Lemon or Orange.

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

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

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

Dissolve and filter.

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

450. Blue.

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

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

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

451. Crimson.

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

Percolate the Alkanet Root with the Oil of Turpentine.

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

452. Green.

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

453- Red or Scarlet.

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

Mix, allow to stand 24 hours, and filter.

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

454. Violet.

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

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

455. Wine Color.

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

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

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

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

Many other substances which are naturally colored may be used in

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

Colored Fires.

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

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

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

456. Blue Fire.

Dark Blue may be made by taking:

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

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

Light Blue may be made by taking :

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

Mix the same as the preceding.

457. Green Fire.

Dark Green may be made by taking:

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

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

Light Green may be made by taking:

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

Mix as the preceding.

458. Red Fire.

Dark Red may be made by taking:

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

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

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

Nitrate of Strontium, or as follows :

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

Powder and mix as the preceding.

459. Violet Fire.

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

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

460. White Fire.

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

Powder and mix as the preceding.

461. Yellow Fire.

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

Powder and mix as the preceding.

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

Liquid Colored Fires or Flames.

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

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

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

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

CONFECTIONES—CONFECTIONS.

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

Confections and Conserves.

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

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

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

462. Conserve de Cochlearia.

Confection of Scurvy Grass.

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

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

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

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

463. Conserves de Laurier-Cerise.

Confection of Cherry-Laurel Leaves.

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

Make in the same manner as the preceding.

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

proportion.

U. S. and Br. Official Confections.

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

464. Confectio Opii, Br.

Confection of Opium.

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

Mix. Dose, 5 to 20 grains.

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

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

Mix, etc.

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

465. Confectio Piperis, Br.

Confection of Pepper.

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

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

466. Confectio Rosae Caninae, Br.

Confection of Hips.

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

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

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

467. Confectio Rosae, U. S.

Confectio Rosa Gallicae, Br.—Confection of Rose.

The U. S. formula is:

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

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

The British formula is :

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

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

468. Confectio Scammonii, Br.

Confection of Scammony.

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

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

469. Confectio Senna.

Confection of Senna,

The U. S. formula is:

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

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

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

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

470. Confectio Sulphuris, Br.

Confection of Sulphur.

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

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

471. Confectio Terebinthenae, Br.

Confection of Turpentine.

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

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

Other Confections, Conserves and Electuaries.

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

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

with syrup, honey, or other saccharine liquids.

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

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

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

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

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

Confection of Lemon may be made in the same way.

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

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

CORDIALES— CORDIALS.

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

476. **Calisaya Cordial.**

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

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

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

477. Curaçao Cordial.

Aromatic Cordial. Elixir Curaçoa.

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

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

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

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

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

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

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

478. Gentian Cordial.

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

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

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

DECOCTA— DECOCTIONS.

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

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

496. Decoctions by Water-bath Percolation.

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

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

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

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

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

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

497. Decoctum Cetrariae.

Decoction of Cetraria.

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

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

498. Decoctum Sarsaparillae Compositum.

Compound Decoction of Sarsaparilla.

Sarsaparilla, crushed, 729 grains.

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

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

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

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

499. *Decoctum Aloes Compositum.*

Compound Decoction of Aloes,

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

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

500. *Decoctum Cinchonas.*

Decoction of Cinchona.

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

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

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

501. Decoctum Granati Radicis.

Decoction of Pomegranate Root.

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

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

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

507. ELATERIUM.

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

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

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

ELIXIRIA — ELIXIRS.

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

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

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

508. Elixir Flavoring.

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

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

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

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

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

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

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

509. Spiritus Aurantii Compositus.

Compound Spirit of Orange.

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

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

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

510. Soluble Flavoring.

FOR ELIXIRS, ETC.

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

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

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

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

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

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

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

511. Elixir Percolating Menstruum.

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

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

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

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

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

512. Elixirs Requiring Percolation.

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

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

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

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

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

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

513. Elixirs made with Fluid Extracts.

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

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

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

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

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

514. Elixirs with Salts in Solution.

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

515. Detannating Elixirs.

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

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

516. Elixir.

Simple Elixir.

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

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

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

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

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

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

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

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

519 Elixir Adjuvans.

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

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

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

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

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

520. Elixir Anise.

Anise Seed Cordial.

This may be made by percolation or maceration.

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

Percolate or macerate and filter.

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

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

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

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

especially for children.

523. Elixir Aromatic.

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

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

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

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

527. Elixir Asafetida.

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

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

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

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

529. Elixir Beef.

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

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

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

530. Elixir Beef and Iron.

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

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

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

533. Elixir Berberine.

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

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

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

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

534. Elixir Berberine and Iron.

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

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

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

540. Elixir Bitter.
Elixir Amarum.

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

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

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

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

541. Elixir Blackberry.

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

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

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

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

542. Elixir Black Cohosh or Cimicifuga.

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

Make by percolation as directed, 512.

It may also be made by mixing—

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

And after standing a few days, filtering through Carbonate of

Magnesium.

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

543. Elixir Black Cohosh Compound.

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

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

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

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

554. Elixir Buchu.

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

Make by percolation as directed, 512.

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

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

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

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

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

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

555. Elixir Buchu Compound.

Elixir Buchu and Pareira Brava.

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

Make by percolation, as directed, 512.

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

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

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

556. Elixir Buchu, Juniper and Acetate of Potassium.

Diuretic Elixir.

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

Make by percolation, as directed, 512.

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

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

557. Elixir Calisaya or Cinchona.

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

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

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

MADE FROM THE BARK, DETANNATED.

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

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

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

This Elixir may be colored if desired with Cochineal coloring and

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

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

592. Elixir Capsicum.

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

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

593. Elixir Cascara Sagrada.

Cascara Cordial.

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

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

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

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

594. Elixir Cathartic.

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

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

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

The dose is a dessert to a tablespoonful.

595. Cathartic or Laxative Elixir.

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

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

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

596. Elixir Celery Compound.

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

Make by percolation as directed (512).

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

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

615. Elixir Coffee.

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

Make by percolation as directed (512).

A fl.drachm represents about 15 grains of Coffee.

The dose is a teaspoonful to a tablespoonful or more.

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

616. Elixir Colombo.

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

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

A fl.drachm represents 7 grains Colombo.

The dose is a teaspoonful or more.

619. Elixir Corydalis.²

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

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

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

The dose is a tcaspoonful or more.

620. Elixir Corydalis Compound.

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

Make by percolation as directed (512).

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

2 the alterative Turkey Corn - now called *Dicentra canadensis* and/or *D. cucullaria*
Fenner's Complete Formulary - Part IIIA - WORKING FORMULA - Page 108
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623. Elixir Damiana.

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

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

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

624. Elixir Damiana Compound.

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

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

625. Elixir Dandelion.

Elixir of Taraxacum.

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

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

626. Elixir Dandelion Compound.

Elixir Taraxacum Compound.

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

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

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

631. Elixir Eucalyptus.

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

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

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

632. Elixir Eucalyptus Compound.

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

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

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

633. Elixir Euonymus.

Elixir of Wahoo.

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

Mix, and, after standing, filter.

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

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

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

634. Elixir Frangula (or Buckthorn).

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

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

Mix them.

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

635. Elixir Gelsemium.

Elixir Yellow Jasmine.

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

Mix, and, after standing, filter.

A fl.drachm represents 5 grains Gelsemium. The dose is from 1/2 to a teaspoonful.

636. Elixir Gentian.

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

To make 1 gallon of Elixir.

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

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

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

The New-York and Brooklyn Formulary directs :

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

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

638. Elixir Gentian and Citrate of Iron.

Ferrated Elixir of Gentian.

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

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

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

651. Elixir Ginger.

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

Mix them.

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

652. Elixir Grindelia Robusta.

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

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

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

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

653. Elixir Guarana.

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

Mix them.

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

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

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

654. Elixir Guarana and Celery.

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

Mix them and filter.

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

655. Elixir Helonias Compound.

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

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

656. Elixir Hops, or Humulus.

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

Make by percolation as directed (512).

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

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

tablespoonful, as a nervine and tonic.

657. Elixir Hydrastis or Golden Seal.

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

Mix, and, after standing, filter.

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

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

658. Elixir Hydrastis and Iron.

Ferri-phosphated Elixir Hydrastis.

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

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

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

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

671. Elixir Jaborandi.

Elixir Pilocarpus.

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

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

Magnesium to the filter.

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

672. Elixir Juniper Berries.

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

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

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

682. Elixir Laxative.

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

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

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

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

683. Elixir Lactucarium.

Lactucarium,	256 grains.
Elixir,	1 pint.

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

A fl.drachm contains 2 grains of Lactucarium.

The dose is a teaspoonful or more.

684. Elixir Leptandra.

Leptandra (Culver's Root), in coarse

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

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

A fl.drachm represents 10 grains Leptandra.

The dose is a teaspoonful or two.

685. Elixir Liquorice.

Elixir Glycyrrhiza.

Liquorice Root, in coarse powder,	$2\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Water of Ammonia,	1 fl.drachm.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or it may be made by mixing Fluid Extract Licorice $2\frac{3}{4}$ fl. ounces with Water of Ammonia, 20 minims, and Elixir 14 fl.ounces.

A fl.drachm represents 10 grains of Licorice Root.

The dose is a teaspoonful or more.

This Elixir is much used as a vehicle for bitter medicines, as Quinine, etc.

686. Elixir Licorice Compound.

Elixir Glycyrrhiza Compound.

Licorice Root, in coarse powder,	1 $\frac{1}{2}$ ounce av.
Wild Cherry, in coarse powder,	1 ounce av.
Cardamom Seed, in fine powder,	1 drachm.
Coriander Seed, in fine powder,	1 drachm.
Cinnamon, in fine powder,	1 drachm.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Water of Ammonia,	1 fl.drachm.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or add the Fluid Extract of the drugs to Elixir, as directed (513).

This Elixir is used chiefly as a vehicle for Quinine and other bitter medicines.

687. Elixir Lobelia Compound.

Lobelia, in coarse powder,	1 ounce av.
Bloodroot, in coarse powder,	1 ounce av.
Skunk Cabbage, in coarse powder,	1 ounce av.
Elixir Percolating Menstruum, q.s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or add 1 ounce each of the Fluid Extracts of the drugs to 13 fl.ounces of Elixir. The dose is $\frac{1}{2}$ to 1 teaspoonful as an expectorant.

688. Elixir Lupulin.

Alcohol,	4 fl.ounces.
Lupulin,	$2\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q.s.,	about 12 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), or add $2\frac{3}{4}$ fl.ounces of the Fluid Extract Lupulin to 14 fl.ounces Elixir, and filter through Carbonate Magnesium.

A fl.drachm represents 10 grains Lupulin.

The dose is a teaspoonful.

693. Elixir Mandrake or May Apple.

Elixir Podophyllum Compound.

Fluid Extract of Mandrake,	2 fl.ounces.
Alcohol,	2 fl.ounces.
Elixir,	12 fl.ounces.

Mix them, and, after standing, filter through a little Carbonate of Magnesium.

A fl.drachm represents 7 grains Mandrake. Dose, a teaspoonful.

694. Elixir Mandrake Compound.

Elixir Podophyllum Compound.

Mandrake (Podophyllum), in powder,	1 ounce av.
Leptandra (Culver's Root), in powder,	1 ounce av.

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

Make by percolation as directed (512), or mix the Fluid Extracts of the drugs with Elixir, and filter through Carbonate Magnesium.

A fl.drachm contains about 3¹/₂ grains each of the drugs. The dose is a teaspoonful as a cholagogue and laxative.

695. Elixir Matico Compound.

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

Make by percolation as directed (512), or by mixing the fluid extracts of the drugs with Elixir, rubbing with Carbonate of Magnesium and filtering. The dose is a teaspoonful or more.

700. Elixir Orange.

Elixir Aurantii.

Oil of Orange, fresh,	30 minims.
Alcohol,	6 fl.ounces.
Water,	10 fl.ounces.
Sugar,	5 ounces av.
Carbonate of Magnesium,	120 grains.

Dissolve the Oil of Orange in the Alcohol, rub the Magnesium Carbonate to a fine powder, and add to the Water; then gradually add the mixture of Magnesium to the Solution of Orange, and after mixing thoroughly allow to stand; then filter clear and dissolve the Sugar in the filtrate.

This Elixir is known by many names, and used mostly as an adjuvant or

simple Elixir. It may also be made by macerating 4 ounces of fresh Orange Peel in half a pint of Alcohol for several days, draining and pressing; then adding 8 ounces of Water and 4 ounces of Syrup, and filtering.

For other Elixirs of Orange see Simple Elixir, Aromatic Elixir, Adjuvant Elixir, Curaçoa Cordial, etc.

701. Elixir Orange Compound.

Elixir Vicerale Hoffmanni.

This Elixir was formerly official in the German Pharmacopoeia. The formula is as follows :

Orange Peel, cut,	50 parts or 3 ³ / ₄ ounces.
Cinnamon,	10 parts or 6 drachms.
Carbonate of Potassium,	2 ¹ / ₂ parts or 90 grains.
Sherry Wine,	250 parts or 19 fl.ounces.
Extract of Gentian,	5 parts or 3 drachms.
Extract of Wormwood,	5 parts or 3 drachms.
Extract of Buckbean,	5 parts or 3 drachms.
Extract of Cascarella,	5 parts or 3 drachms.

Macerate the Orange, Cinnamon and Carbonate of Potassium for 8 days in the Wine, pour off, express, and dissolve the extracts in the liquid. The dose is a teaspoonful.

706. Elixir Pareira Brava.

Fluid Extract Pareira Brava,	2 ¹ / ₂ fl.ounces.
Elixir,	14 fl.ounces.

Mix them, and, after standing, filter through a little Carbonate Magnesium. It may also be made by percolating the drug with Elixir, as directed (512).

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

749. Elixir Rhubarb.

Rhubarb, in coarse powder,	1½ ounce av.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). This may also be made by mixing 1½ ounce Fluid Extract of Rhubarb with enough Elixir to make a pint.

A fl.drachm represents about 5 grains of Rhubarb. The dose is a teaspoonful to a tablespoonful.

750. Elixir Rhubarb and Columbo.

Fluid Extract of Columbo,	256 minims.
Fluid Extract of Rhubarb,	256 minims.
Elixir, sufficient to make	1 pint.

Mix, and after standing, filter.

This may also be made by percolating Rhubarb and Columbo, each 256 grains, with Elixir Percolating Menstruum, 1 pint, adding 5 ounces sugar and 1 ounce Soluble Flavoring, and filtering.

A fl.drachm represents 2 grains each, Rhubarb and Columbo. The dose is a teaspoonful to a dessertspoonful.

751. Elixir Rhubarb, Columbo, and Iron.

Phosphate of Iron, in scales,	128 grains.
Elixir Rhubarb and Columbo,	1 pint.
Water,	1 fl.ounce.

Mix the Elixir with the white of one egg, and let stand for two days, with occasional agitation, then filter through cloth. Dissolve the Iron salt in water, by the aid of heat, and add to the detannated Elixir; after standing a few days, filter.

A fl.drachm represents 2 grains each, Rhubarb and Columbo, and 1

grain Phosphate of Iron. The dose is a teaspoonful to a dessertspoonful.

752. Elixir Rhubarb and Magnesia.

Two Elixirs of Rhubarb and Magnesia are used, one containing sulphate of Magnesium (Epsom Salt) and the other Citrate of Magnesium in solution. The former is probably most used, but the latter is by far the more elegant preparation.

MADE WITH SULPHATE OF MAGNESIUM.

Sulphate of Magnesium (Epsom Salt),	640 grains.
Elixir Rhubarb (749),	15 fl.ounces.

Rub the salts with the Elixir until dissolved. The dose is a dessertspoonful to a tablespoonful.

MADE WITH CITRATE OF MAGNESIUM.

Citric Acid,	3 drachms.
Carbonate of Magnesium,	2 drachms.
Water,	1 fl.ounce.
Elixir Rhubarb (749),	15 fl.ounces.

Rub the Carbonate of Magnesium with the Water and gradually add the Citric Acid. When effervescence has ceased add the Elixir Rhubarb, and mix thoroughly. The dose is a dessertspoonful or more.

753. Elixir Rhubarb and Potassium.

Neutralizing Elixir.

Rhubarb, in coarse powder,	160 grains.
Bicarbonate of Potassium,	160 grains.
Cinnamon,	80 grains.
Golden Seal,	80 grains.
Elixir Percolating Menstruum,	1 pint.
Sugar,	5 ounces av.
Spirit of Peppermint,	2 fl.drachms.

Mix all together and macerate for several days, with occasional

agitation, then filter, adding enough Elixir through the filter to make a pint. In making larger quantities of this Elixir it is best made by percolation as directed (512).

This is the same strength as the "Neutralizing Cordial" of the American Dispensatory. The dose is a dessertspoonful to a tablespoonful.

759. Elixir Santonin.

Santonin, in very fine powder,	64 grains.
Alcohol,	2 fl.ounces.
Elixir,	14 fl.ounces.

Rub the Santonin with the Alcohol, and heat gently by water-bath until dissolved, then add the Elixir.

A fl.drachm contains $\frac{1}{2}$ grain Santonin. The dose is a teaspoonful to a dessertspoonful. As Santonin is quite insoluble, and it is not desirable to have it dissolved when taken as a vermifuge, it is best given in the form of an emulsion, or suspended in syrup or in powders.

760. Elixir Sarsaparilla Compound.

Fluid Extract Sarsaparilla Compound,	4 fl.ounces.
Elixir,	12 fl.ounces.

Mix them. This Elixir may also be made from the drugs directed for making 1 pint Fluid Extract Sarsaparilla Compound by percolating the ingredients as directed under Fluid Extract of Sarsaparilla Compound with Elixir Percolating Menstruum sufficient to make 52 fl.ounces, adding 20 ounces of Sugar and 4 fl.ounces soluble flavoring to make 4 pints of Elixir.

This is of the same strength as Syrup Sarsaparilla Compound. The dose is a dessertspoonful or more.

761. Elixir Scilla Compound.

Elixir Squill Compound.

Squill, in coarse powder,	640 grains.
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Senega, in coarse powder,	640 grains.
Tartrate of Antimony and Potassium,	16 grains.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir P'lavoring,	1 fl.ounce.

Make by percolation as directed (512.) This is the same strength as Syrup of Squill Compound. The dose is $\frac{1}{4}$ to one teaspoonful or more.

762. Elixir Senna.

Fluid Extract of Senna,	$2\frac{3}{4}$ fl.ounces.
Elixir, sufficient to make	1 pint.

Mix, and, after standing, filter.

A fl.drachm represents 10 grains of Senna. Dose, a dessertspoonful to a tablespoonful as a laxative.

763. Elixir Senna Compound.

Senna Leaves, in coarse powder,	2 ounces av.
Rhubarb, in coarse powder,	1 ounce av.
Jalap, in coarse powder,	$\frac{1}{2}$ ounce av.
Mandrake, in coarse powder,	$\frac{1}{2}$ ounce av.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). The dose is a tea-spoonful to a dessertspoonful as a laxative, a tablespoonful as a cathartic.

764. Elixir Stillingia.

Fluid Extract Stillingia,	$2\frac{3}{4}$ ounces av.
Alcohol,	2 fl.ounces.
Elixir, sufficient to make	1 pint.

Mix them, and, after standing, filter. This may also be made by

percolating $2\frac{3}{4}$ ounces Stillingia with 2 ounces Alcohol and 14 ounces Percolating Menstruum, adding 5 ounces of Sugar and 1 ounce Soluble Flavoring.

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

765. Elixir Stillingia Compound.

Fluid Extract Stillingia Compound,	4 fl.ounces.
Elixir,	12 fl.ounces.

Mix them, and, after standing, filter. This may also be made by percolating the drugs as directed for making 1 pint Fluid Extract of Stillingia Compound with Elixir Percolating Menstruum until 52 fl.ounces have passed, then dissolving 20 ounces av. of Sugar in the percolate and adding 4 fl.ounces Soluble Flavoring to make 4 pints Elixir. This is the same strength as Syrup Stillingia Compound. The dose is a teaspoonful to a dessertspoonful.

767. Elixir Sumbul.

Elixir of Musk Root.

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

Make by percolation as directed (512), or mix $2\frac{3}{4}$ fl.ounces of Fluid Extract of Sumbul with enough Elixir to make a pint and filter.

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

770. Elixir Taraxacum Compound.

The formulas for this Elixir are given under the heading *Elixir Dandelion Compound* (626), which see. The formula was first given for this Elixir by Prof. P. C. Candidus of Mobile, and as this particular

formula is still frequently called for, it is here repeated in substance :

Dandelion Root,	1 ounce av.
Wild Cherry Bark,	3/4 ounce av.
Gentian Root,	1/8 ounce av.
Bitter Orange Peel,	1/4 ounce av.
Cinnamon,	1/8 ounce av.
Liquorice Root,	1/2 ounce av.
Star Anise,	30 grains.
Caraway Seed,	30 grains.
Coriander Seed,	30 grains.
Elixir Percolating Menstruum, q.s.,	about 18 fl.ounces
Sugar,	5 ounces av.

Grind the drugs to a coarse powder, and make by percolation as directed (512). This Elixir is used as a vehicle for Quinine, and as an addition to other medicines. Also as a laxative and tonic in doses of a dessertspoonful or more.

772. Elixir Valerian.

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

Make by percolation as directed (512). This may also be made by mixing 2³/₄ fl.ounces Fluid Extract Valerian with enough Elixir to make a pint, and, after standing, filtering.

A fl.drachm represents 10 grains Valerian. The dose is a teaspoonful to a dessertspoonful or more.

784. Elixir Veratrum Viride.

American Hellebore, in fine powder,	256 grains.
Elixir,	1 pint.

Macerate for five days, and filter. This may also be made by adding 256

minims of Fl. Ext. Veratrum Viride to enough Elixir to make a pint.

A fl.drachm represents 2 grains Veratrum Viride. The dose is $\frac{1}{2}$ to 1 teaspoonful.

785. Elixir Wild Cherry.

Wild Cherry Bark, in coarse powder,	2 $\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512). This may also be made by mixing 2 $\frac{3}{4}$ fl.ounces of Fl. Ext. of Wild Cherry with enough Elixir to make a pint.

A fl.drachm represents 10 grains of Wild Cherry. The dose is a teaspoonful or two.

786. Elixir Wild Cherry, Detannated.

Wild Cherry Bark, in coarse powder,	2 $\frac{3}{4}$ ounces av.
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512), and detannate with Ferric Hydrate as directed (515).

This Elixir is used with solutions of Iron salts, Bismuth, etc., that would form inky colors or precipitates with the former formula.

Elixir Wild Cherry, from Cherry Pits.

An Elixir may be made from Cherry Pits, which does not need to be detannated to combine with Iron, etc., by macerating 2 ounces of Cherry Pits, crushed, with a pint of Elixir, for several days, and filtering.

790. Elixir Wild Cherry Compound.

Wild Cherry Bark,	1 ounce av.
Liquorice Root,	1/2 ounce av.
Marshmallow Root,	1/2 ounce av,
Elixir Percolating Menstruum, q. s.,	about 1 pint.
Sugar,	5 ounces av.
Soluble Elixir Flavoring,	1 fl.ounce.

Make by percolation as directed (512).

This Elixir is used chiefly as a vehicle for Quinine, for which it is excellent. It may be made by maceration instead of per' eolation if desired.

791. Elixir Yerba Santa.

Fluid Extract Yerba Santa,	2 ³ / ₄ fl.ounces.
Alcohol,	2 fl.ounces.
Elixir, sufficient to make	1 pint.

Mix, and, after standing, filter.

A fl.drachm represents 10 grains Yerba Santa. The dose is a teaspoonful or more.

792. Elixir Yerba Santa Compound.

The following formula is adopted from the original, first published by Mr. J. S. McClary, of Los Angeles, Cal., who first brought to notice the advantages of Yerba Santa as a carrier for Quinine :

Yerba Santa,	6 ounces av.
Orange Peel,	2 ounces av.
Cinnamon Bark,	3 drachms.
Cloves,	3 drachms.
Cardamom Seeds,	3 drachms.
Coriander Seed,	2 drachms.
Caraway Seed,	3 drachms.
Anise Seed,	2 drachms.

Cochineal,	2 drachms.
Glycerin,	1 pint.
Alcohol,	1/2 pint.
Sugar,	4 pounds av.
Water, sufficient to make	1 gallon.

Powder the drugs coarsely, and, having mixed the Alcohol and Glycerin, moisten the powder and pack in the percolator, adding Water through the percolator, and continuing the percolation until 6 pints of percolate are obtained. In this dissolve the Sugar by gentle heat, and strain.

This Elixir is used mainly to disguise the taste of Quinine and other bitter medicines.

Other Elixirs.

In the first part of this article, it was explained that Elixirs, as understood in American Pharmacy, were flavored, sweetened, weakly alcoholic preparations, in which medicinal substances are exhibited in pleasant, palatable form, etc. The foregoing formulae have corresponded to this description, but there are many preparations which have been known in the past as "Elixirs," which are not of this class, and which could not properly be included with it. The formulae for such of these as are most important, or likely to be called for, are therefore given here. Many of them have been official in foreign Pharmacopaeias:

794. Aloes Elixirs.— *Compound Tincture of Aloes.*— Acetate of potassium, inspissated oxgall, Socotrine Aloes, myrrh each 120 grains, hay saffron 60 grains, brandy or proof spirit 2¹/₂ fl.ounces; digest seven days and strain. Several other preparations are also known as Elixirs of Aloes. Tincture of Aloes and myrrh is sometimes known as Elixir Aloes Compound.

795. Elixir Amarum.—*Bitter Elixir.*—The present German Pharmacopoeia gives the following formula : Extract of wormwood 10 parts, oleo-saccharate of peppermint 5 parts, dissolve by triturating with water 25 parts, then add aromatic tincture 5 parts, bitter tincture 5 parts.

796. Anti-Asthmatic Elixirs.—Oil of anise, camphor, balsam of tolu

each 1 ounce, cochineal 1 drachm, proof spirit 1 gallon; digest seven days and filter.

Boerhaave's.—Anise seed, asarabacca, elecampane, liquorice root, orris root, and sweet flag root of each 1 part, proof spirit 5 parts; macerate and filter.

797. Elixir Antigoutteux de Villette.—*Gout Elixir.*—Cinchona bark 4 parts, poppy petals 2 parts, sassafras 1 part, guaiacum 2 parts, rum 160 parts, syrup sarsaparilla 100 parts; macerate and filter.

798. Boerhaave's Visceral Elixir.—Aloes, myrrh, and saffron, of each 1 ounce, tartrate of potassium 2 ounces, alcohol 14 fl.ounces, water 1 ounce; macerate three days and filter.

800. Elixir Deslaurier's.—*Toni-febrifuge, au Quinquina et Caffé.*—Yellow cinchona bark 2¹/₂ ounces, brown cinchona bark 1 ounce, coffee slightly roasted 2 ounces, sugar 12¹/₂ ounces, sherry wine 2 pints, citric acid 150 grains; powder the drugs, macerate seven days, filter, and dissolve the sugar in the filtrate.

802. Elixir de Garus.—Myrrh 90 grains, aloes 90 grains, cloves 180 grains, nutmeg 180 grains, saffron 483 grains, cinnamon 360 grains, alcohol 12 pints; reduce the drugs to a coarse powder, macerate with the alcohol and distill 9 pints, which reserve; then take maidenhair 4 tr.ounces, liquorice root ¹/₂ tr.ounce, figs 3 tr.ounces; infuse in 8 pints boiling water, strain, express, and dissolve in the liquid 12 pounds av. of sugar; mix equal parts by weight of the syrup thus prepared with the distilled spirit reserved.

804. Elixir of Long Life.—*Compound Tincture of Aloes (Codex).*—Aloes 8 parts, gentian, rhubarb, zedoary, saffron, agaric, opium each 1 part, alcohol 400 parts; macerate and filter.

805. Elixir Pectoral.—Balsam tolu 2 ounces, benzoin 1¹/₂ ounce, saffron ¹/₂ ounce, alcohol 32 fl.ounces; digest by gentle heat for four days and filter.

The German Pharmacoporia, 1883, gives the following under the name

of *Burstelixir* or *Pectoral Elixir* (Elixir E Succo Liquiritiae): Purified extract of liquorice 10 parts, dissolved in fennel water 30 parts, and added to anis-ated spirit of ammonia 10 parts; after standing the liquid is poured off from the sediment.

806. Elixir Salutis.—*Elixir of Health, Duffy's Elixir*— This Elixir was formerly official under the title Tincture Senna Compound. Many formulas for it are extant. The following is from the Edinburgh Dispensatory:

Senna 2 tr.ounces, jalap 1 tr.ounce, coriander $\frac{1}{2}$ tr.ounce. diluted alcohol $3\frac{1}{2}$ pints; macerate and filter. To this 1 pound of sugar and other aromatics may be added if desired.

807. Elixir Stoughton's.—(Codex.) Aloes and cascarilla of each 1 drachm, rhubarb 3 drachms, gentian, germander, wormwood, and bitter orange peel of each 5 drachms, alcohol 60° proof 2 pints; macerate and filter.

809. Elixir Visceral, Hoffman's.—*Elixir Orange Compound* of the German Pharmacopoeia. Orange peel cut 50 parts, cinnamon bruised 10 parts, carbonate of potassium $2\frac{1}{2}$ parts, sherry wine 250 parts; macerate for eight days and express; add sherry wine to make 230 parts, and dissolve in the liquid extracts of gentian, wormwood, buckbean, and cascarilla each 5 parts; allow the mixture to settle, then filter. See, also, Boerhaave's Visceral Elixir.

Besides the Elixirs of this kind which are here mentioned, are several which are official in the U. S. P., under other names, as Elixir Proprietatis (Tincture Aloes and Myrrh), Elixir Vitriol (Aromatic Sulphuric Acid), McMunn's Elixir of Opium (Deoderized Tincture of Opium), etc. There are also many which are not of sufficient general importance to require a formula for their preparation. They may usually be prepared as wanted by intelligent druggists.

EMPLASTRA — PLASTERS.

The making and spreading of Plasters, which was formerly quite an important feature of the business of the apothecary, is now nearly a lost

art as far as the retail druggist is concerned, the business having been relegated to manufacturers, who have experience and suitable machinery for the work, and furnish all the necessary combinations in the plaster line. In this country several large establishments are devoted entirely to the manufacture of plasters, and from long experience and experiment have perfected their products to a high degree. It is not therefore supposed that many druggists will attempt to make their spread plasters, but only such plaster masses as are occasionally used in making other preparations, or sometimes called for in old formulas.

For spreading Plasters in a small way the Plaster Iron is generally used. Plaster-spreading machines are advertised, but they are not generally practical.

812. Emplastrum Arnicae.

Arnica Plaster.

Extract of Arnica Root,	1 ounce.
Resin Plaster,	2 ounces.

Add the Extract to the Plaster, previously melted by means of a water-bath, and mix them thoroughly.

813. Emplastrum Asafoetidae.

Asafetida Plaster. Asafetida,	3 ¹ / ₂ ounces av.
Lead Plaster,	3 ¹ / ₂ ounces av.
Galbanum,	1 ¹ / ₂ ounce av.
Yellow Wax,	1 ¹ / ₂ ounce av.
Alcohol,	14 fl.ounces.

Digest the Gums with the Alcohol on a water-bath, and strain while hot; evaporate to the consistence of honey; then add the Lead Plaster and Wax, previously melted together, stir the mixture well, and evaporate to the proper consistence.

814. Emplastrum Belladonnae.

Belladonna Plaster.

The U. S. 1880 formula directs to make a solid extract from Belladonna Root 100 parts, by exhausting with Alcohol and evaporating, and then to add to the Extract enough Resin Plaster, previously melted, to make 100 parts, and mix thoroughly.

The Belladonna Extract is best made by water-bath percolation as directed. (See Extract Belladonna Root.)

The Br. Pharmacopoeia directs:

Alcoholic Extract of Belladonna,	1 part.
Resin Plaster,	2 parts.
Soap Plaster,	2 parts.

Melt the Plasters by the heat of a water-bath, then add the Extract, and mix the whole thoroughly together.

815. Emplastrum Capsici.

Capsicum Plaster.

The official Capsicum Plaster is made by first spreading Resin Plaster upon muslin and then brushing it over with a thin coating of Oleoresin of Capsicum, leaving a narrow blank margin along the edges. As furnished by manufacturers, the Oleoresin or Extract of Capsicum is first incorporated with the plaster mass before spreading.

820. Emplastrum Galbani.

Galbanum Plaster.

The U. S. formula is :

Galbanum,	8 ounces.
Turpentine (Gum Thus.),	1 ounce.
Burgundy Pitch,	3 ounces.
Lead Plaster,	38 ounces.

To the Galbanum and Turpentine, previously melted together and strained, add, first the Burgundy Pitch and then the Lead Plaster, melted over a gentle fire, and mix the whole together.

The Br. formula is Galbanum, Ammoniacum, Yellow Wax of each 1 ounce, Lead Plaster 8 ounces.

824. Emplastrum Picis.

Pitch Plaster.

The Br. P. gives the following formula. There is no corresponding U. S. formula:

Burgundy Pitch,	26 ounces or parts.
Common Frankincense,	13 ounces or parts.
Resin,	4 ¹ / ₂ ounces or parts.
Yellow Wax,	4 ¹ / ₂ ounces or parts.
Expressed Oil of Nutmeg,	1 ounce or part.
Olive Oil,	2 ounces or parts.
Water,	2 ounces or parts.

Add the Oils and Water to the Frankincense, Burgundy Pitch, Resin, and Wax, previously melted together; then, constantly stirring, evaporate to a proper consistence.

825. Emplastrum Picis Burgundicae.

Burgundy Pitch Plaster.

Burgundy Pitch,	90 parts or 9 ounces.
Yellow Wax,	10 parts or 1 ounce.

Melt them together, strain the mixture and stir constantly until it thickens on cooling.

826. Emplastrum Picis Canadensis.

Canada Pitch Plaster, Hemlock Pitch Plaster.

Canada Pitch (Hemlock Gum),	90 parts or 9 ounces.
Yellow Wax,	10 parts or 1 ounce.

Melt them together, strain the mixture and stir constantly until it thickens on cooling.

828. Emplastrum Plumbi.

Lead Plaster, Diachylon Plaster, Litharge Plaster.

The U. S. formula is :

Oxide of Lead (Litharge'), in very fine powder,	8 ounces.
Olive Oil, by weight,	15 ounces.
Water, a sufficient quantity.	

Rub the Oxide of Lead with about one half the Olive Oil and add the mixture to the remainder of the Oil, contained in a suitable vessel of a capacity equal to three times the bulk of the ingredients; then add about 4 ounces of boiling Water and boil the whole together until a homogeneous plaster is formed, adding from time to time during the process a little Water as that first added is evaporated.

The Br. formula directs 5 ounces of Oxide of Lead, 10 ounces of Olive Oil, and 5 ounces of Water, to be boiled together by the heat of a steam bath for four or five hours, stirring constantly until the product acquires a proper consistence for a plaster, adding more Water during the process if necessary.

The German Pharmacopoeia directs equal parts of common Olive Oil, Lard and Oxide of Lead to be boiled together with Water in the same manner as above directed. It is called *Emplastrum Lithargyri* in the G. P.

Lead Plaster is the basis of most of the official plasters. The British formula makes the best product.

The Compound Lead Plaster (*Emplastrum Lithargyri Compositum*) of the German Pharmacopoeia is nearly identical with the Galbanum

Plaster of the Br. P.

830. Emplastrum Resinae.

Resin Plaster, Adhesive Plaster.

The U. S. formula is:

Resin, in fine powder,	14 parts or $\frac{7}{8}$ ounce.
Lead Plaster,	80 parts or 5 ounces.
Yellow Wax.	6 parts or $\frac{3}{8}$ ounce.

To the Lead Plaster and Wax, melted together over a gentle fire, add the Resin and mix them.

The Br. formula is Resin 4 ounces or 2 parts, Lead Plaster 2 pounds (av.) or 16 parts. Curd Soap 2 ounces or 1 part. To the Lead Plaster, previously melted at a low temperature, add the Resin and Soap, first liquefied, and stir them until they are thoroughly mixed.

This is the "Adhesive Plaster," which, when spread, is used so extensively in surgery. Druggists are familiar with the spread plaster but are little acquainted with the plaster mass.

831. Emplastrum Saponis.

Soap Plaster.

The U. S. formula is :

Soap, dried and in fine powder,	10 parts or 1 ounce.
Lead Plaster,	90 parts or 9 ounces.
Water sufficient.	

Rub the Soap with Water until brought to a semi-liquid state, then mix it with the Lead Plaster, previously melted, and evaporate to the proper consistence.

The Br. formula is Curd Soap 6 ounces, Lead Plaster $2\frac{1}{4}$ pounds av., Resin 1 ounce. To the Lead Plaster, melted at a low temperature, add

the Soap and the Resin, first liquefied; then, constantly stirring, evaporate to a proper consistence.

The German formula is Lead Plaster 70 parts, Yellow Wax 10 parts, melted together, and to the partially cooled mass add medicinal Soap, powdered, 5 parts, and Camphor, rubbed with a little Olive Oil, 1 part.

Other Plasters.

The official Plasters for which formulae have been given embrace most that are used to any extent in pharmacy; but a few others deserve attention, and are therefore mentioned here:

833. Aconite Plaster.—This Plaster was formerly official in the U. S. P. It is made by exhausting 16 ounces of Aconite Root with Alcohol, evaporating to a soft extract and adding to it sufficient Resin Plaster, previously melted, to make 16 ounces.

835. Camphor Plaster.— For extemporaneous work Camphor in fine powder may be applied to the warmed surface of adhesive or other spread plaster. Several plasters containing Camphor are official.

836. Cancer Plaster.— Several Plasters are furnished for the purpose of removing Cancers. The one to which the greatest success is attributed is used by some of the most noted cancer doctors. Sheep-sorrel is gathered green and pounded to a pulp, the juice is expressed and dried on pewter plates to an extract; this is then used as it is as a plaster, or combined with some sort of adhesive salve and applied. Another Cancer Plaster is made with Extract of Hemlock 1 drachm, Arsenious Acid in very fine powder 30 grains, Wax Plaster i ounce.

Many other Cancer Plasters are used, most of them consisting of Arsenic combined with other substances.

837. Corn Plaster.— A great variety of Corn Plasters are found in the market, the most popular being made of Felt coated with Adhesive Plaster, and a hole punched in the centre to relieve the pressure from the corn. These are not in any way medicinal, but simply remove the pressure from the corn.

To apply to corns in the form of a plaster, the following will be found

effective: Salicylic Acid 60 grains, Beeswax 6 drachms, Venice Turpentine 2 drachms, Verdigris, in fine powder, 60 grains. Melt the Wax, add the Venice Turpentine, and mix in the other ingredients.

838. Croton-Oil Plaster.— The most common way of making a Croton-Oil Plaster is to rub a few drops of Croton-Oil over the surface of Adhesive or any spread plaster. It can also be made by melting Lead Plaster and adding 1 part of Croton-Oil to 6 parts of the plaster.

839. Elemi Plaster. — Wax Plaster 3 parts. Gum Elemi 1 part, melted together. This is also called Issue Plaster.

840. Euphorbium Plaster.—Burgundy Pitch Plaster 8 ounces, melted and mixed with Euphorbium in fine powder 1 drachm. Capuchin Plaster is sometimes furnished by the name of Euphorbium Plaster. It is made of Burgundy Pitch and Beeswax each 3 ounces, Venice Turpentine 1 ounce, melted together and then added to the mass Gum Ammoniacum, Olibanum, Mastich and Calamine, each 1 ounce. Euphorbium, Pyrethrum (pellitory) and Common Salt, all in fine powder, each 2 ounces. The whole is then well mixed together.

841. Extract Plasters.— A great variety of plasters may be made by mixing solid extracts of drugs with Burgundy Pitch Plaster, Resin Plaster, Lead Plaster, or other combined plasters. The plaster is first melted and the extract incorporated. The proportion is generally 1 part of extract to 9 parts of plaster.

842. Issue Plaster.—Beeswax 8 parts, Burgundy Pitch and Chian Turpentine, each 4 parts, Vermilion and Orris Root each 1 part. Many other stimulating plasters are used as Issue Plasters.

843. Mustard Plaster.—This is always made extemporaneously by mixing powdered Mustard to a stiff paste with warm water or vinegar. It is usually diluted with 3 or 4 parts of Corn-meal.

Ginger Plaster may be made in the same way. *Spread Mustard Plasters* are prepared mustard spread upon paper. The formulas will be found under *Chartae Sinapis* (407).

844. Poor Man's Plaster.—This is another name for Pitch Plaster, which is conveniently made by melting together Beeswax 1 ounce. Resin

3 ounces, Tar 3 ounces, and spreading upon paper or cloth.

846. Sticking Plaster or Sticking Salve.— A great variety of Sticking Salves or Plasters are found in the market, most of them being made of Burgundy Pitch combined with various ingredients and sold under various names. The following formula makes a first-class "Sticking Salve ":

Burgundy Pitch 6 parts, Resin 4 parts. Turpentine Gum 2 parts, Canada Balsam 1 part. Yellow Wax 2 parts, Venice Turpentine 1 part. Melt them together. This may be colored green with Bayberry Wax 2 parts. It is put up in small round sticks and sold by various names.

848. Wax Plaster or Simple Plaster.— Beeswax 3 parts, Yellow Resin 2 parts, Suet (fresh tallow) 2 parts, melted together and stirred while cooling.

The foregoing are all the Plasters for which formulae are generally needed: but many other combinations are made, and may occasionally be called for. The judgment of the druggist will generally enable him to prepare any combination that may be wanted.

EMULSIONES — EMULSIONS.

Emulsions are preparations in which an oil, liquid resin, balsam, or other fluid fatty matter is made to combine with water or aqueous solutions by means of some substance which combines with it to form a homogenous mixture in which the globules of oil or other substance are so broken up or divided as to be invisible except by a microscope. To fulfill the required conditions, an Emulsion must be of a uniform consistence, permanent without separation, miscible in all proportions with water, syrup or aqueous liquids, and sufficiently fluid to be poured readily from a bottle. To make such an Emulsion it is necessary to use the proper emulsifying ingredients in the proper proportions and to combine them in the proper manner, all of which requires an understanding of the method of making emulsions and care in preparing them.

In medicine Emulsions are employed to render many nauseating medicines palatable, and by minutely dividing the globules of oil, etc.,

fitting them for digestion and assimilation. They are mainly employed as nutritive food in debilitated conditions.

Emulsification is the process of making emulsions, which may be briefly described as follows :

850. General Directions for Preparing Emulsions.

To prepare Emulsions in a small way, choose a shallow-shaped mortar that will hold double the quantity of the Emulsion desired to be made, and a pestle with a large flattened head. See that the mortar and pestle are perfectly dry, then put the powdered Gum Arabic in the mortar, and gradually add the water, rubbing it to a smooth paste: or if Acacia Mucilage Syrup is used, rub it with the pestle around the sides of the mortar. Then begin to add the Oil by pouring it very slowly from a bottle into the centre of the Gum Solution, constantly rubbing it with the pestle with a circular motion around the sides of the mortar. This will form a thick pasty mass, which should get thicker as more Oil is added. If the Oil does not combine as rapidly as added, stop pouring for a moment and work the mass with the pestle until it is homogeneous. The Oil should be more slowly added as the process proceeds, and care must be used to maintain a coating of the pasty mass on the sides of the mortar and on the pestle, the Oil being broken up and emulsified between the two clinging surfaces thus presented. When all the Oil is added, the mass should be white and of a thick, pasty consistence, having no globules of Oil visible. The Flavoring Oils should then be added, the Glycerin or Syrup incorporated with the mass by rubbing them together, and then the water, to which is added any salts or solutions that are directed to be incorporated, should be gradually added and thoroughly rubbed with the pasty mass to complete the Emulsion.

If any insoluble salts or other insoluble substances are to be added, they should be reduced to a very fine powder and rubbed with the Emulsion when completed.

In making Emulsions it frequently happens that the Oil is added too fast to emulsify, or that the sides of the mortar become "greased" and will not "cling" to the Oil and break up its globules. It is then necessary to start the Emulsion over again in a clean dry mortar, with a small quantity of fresh Mucilage Syrup, and work in the "cracked" Emulsion

in the mortar in the same manner as at first. The clinging surfaces must be maintained or the Emulsion cannot be made.

On a large scale Emulsions are best made in revolving churns or other apparatus by which the Oil and Mucilage may be thoroughly agitated. The Mucilage sufficient for the whole batch is first put in the churn and the inside thoroughly covered, the Oil is then added in portions and the mixture well agitated after each portion is added.

The Mucilage or Mucilage Syrup which is used for emulsifying must be sweet and fresh, and of a uniform consistence without lumps.

851. Acacia Mucilage Syrup.

For making Emulsions it is most convenient to have a Mucilage Syrup prepared and ready, for when made by rubbing powdered Gum Arabic with Water considerable delay is experienced and the results are not always satisfactory. We have, therefore, found it desirable to have the following syrup prepared for this purpose:

Best Gum Arabic, granulated,	6 ounces av.
Albumen, (white of egg,)	8 fl.ounces.
Glycerin,	4 fl.ounces.
Boric Acid,	30 grains.

Rub the Boric Acid to a very fine powder, and dissolve by rubbing with the Glycerin. Mix the solution with the Albumen in a wide-mouth bottle or jar, add the Gum Arabic, and stir several times a day with a stick from the bottom, until the Gum is entirely dissolved, strain, if necessary, stop tight, and put away in a cool place.

This requires two or three days to make, as heat cannot be used to effect the solution. It should be kept on hand, but it may be quickly made by using powdered Gum Arabic and rubbing with the Glycerin, etc., in a mortar.

This is used as the emulsifying agent instead of Gum Arabic alone, as it is more effective.

853. Emulsion Castor Oil.

Tasteless Cod Liver Oil.

Castor Oil,	8 fl.ounces.
Acacia Mucilage Syrup,	5 fl.ounces.
Oil of Wintergreen,	20 minims.
Water,	3 fl.ounces.

Rub the Oils with the Syrup, and add the Water as directed (850). The efficacy of Castor Oil as thus prepared is very much increased, and it is not unpleasant to take. The dose is a dessertspoonful to a tablespoonful in milk or plain. It contains 50 per cent. of Oil.

854. Emulsion Cod Liver Oil.

Tasteless Cod Liver Oil.

Cod Liver Oil,	8 fl.ounces.
Acacia Mucilage Syrup,	5 fl.ounces.
Oil Bitter Almonds,	10 drops.
Oil Wintergreen,	5 drops.
Water,	3 fl.ounces.

Rub the Oils with the Syrup and add the Water as directed (850). This Emulsion"contains 50 per cent. of Oil, and is very palatable if made from good Oil. The dose is a dessertspoonful to a tablespoonful.

The New-York and Brooklyn Formulary gives the following:

855. Emulsio Olei Morrhuæ Fortior.

Stronger Emulsion of Cod Liver Oil.

Acacia, in fine powder,	2 ounces av.
Sugar, in fine powder,	4 ounces av.
Cod Liver Oil,	16 fl.ounces.
Water, enough to make	28 fl.ounces.

Mix the Acacia and Sugar with the Cod Liver Oil in a dry mortar, and add 8 fl.ounces of Water, then triturate thoroughly and continuously

until the Oil is emulsified, and finally incorporate enough Water to make the product measure 28 fl.ounces. The *Common Emulsion of Cod Liver Oil* is made by mixing 14 fl.ounces of the Stronger Emulsion of Cod Liver Oil, 15 minims each Oil of Sassafras and Wintergreen, Water enough to make 16 fl.ounces. This makes a 50 per cent. Emulsion. Unless this Emulsion is very skillfully made it will soon separate, and it will soon ferment in warm weather. It is therefore good only for immediate use.

878. Cod Liver Oil with Extract of Malt.

Cod Liver Oil,	8 fl.ounces.
Extract of Malt,	8 fl.ounces.
Oil Wintergreen,	20 minims.
Oil Bitter Almonds,	5 minims.

Rub the Oils with the Extract of Malt as directed for making Emulsions. The dose is a dessert to a tablespoonful, containing 50 per cent. each. Cod Liver Oil and Malt Extract.

Extract of Malt makes a semi-solid palatable mixture with Cod Liver Oil, and is an excellent combination for debilitated conditions and wasting diseases.

A great variety of combinations of Cod Liver Oil with Extract of Malt may be advantageously made, but it is unnecessary to give formulas for them, as they may be made by adding powders, Pepsin, Pancreatine, etc., or solutions, as Phosphate of Calcium, Phosphates Compound, etc., or other substances as may be desired.

879. Emulsion Copaiba.

Acacia Mucilage Syrup,	6 fl.ounces.
Balsam Copaiba,	4 fl.ounces.
Syrup,	3 fl.ounces.
Water,	3 fl.ounces.
Oil Wintergreen,	20 drops.

Rub the Oil and Balsam with the Mucilage Syrup, and add the Syrup and Water, as directed for making Emulsions.

A fl.drachm contains 15 minims Balsam Copaiba. The dose is a teaspoonful to a dessertspoonful or more.

880. Emulsion Olive Oil.

Acacia Mucilage Syrup,	6 fl.ounces.
Best Olive Oil,	8 fl.ounces.
Oil Wintergreen,	20 minims.
Water,	2 fl.ounces.

Rub the Oils with the Mucilage Syrup and add the Water as directed (850). Dose, a dessertspoonful containing 50 per cent. of Oil.

881. Emulsion Turpentine.

Acacia Mucilage Syrup,	6 fl.ounces.
Syrup,	3 fl.ounces.
Water,	3 fl.ounces.
Oil of Turpentine,	4 fl.ounces.
Oil of Wintergreen,	20 minims.

Rub the Oils with the Mucilage Syrup, and add the Syrup and Water as directed (850).

A fl. drachm contains 15 minims Oil of Turpentine. The dose is half to a teaspoonful or more.

882. Emulsion Canada Turpentine.

Emulsion Balsam Fir.

Acacia Mucilage Syrup,	6 fl.ounces.
Water,	3 fl.ounces.
Syrup,	3 fl.ounces.
Canada Balsam,	4 fl.ounces.
Oil of Wintergreen,	20 minims.

Rub the Oil and Balsam with the Mucilage Syrup, and add the Syrup and Water as directed (850).

A fl.drachm contains 15 minims Canada Balsam.

Other Emulsions.

A variety of other Emulsions may be made from fixed and volatile Oils, Balsams, Gums, Resins, Extracts, etc., in the same manner as the foregoing. A few sample formulas are given:

883. Emulsion of Almonds—*Milk of Almonds*.—Blanched Almonds, 1 ounce av., beat to a pulp, with water gradually added sufficient to make 10 fl.ounces, and strained through gauze or cheese cloth.

This may also be made with Oil of Almonds 3 fl.drachms. Acacia Mucilage Syrup 10 fl.drachms, Rose Water 1 fl.ounce, Distilled Water 3 fl.ounces. Rub the Oil with the Mucilage, then add the other ingredients.

884. Emulsion Asafetida.—Asafetida 1 ounce, Oil of Almonds 3 flounces, Acacia Mucilage Syrup 4 fl.ounces, Water 3 fl.ounces. Warm the Asafetida with the Oil, and rub in a mortar until uniformly mixed, then rub with the Mucilage Syrup, and add the Water. This may be flavored with Peppermint if desired. Many other Gums or Gum Resins may be made into Emulsions in the same manner.

885. Emulsion Balsam Peru.—Balsam Peru 2 ounces, Acacia Mucilage Syrup 4 fl.ounces, Syrup 6 fl.ounces, Water 4 fl.ounces. Rub the Balsam with the Mucilage Syrup, add the Syrup and Water. Emulsions of other liquid Balsams and Oleo-resins may be made in the same manner.

886. Emulsion of Wax.—White Wax 1 ounce, Acacia Mucilage Syrup 4 ounces. Water 12 ounces. Melt the Wax, and having warmed the Mucilage Syrup to about 140°F., rub the melted Wax with it in a mortar, and gradually add the Water, warmed to about 100°F., rubbing them well together until cold. Emulsions of other waxes, Spermaceti, etc., may be made in the same manner.

ESSENTIÆ — ESSENCES — FLAVORING EXTRACTS.

The term Essence is applied in a general way to the important or essential part or portion of plants or other substances, and in pharmacy to a class of preparations made from or possessing the essential

principles of substances, such as Essential Oils or their solutions in alcohol, Ethers used as artificial flavors, Fluid Extracts or Tinctures of odorous substances used for flavoring or in perfumery, etc., etc.

In the U. S. P. there is no mention of essences, but in the Br. P. Essence of Anise and Essence of Peppermint are assigned a place, being very much stronger solutions of the Essential Oils than the "Spirits" of the same. Many of the preparations which are commonly known as essences are found in the Spirits of the U. S. and other pharmacopoeias, and others are found among the Ethers, Fluid Extracts, Tinctures, etc.

It is intended in this work to class under this heading only such preparations as are known as Essences and Flavoring Extracts—the esprits and essences used in perfumery being classed under perfumes.

The preparations included under this classification are naturally divided into several departments, as solutions of Essential Oils or Essences proper, many of which are also known as Extracts, Extracts of odorous substances used for flavoring, etc., Soluble Extracts or Essences used for flavoring beverages, Artificial Fruit, Essences or Flavors, and miscellaneous essences and extracts that cannot well be classified under any of these headings.

Concentrated Essences or Extracts.

Solutions of Essential Oils.

The Solutions of Essential Oils in Spirits have been familiarly known from time immemorial as "Essences," and the characteristic "Yankee Essence Peddler" is not even now entirely extinct in the rural districts.

No uniform standard of strength has ever been adopted for Essences, but the general practice of Pharmacists in this country is to use 1 ounce of the Oil in a pint of Alcohol for all the more common ones, but Peddlers' Essence is made much weaker as a rule.

It is needless to remark that only the best quality of oils and good cologne spirit or alcohol should be used in making all these preparations. Many of them are used for flavoring soda water syrups, and are known as "Concentrated Extracts." Others are extensively used for flavoring

confectionery, ice cream, and for culinary use, and some are well known domestic remedies.

890. Anise Essence.

Oil of Anise,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The Essence of Anise of the Br. P. contains 20 per cent. of the Oil, which is double the strength of the U. S. Spirit of Anise; both are stronger than is generally sold as Essence of Anise.

891. Bay Essence.

Oil of Bay Leaves,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. This is used for flavoring soups, etc., in place of the leaves. A soluble Essence of Bay for making Bay Rum may be made by dissolving 4 fl.drachms Oil of Bay in 6 ounces Cologne Spirit, rubbing 6 drachms of Carbonate of Magnesium with 8 ounces of Water, adding the mixture to the solution, and filtering.

892. Bergamot Essence.

Oil of Bergamot,	1 fl.ounce.
Cologne Spirit,	1 pint.

Mix and filter. This Essence is considerably called for as a scent for hair preparations, etc.

893. Bitter Almond Essence.

Oil of Bitter Almond,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. This is sold as the Concentrated Essence or Extract of Bitter Almond. A good ordinary Essence may be made by dissolving 1½ fl.drachm of Oil Bitter Almond in 8 fl.ounces of Alcohol and adding 8 fl.ounces of Water.

894. Calamus or Sweet Flag Essence.

Oil of Calamus,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring confectionery, etc., and in making Bitters, etc. An extract may also be made by macerating 4 ounces av. of powdered Calamus in a pint of Alcohol.

895. Caraway Essence.

Oil of Caraway Seed,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring confectionery, pastry, etc.

896. Cardamom Essence.

Oil of Cardamom Seed,	4 fl.drachms.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, etc. The Oil of Cardamom is quite expensive, but of fine flavor. An extract may also be made by macerating 4 ounces of powdered Cardamom Seed in a pint of Alcohol.

897. Cassia or Cinnamon Essence.

Oil of Cassia,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. Spirit of Cinnamon contains 10 per cent. of the Oil; the Br. contains but 2 per cent.

898. Cedar Essence.

Oil of Cedar,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

899. Celery Essence.

Oil of Celery,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring. An extract is also made from Celery Seed.

900. Clove Essence.

Oil of Cloves,	1 fl.ounce.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring, etc.

901. Cherry Essence.

Cherry Laurel Oil,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring.

902. Cognac Essence.

Oil of Cognac,	2 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. This is used for flavoring, also for making artificial Brandy. Good Oil of Cognac is very expensive. This Essence may be diluted, if desired, cheaper.

903. Coriander Essence.

Oil of Coriander,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring.

904. Curaçoa Essence.

Oil of Curaçoa,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, like Orange.

905. Dill Essence.

Oil of Dill,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

906. Fennel Essence.

Oil of Fennel Seed,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

907. Hemlock Essence.

Oil of Hemlock,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

908. Juniper Essence.

Oil of Juniper Berries,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. Spirit of Juniper contains 3 per cent. of the Oil; the Br. P. directs 2 per cent.

909. Lavender Essence.

Oil of Lavender,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. Spirit of Lavender contains 3 per cent. of the Oil; the Br. P. directs 2 per cent.

910. Lemon Essence.

Oil of Lemon, fresh,	1 fl.ounce.
Fresh Lemon Peel, chopped fine or grated,	1 ounce av.
Cologne Spirit,	15 fl.ounces.

Mix them and macerate for 7 days, then filter. The outer, yellow portion of the peel only should be used. If the fresh Lemon Peel cannot readily be obtained, color with a few chips of Fustic. This essence is the well-known Extract of Lemon, so much sold as a flavoring extract. It may be made stronger or weaker if desired by using more or less Lemon Oil; but this formula makes an extract fully up to the standard. The U. S. P. directs 6 per cent. of Lemon Oil and 4 per cent. of Lemon Peel.

911. Lime Essence.

Oil of Limes,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, like Lemon.

912. Mace Essence.

Oil of Mace, etherial,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring, like Nutmeg.

913. Mustard Essence.

Oil of Mustard, essential,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring. The Oil of Mustard must be carefully handled.

914. Nutmeg Essence.

Oil of Nutmeg,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. Used for flavoring. The Br. P. directs 2 per cent. of the Oil for making Spirit of Nutmeg.

915. Orange Essence.

Oil of Sweet Orange, fresh,	1 fl.ounce.
Fresh Orange Peel, outside, grated,	1 ounce av.
Cologne Spirit,	15 fl.ounces.

Mix them and macerate for 7 days, then filter. See remarks after Lemon Essence.

916. Parsley Essence.

Oil of Parsley,	4 fl.drachms.
Cologne Spirit,	1 pint.

Mix them. Used for flavoring.

917. Pennyroyal Essence.

Oil of Pennyroyal,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them, and filter.

918. Peppermint Essence.

Oil of Peppermint,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them, and filter. It is customary with some druggists to color Essence of Peppermint green, which may be done by adding a little peppermint herb to the Essence, or a little grass-green coloring (443). The U. S. P. Spirit of Peppermint contains 10 per cent. of the Oil; the Br. P. directs 2 per cent. of the Oil for making Spirit of Peppermint, but also gives an Essence of Peppermint containing 20 per cent. of the Oil.

919. Pimento or Allspice Essence.

Oil of Pimento,	1 fl.ounce.
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Cologne Spirit, 15 fl.ounces.

Mix them. Used for flavoring.

920. Rose Essence.

Oil of Rose, 1 fl.drachm.
Cologne Spirit, 1 pint.

Mix them. This may be reduced if a cheaper Essence is desired.

921. Rosemary Essence.

Oil of Rosemary, 1 fl.ounce.
Cologne Spirit, 15 fl.ounces.

Mix them.

922. Sage Essence.

Oil of Sage, 1 fl.ounce.
Cologne Spirit, 15 fl.ounces.

Mix them.

923. Sarsaparilla Essence.

Oil of Sassafras, 3 fl.drachms.
Oil of Wintergreen, 4 fl.drachms.
Oil of Anise, 30 minims.
Cologne Spirit, 12 fl.ounces.
Water, 3 fl.ounces.

Mix them. This is the popular "Sarsaparilla Flavoring" so much used for flavoring Soda Water, Syrup Sarsaparilla, etc. A stronger flavor can be made by using a larger quantity of the Oils and no Water.

924. Sassafras Essence.

Oil of Sassafras, 1 fl.ounce.
Cologne Spirit, 15 fl.ounces.

Mix them.

925. Spearmint Essence.

Oil of Spearmint,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. This may be colored with Spearmint herb or grass-green coloring if desired. See remarks under Essence Peppermint. The U. S. P. Spirit of Spearmint contains 10 per cent. of the Oil.

926. Spruce Essence.

Oil of Spruce,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them, and filter.

927. Wintergreen Essence.

Oil of Wintergreen,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them. The U. S. P. directs Spirits of Gaultheria to be made with 3 parts of Oil of Wintergreen and 97 parts of Alcohol.

928. Wormwood Essence.

Oil of Wormwood,	1 fl.ounce.
Cologne Spirit,	15 fl.ounces.

Mix them.

Essences of other Oils may be made in the same manner as the preceding, the judgment of the druggist directing how much of the Essential Oil should be used with a pint of Alcohol.

Concentrated Extracts.

In this department are included the liquid extracts of substances, not Essential Oils, that are used as Flavoring Extracts, or for flavoring beverages, pastry, etc. Some of them are properly Fluid Extracts, others are Tinctures and others are mixtures both of Extracts and Essences.

929. **Angelica Extract or Essence.**

Angelica Root, in coarse powder,	4 ounces av.
Alcohol,	12 fl.ounces.
Water, sufficient to make	1 pint.

Mix 4 ounces of Water with the Alcohol, and macerate the drug in the mixture for 7 days, then pour off the liquid, transfer the drug to a percolator, and percolate first with the poured off liquid, then with Water, until a pint is obtained.

This may also be made by mixing $\frac{1}{2}$ fl.ounce Oil of Angelica with a pint of Cologne Spirit.

930. **Beef or Meat Extract, Essence or Juice.**

A variety of preparations are sold under this name. The Extracts of Meat or Beef are usually of the consistence of a soft, solid Extract, while some are gelatinous. The Essences of Beef found in the market are liquid. Of the Beef or Meat Extracts, Liebig's is the most popular. It is made on a large scale in South America by evaporating Meat Juices in vacuo in iron cylinders—the finished Extract representing 32 times its weight of fresh meat. It is much used in making Wine of Beef and Iron and other similar nutritive preparations, and for making soups and other articles of diet.

Essence of Beef or Meat Juice is prepared from the expressed juice of fresh meat, condensed and preserved with glycerin. The most popular meat juice in this country is Valentine's. It is said to contain the nutritive value of two pounds of beef in a fl.ounce.

In a small way Meat Juice may be made by chopping fresh beefsteak fine, enclosing it in a linen cloth, and pressing it in a lemon squeezer or a small press. It is much better and more nutritious than beef tea.

931. Chocolate Extract or Essence.

Confectioners' Cocoa or Chocolate, 16 ounces av.
Alcohol, a sufficient quantity.

Reduce the Cocoa or Chocolate to a coarse powder, and put in a wide-mouth quart bottle, pour upon it a pint of Alcohol, and shake them thoroughly together, let stand in a warm place for 12 hours, with occasional agitation, then heat in a water-bath for one hour or more to about 160°F., leaving a little vent in the cork for the steam to escape. When cool, pour off the liquid and add half a pint more of Alcohol, heat as before, and add the product to the liquid before obtained to make about a pint of the Extract. The Chocolate may be still more thoroughly exhausted by adding more Alcohol, concentrating the Tincture by distillation and adding the soft extract to the liquid formerly obtained.

932. Coffee Extract or Essence.

Java Coffee, browned or roasted, 8 ounces av.
Mocha Coffee, browned or roasted, 8 ounces av.
Alcohol, 8 fl.ounces.
Water, a sufficient quantity to make 1 pint.

Grind the Coffee to a moderately fine powder, mix the Alcohol with 8 ounces of Water, and moisten the powder with 8 ounces of the mixture, pack firmly in the water-bath percolator, pour the remainder of the mixture upon it, and set in a warm place for one day, then heat moderately, and after one hour begin to percolate, adding Water through the percolator, and continuing the percolation until 14 fl.ounces are obtained, which reserve, continue the percolation with Water until the drug is exhausted, then evaporate to 2 fl.ounces, and add to the reserved liquid to make a pint. This is a Fluid Extract of Coffee. It may be used for flavoring soda water syrups, etc., or medicinally. It requires about 4 fl.ounces to flavor a gallon of Coffee Syrup for soda water.

933. Jamaica Ginger Extract or Essence.

Extracts or Essences of Jamaica Ginger are well known as proprietary remedies, and are considerably used as flavors for pastry and other articles of diet. The following formula is for a Fluid Extract of Jamaica

Ginger, which is used chiefly for flavoring, or may be diluted for the proprietary Essence of Jamaica Ginger :

Jamaica Ginger, in moderately fine powder, 16 ounces av.
Alcohol, a sufficient quantity.

Moisten the powder with Alcohol, pack firmly in a water-bath percolator, pour upon it sufficient Alcohol to cover it, and set in a warm place for 2 days, then heat moderately for one hour, and begin to percolate, adding Alcohol to the drug, and continuing the percolation until 14 fl.ounces are obtained, which reserve; continue the percolation with Alcohol until the drug is exhausted, then concentrate the later percolate by distillation to 2 fl.ounces, and add to the reserved portion to make a pint of Fluid Extract of Jamaica Ginger.

This is used as a Flavoring for Soda Water Syrup and other beverages. To make the proprietary Essence of Jamaica Ginger, mix 3 parts of this Extract with 5 parts of Cologne Spirit.

934. Orris Extract or Essence.

Orris Root, in moderately fine powder, 4 ounces av.
Cologne Spirit, sufficient to make 1 pint.

Moisten the powder with Cologne Spirit, pack firmly in water-bath percolator, cover with Cologne Spirit, let stand 2 days, then heat moderately 1 hour, and percolate with Cologne Spirit until a pint has passed. Used for flavoring and in compound perfumes. It has the odor of violets.

935. Sherbet Extract or Essence.

Vanilla Extract (940), 6 fl.ounces.
Oil of Orange, fresh, 3 fl.drachms.
Oil of Rose, 3 minims.
Acetate of Amyl, 1 fl.drachm.
Cologne Spirit, 8 fl.ounces.

Mix them, and filter.

936. Tonka Extract or Essence.

Tonka Beans, in fine powder,	4 ounces av.
Cologne Spirit, sufficient to make	1 pint.

Moisten the powder with the Cologne Spirit, pack firmly in the water-bath percolator, cover with Cologne Spirit, and let stand for 2 days, then heat moderately and percolate with Cologne Spirit until a pint has passed.

This was formerly much used to combine with Vanilla for making a cheap Vanilla Extract, but is now rapidly going out of use. It is considerably employed in perfumery.

937. Vanilla Extract or Essence.

A great variety of Extracts of Vanilla are found on the market, and as it is one of the most important Extracts, the selection of the beans for preparing it, and the manner of making, should be well understood.

The Mexican Vanilla Beans have the finest flavor, and the longer the bean, as a rule, the better the Extract; but owing to the increased value of the longer beans they are seldom used by the large manufacturers.

The Bourbon Beans are considerably used, but they have a ranker flavor, more like Tonka, and a first-class Extract cannot be made from them alone. They are, however, used to mix with the Mexican Beans, and give a strength to the flavor, which is considered desirable by some manufacturers, but is not liked by the best judges of Good Vanilla Extract.

Owing to the high price of Vanilla Beans, they are liable to manipulation in the hands of unscrupulous jobbers, and an Extract is frequently made by soaking the whole beans in spirits, then drying and selling them. They are then brittle and lighter colored, and are practically worthless. The best way is to buy them of reliable houses only.

Several strengths of Vanilla Extracts are made. One containing 4 ounces to a pint being usually called Fluid Extract of Vanilla; one,

containing 2 ounces to the pint, being called Concentrated Extract of Vanilla, chiefly used by confectioners and for flavoring soda water, etc.; and one for the popular trade, usually made 1 ounce to the pint, and called by any name that the manufacturers chose to give it. Besides these, which rank as first-class, and vary only in strength, are the Extracts made of Vanilla and Tonka, or of poorer quality of beans, which are much sold by grocers and also by druggists. The following are the formulae:

938. Fluid Extract of Vanilla.

Vanilla Beans, cut fine,	4 ounces av.
Cologne Spirit,	12 fl.ounces.
Water, sufficient to make	1 pint.

The Beans are best cut fine with a dried-beef slicer, or by chopping in a chopping-bowl; they should then be pounded in an iron mortar until they are thoroughly crushed or dessicated, then pack them firmly in the water-bath percolator, and pour upon them 8 ounces of Cologne Spirit mixed with 4 ounces of Water, and set in a warm place for 2 days ; then heat moderately for 2 hours, and begin to percolate. When the liquid has ceased to drop add the remaining 4 ounces of Cologne Spirit, mixed with 4 ounces of Water, and continue the percolation, adding Water, if necessary, through the percolator until a pint of the Extract is obtained, then filter.

This Extract is not sold except as a Fluid Extract, or for special use to those who know its strength.

939. Concentrated Extract of Vanilla.

Vanilla Beans, cut fine,	1 ounces av.
Cologne Spirit,	12 flounces.
Water, sufficient to make	1 pint.

Make the same as the preceding.

940. Extract of Vanilla.

This is the Flavoring Extract of Vanilla that is mostly made and sold by druggists and manufacturers when Extract of Vanilla is wanted:

Vanilla Beans, cut fine,	1 ounce av.
Cologne Spirit,	10 fl.ounces.
Water, sufficient to make	1 pint.

Reduce the Cut Beans to a coarse powder by beating in an iron mortar and put them in a pint wide-mouth bottle. Mix the Cologne Spirit with 6 ounces of Water, and pour one third of the mixture upon the Vanilla, and stop with a perforated cork, heat for one hour in a water-bath to about 160°F., pour off the liquid and reserve; pour on the drugs one third more of the menstruum, and heat as before, adding the liquid to the portion previously reserved. Pour on the remainder of the liquid, heat as before, and add the product to the reserved Extract, then add sufficient Water to the Vanilla in the bottle, heat again and pour off, adding the liquid to the reserved extract to make a pint of the Extract of Vanilla.

In making larger quantities of this Extract, it is best made by water-bath percolation the same as the preceding.

941. Vanilla-Tonka Extract.

Many druggists mix a portion of Tonka with Vanilla to make an Extract of Vanilla. Although it gives a stronger flavor, it is not the same as Vanilla.

This is called by some manufacturers *Fortified Extract of Vanilla*, but those who are accustomed to the true Vanilla flavor think but little of it. It .may be made by using :

Vanilla Beans,	$\frac{3}{4}$ ounce.
Tonka Beans,	$\frac{1}{4}$ ounce.
Alcohol,	10 fl.ounces.
Water, sufficient to make	1 pint.

Make in the same manner as Extract of Vanilla. Some manufacturers use a still larger proportion of Tonka.

Soluble Flavoring Extracts.

Most of the Essences and Extracts made from Essential Oils and substances containing Oleo-resins, are insoluble in aqueous solutions—making cloudy or milky mixtures. It is desirable for many purposes that some of them should make clear solutions when mixed with Water or Syrup. A general formula is therefore given by which any of the Essences made from Oils may be made soluble, and a few special formula; for others are given.

These Soluble Extracts are mainly used for Soda Water Syrups and for making bottled beverages.

942. General Formula for Soluble Extracts.

The Essential Oil or Oils,	1/2 fl.ounce.
Cologne Spirit,	9 fl.ounces.
Carbonate of Magnesium,	1/2 to 1 ounce av.
Water, sufficient to make	1 pint.

Mix the required Oil or Oils with the Cologne Spirit, rub half an ounce of Carbonate of Magnesium to a fine powder, and then with the Water, and add the mixture to the solution, shaking them well together, let stand a few days, shaking occasionally, then filter, adding enough Water through the filter to make a pint. As some Oils are much less soluble than others in aqueous solutions, the filtered product may not make a clear mixture with Water. This may be ascertained by dropping a few drops into a few ounces of Water. If the solution is cloudy it will be necessary to rub the filtrate with more Carbonate of Magnesium and again filter.

943. Soluble Extract of Ginger.

Jamaica Ginger Root, in moderately fine powder,	4 pounds av.
Alcohol, a sufficient quantity.	
Water, a sufficient quantity.	
Carbonate of Magnesium,	3 ounces av.
Carbonate of Sodium (Sal Soda),	1 ounce av.

Pack the Ginger in the water-bath percolator, and pour sufficient

Alcohol upon it to cover it, let stand 48 hours in a warm place, then add more Alcohol, heat moderately for 1 hour and begin to percolate, adding Alcohol to the percolator, and continuing the percolation until the drug is exhausted. Reserve the first 4 pints that pass, and concentrate the remainder by distilling off the Alcohol until only a pint of the Extract remains; add this to the percolate reserved. Dissolve the Carbonate of Sodium in 4 pints of Water; rub the Carbonate of Magnesium to a smooth mixture with the solution, and add the mixture to the Extract. Let stand for several days, with occasional agitation, and finally filter.

This is about half the strength of a Fluid Extract, and makes a clear solution with Syrup or Water. It is used for flavoring Syrup for Soda Water, Ginger Beer, and other beverages. For making the U. S. official Syrup of Ginger, mix 1 fl.ounce of this Extract with 15 fl.ounces of Syrup.

944. Ginger Ale Extract.

Jamaica Ginger, in moderately fine powder,	4. pounds av.
Oil of Lemon,	1 fl.ounce.
Oil of Orange,	3 fl.drachms.
Oil of Pimento,	1 ¹ / ₂ fl.drachms.
Carbonate of Magnesium,	4 ounces av.
Carbonate of Sodium,	1 ounce av.
Caramel Coloring,	2 fl.ounces.
Alcohol, a sufficient quantity.	
Water, a sufficient quantity.	

Pack the Ginger in the water-bath percolator, and pour sufficient Alcohol upon it to cover it, let it stand 48 hours in a warm place, then add more Alcohol, heat moderately for i hour and begin to percolate, adding Alcohol to the percolator, and continuing the percolation until the drug is exhausted. Reserve the first 4 pints that pass, and concentrate the remainder by distilling off the Alcohol until only a pint of the Extract remains. Add this to the percolate reserved, then add the Oils to the same.

Dissolve the Carbonate of Sodium in 4 pints of Water, rub the Carbonate of Magnesium with the solution, add the Caramel Coloring, and then add the mixture to the Extract. Let stand several days, with occasional agitation, and finally filter.

This is the popular Ginger Ale Extract so much used as a flavoring for Soda Water Syrups and bottled beverages.

For making Ginger Ale to bottle or charge in a fountain, mix 6 ounces of this Extract with 1¹/₂ gallons of Syrup, 7 gallons of Water, 1 ounce solution Citric Acid and 2 ounces Caramel, and charge to 30 pounds. For making Syrup Ginger Ale to draw from the fountain, mix 3 ounces of the Extract with 1 gallon Syrup, and add 1¹/₂ ounce solution Citric Acid.

945. Soluble Extract of Lemon.

Oil of Lemon, fresh,	1/2 fl.ounce.
Carbonate of Magnesium,	3/4 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oil of Lemon in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let stand a few days, with occasional agitation, then filter, adding enough Water through the filter to make the measure one pint.

For making Lemon Pop, etc., mix 8 ounces of this Extract with 2 gallons of Syrup and 8 gallons of Water, add 1 ounce of Citric Acid, and charge to 30 pounds. For Soda Water Syrup, mix 3 ounces with 1 gallon of Syrup, and add 1 ounce Citric Acid Solution.

946. Soluble Extract of Mead.

A great number of formulas have been published for making this popular beverage, some being in the form of Extracts, and others in the form of a Syrup. The following makes a soluble Extract of fine flavor and strength :

Oil of Lemon,	2 fl.ounces.
Oil of Sassafras,	4 fl.drachms.
Oil of Cloves,	3 fl.drachms.
Oil of Wintergreen,	1 fl.drachm.
Oil of Pimento,	1 fl.drachm.
Oil of Cinnamon,	40 minims.

Caramel Coloring,	2 fl.ounces.
Carbonate of Magnesium,	4 ounces av.
Cologne Spirit,	4 ¹ / ₂ pints.
Water, q. s., or	4 pints.

Dissolve the Oils in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add the Caramel Coloring, then add the mixture to the solution, and let stand a few days, shaking occasionally, and filter.

For charging in a fountain or bottling, mix 6 ounces of this Extract with 1¹/₂ gallons of Syrup, 7 gallons of Water, and 1 ounce Solution Citric Acid, and charge to 30 pounds.

For making *Syrup of Mead* to draw from the fountain, mix 3 ounces with 1 pint Strawberry or Raspberry Fruit juice, and ¹/₂ ounce Citric Acid Solution, and add enough Syrup to make 1 gallon.

947. Excelsior Mead Extract.

Fluid Extract Sarsaparilla Compound,	4 fl.ounces.
Strawberry Juice (or other Fruit Juice),	4 ¹ / ₂ pints.
Soluble Mead Extract (946),	8 fl.ounces.
Caramel Coloring,	1 fl.ounce.
Sugar,	5 pounds av.
Cologne Spirit,	12 fl.ounces.

Mix the liquids and dissolve the Sugar in the mixture.

To charge in a fountain, or make *Bottled Mead*, mix 1¹/₂ gallons of this Extract with 1 gallon of Syrup and 7¹/₂ gallons of Water, and charge to 30 pounds.

For *Excelsior Mead Syrup* to draw from the fountain, mix 1 part with 3 parts of Syrup.

948. Soluble Extract of Orange.

Oil of Orange,	1/2 fl.ounce.
Carbonate of Magnesium,	3/4 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oil in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let stand a few days, shaking occasionally, then filter, adding enough Water through the filter to make the measure a pint.

For making *Orange Syrup* for Soda Water, mix 3 ounces with 1 gallon Syrup and 1/2 ounce Solution Citric Acid.

949. Soluble Extract of Sarsaparilla.

Oil of Wintergreen,	2 1/2 fl.drachms.
Oil of Sassafras,	1 3/4 fl. drachm.
Oil of Anise,	15 minims.
Carbonate of Magnesium,	1/2 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oils in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let stand a few days, then filter, adding enough Water through the filter to make the measure a pint.

For charging in a fountain, making *Sarsaparilla Pop*, etc., mix 8 ounces of this Extract with 2 gallons of Syrup, 8 gallons of Water, 1/2 ounce Citric Acid, and 8 ounces Caramel Coloring, and charge to 30 pounds.

For Soda Water Syrup, mix 3 ounces with 1 gallon Syrup, and color with Caramel.

950. Soluble Extract of Tolu.

Balsam Tolu,	1 ¹ / ₂ ounce av.
Alcohol,	3 fl.ounces.
Carbonate of Magnesium,	2 ounces av.
Water, a sufficient quantity to make	1 pint.

Dissolve the Balsam of Tolu in the Alcohol by the aid of a water-bath, and rub the solution thoroughly with the Carbonate of Magnesium, then gradually add to the mixture a pint of boiling Water, rubbing them well together, allow the mixture to stand until cold, then filter, adding through the filter sufficient Water to make the measure 16 fl.ounces.

To make *Syrup of Tolu*, mix 2 fl.ounces of this with 14 fl.ounces of Syrup. It is also used to flavor Soda Water Syrup in the same proportion.

951. Soluble Extract of Winter-green.

Oil of W [^] intergreen,	3 fl.ounces.
Carbonate of Magnesium,	1/2 ounce av.
Cologne Spirit,	9 fl.ounces.
Water, q. s., or	8 fl.ounces.

Dissolve the Oil in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, and add to the solution, let it stand for a few days, shaking occasionally, then filter, adding enough Water through the filter to make the measure a pint.

For charging in a fountain, etc., use the same as Sarsaparilla. For Soda Water Syrup, mix 3 ounces with 1 gallon Syrup.

952. Birch Beer Extract.

Oil Wintergreen,	3 fl.ounces.
Oil Sassafras,	1/2 fl.ounce.
Oil Lemon,	1/2 fl.ounce.
Oil Cassia,	10 minims.
Catechu,	60 grains.
Carbonate of Magnesium,	3 ounces av.

Caramel Coloring,	2 fl.ounces.
Cologne Spirit,	4 ¹ / ₂ pints.
Water, q. s., or	4 pints.

Dissolve the Oils in the Cologne Spirit, rub the Carbonate of Magnesium with the Water, add the Caramel and Catechu, and add the mixture to the solution, let stand several days, with occasional agitation, then filter.

This Soluble Extract is much used by bottlers and for flavoring Soda Water Syrup.

For *Birch Beer* charged in a fountain or bottled, mix 6 ounces with 1¹/₂ gallon of Syrup, 2 ounces of Caramel, ¹/₂ ounce Solution Citric Acid, 8 gallons of Water, and charge to 30 pounds.

For *Birch Beer Syrup* to be drawn from the fountain, mix 3 ounces with 1 gallon of Syrup, and add ¹/₂ ounce Solution Citric Acid. Color with Caramel.

953. Ottawa Beer Extract.

This was formerly a proprietary preparation, but now all the leading Soda Water manufacturers furnish it. A good Extract may be made as follows :

Burdock Root,	1 pound av.
Sarsaparilla,	1 pound av.
Sassafras,	8 ounces av.
Sweet Flag (Calamus),	2 ounces.
Dandelion Root,	6 ounces av.
Caramel Coloring,	1 fl.ounce.
Oil of Wintergreen,	2 fl.drachms.
Oil of Lemon,	2 fl.drachms.
Carbonate of Magnesium,	1 ounce av.
Alcohol,	4 ¹ / ₂ pints.
Water, q. s. to make	1 gallon.

Grind the drugs to a coarse powder, mix 4 pints of Alcohol with 4 pints

of Water, make an Extract by water-bath percolation, reserving the first 7 pints that pass, continue the percolation with water, evaporate the remaining percolate to 1 pint, and add. Dissolve the Oils in 8 fl. ounces of Alcohol, and add; rub the Carbonate of Magnesium with a portion of the Extract, add to the remainder, and, after standing, filter.

For *Ottawa Beer* charged in a fountain, mix 6 ounces with 1¹/₂ gallon Syrup, 1 ounce Solution Citric Acid, 2 ounces Caramel, and 8 gallons of Water, and charge to 30 pounds.

For *Ottawa Beer Syrup*, mix 3 ounces with 1/2 ounce Solution Citric Acid and 1 gallon of Syrup, and color with Caramel.

954. Peruvian Beer Extract.

Fluid Extract of Sarsaparilla Compound,	4 fl. ounces.
Oil of Lemon,	2 fl.drachms.
Oil of Sassafras,	2 fl.drachms.
Oil of Wintergreen.	1 ¹ / ₂ fl.drachm.
Oil of Spruce,	1 fl.drachm.
Oil of Nutmeg,	1/2 fl.ounce.
Carbonate of Magnesium,	1 ounce av.
Caramel Coloring,	1/2 fl.ounce.
Alcohol,	16 fl.ounces.
Water,	16 fl.ounces.

Dissolve the Oils in the Alcohol, rub the Carbonate of Magnesium with the Water, add the Fluid Extract and Caramel, then add the mixture to the solution, and, after standing a few days, with occasional agitation, filter.

Directions for charging, bottling and drawing as a Syrup the same as for Birch Beer.

955. Root Beer Extract.

American Sarsaparilla,	16 ounces av.
Sassafras Bark,	12 ounces av.
Dandelion,	12 ounces av.

Sweet Flag (Calamus),	3 ounces av.
Nutmeg,	2 ounces av.
Oil of Wintergreen,	2 fl.drachms.
Oil of Lemon,	2 fl.drachms.
Oil of Spruce,	1 fl.drachm.
Caramel Coloring,	1 fl.ounce.
Carbonate of Magnesium,	1 ounce av.
Alcohol,	4 ¹ / ₂ pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a coarse powder; mix 4 pints of the Alcohol with 4 pints of Water; make an Extract by water-bath percolation, reserving the first 7 pints which pass, and continue the percolation with Water until the drugs are exhausted; evaporate this last percolate to 1 pint, and add to the reserved Extract. Dissolve the Oils in 8 ounces of Alcohol, and mix with the Extract. Rub the Carbonate of Magnesium with a portion of the Extract, and add to the remainder; then add the Caramel, and, after standing a few days, with occasional agitation, filter.

Directions for charging, bottling, and drawing as a Syrup the same as for Ottawa Beer.

956. Spruce Beer Extract.

Oil Hemlock, pure,	4 fl.drachms.
Oil Lemon,	1 fl. drachm.
Oil Wintergreen,	¹ / ₂ fl.drachm.
Oil Sassafras.	¹ / ₂ fl.drachm.
Carbonate of Magnesium,	1 ounce av.
Alcohol,	20 fl.ounces.
Water,	12 fl.ounces.

Dissolve the Oils in the Alcohol, rub the Carbonate of Magnesium with the Water, and add to the solution; let stand a few days, with occasional agitation, and filter.

Directions for charging, bottling, and drawing as a Syrup the same as for Birch Beer, except that the color is omitted.

Artificial Fruit Essences or Flavors.

A variety of artificial Fruit Flavors or Essences are made from various ethers, which, when largely diluted, resemble the flavors of fruit to a greater or less degree. (*Most are deleted - they really ARE artificial - MM*)

983. Cachou Flavor.

Oil of Peppermint.	2 fl.ounces.
Oil of Wintergreen.	1 fl.ounce.
Oil of Cassia.	2 fl.drachms.
Oil of Cloves,	1 fl.drachm.

Mix them. By the addition of 2 drachms Oil of Calamus or the same quantity of Oil of Cardamom the flavor is much improved, but they add to the expense.

Aromatic Cachous for the breath are made by mixing powdered Extract of Liquorice 7 parts, powdered Purified Catechu 2 parts, powdered Gum Arabic 1 part, Cachou Flavoring 1 part, with Water sufficient to make a mass, and making into pills which may be coated with silver leaf. Trix, a proprietary article, are made in the same manner, but rolled out in sheets and cut in small squares. The flavoring may be varied by adding other aromatic substances, as desired.

984. Essence of Coltsfoot.

Balsam Tolu,	1 ounce av.
Compound Tincture of Benzoin,	3 ounces.
Alcohol,	3 ounces.

Mix the liquids, dissolve the Balsam in the mixture by the aid of gentle heat, and filter. This is used for flavoring Coltsfoot Candy, and as a remedy for coughs.

Bitters Extracts.

These Extracts are used for flavoring Liquors and for making Bitters to bottle. They are dispensed at bars from squirt bottles, by which a few

drops may be added to a glass of liquor, and are used as directed for flavoring put-up Bitters, for which druggists have considerable demand:

985. Angostura Bitters Extract.

Angostura Bark,	6 ounces av.
Bitter Orange Peel,	8 ounces av.
Canada Snake Root,	8 ounces av.
Calisaya Bark,	8 ounces av.
Virginia Snake Root,	8 ounces av.
Gentian Root,	4 ounces av.
Galangal Root,	4 ounces av.
Sweet Flag (Calamus),	4 ounces av.
Cardamom Seed,	2 ounces av.
Cinnamon,	1 ounce av.
Cloves,	1 ounce av.
Coriander,	1 ounce av.
Mace,	1 ounce av.
Alkenet Root,	2 ounces av.
Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a moderately fine powder, and moisten them with 2 pints of Alcohol, pack in the water-bath percolator, and, having mixed the remainder of the Alcohol with 4 pints of Water, pour enough of the mixture upon the drugs to cover them, and set in a warm place, let stand 2 days, then pour the remainder of the diluted Alcohol upon them, heat very moderately, and after one hour begin to percolate, adding Water to the drugs, and continuing the percolation until the drugs are exhausted. Reserve the first 7 $\frac{1}{2}$ pints that pass, evaporate the remainder of the percolate to a $\frac{1}{2}$ pint, and add to the reserved portion to make 1 gallon. This is a very strong Extract.

To make *Angostura Bitters* for bottling, take 2 ounces of this Extract, $\frac{1}{4}$ gallon Pure Proof Spirit, $\frac{1}{4}$ gallon Water, 1 ounce Glycerin.

986. Aromatic Bitters Extract.

Bitter Orange Peel,	2 pounds av.
Sweet Flag Root (Calamus),	8 ounces av.

Hops,	8 ounces av.
Cardamom Seed.	2 ounces av.
Cassia Bark,	2 ounces av.
Coriander Seed,	1 ounce av.
Cloves,	1 ounce av.
Mace,	1 ounce av.
Cochineal,	1 ounce av.
Alcohol,	5 pints.
Water, sufficient for	1 gallon.

Grind the Orange and Hops to a coarse powder, and the other articles to a fine powder, mix them, moisten with 1 pint of Alcohol, pack, percolate, and proceed in the same manner as for making Angostura Bitters Extract. This is a pleasant Aromatic Extract.

To make Aromatic Bitters to bottle, mix 4 fl.ounces of this Extract with 6 pints Pure Proof Spirit and 2 pints of Water, and add 1 ounce Glycerin.

987. Boker's Bitters Extract.

Quassia,	8 ounces av.
Sweet Flag Root,	8 ounces av.
Bitter Orange Peel,	12 ounces av.
Catechu,	4 ounces av.
Cardamom,	3 ounces av.
Alcohol,	5 pints.
Water, sufficient to make	1 gallon.

Make by water-bath percolation same as the preceding.

988. Orange Bitters Extract.

Fresh Orange Peel, chopped fine,	2 pounds.
Bitter Orange Peel, coarsely ground,	1 pound.
Oil of Orange,	1 fl.ounce.
Cologne Spirit,	6 pints.
Water, sufficient to make	1 gallon.

Mix the Orange Peels, fresh and dry, and cover them with Cologne Spirit, 4 pints; let stand a few days and pour off the liquid, pour on 2 pints fresh Cologne Spirit, macerate as before, and pour off, then pour 3

pints Water upon the drugs, macerate as before, pour off and express. Dissolve the Oil of Orange in the spiritous tincture, and add the last portion obtained by maceration and pressure to it. After standing a few days filter.

To make Orange Bitters for bottling, add 8 fl.ounces of this Extract to 6 pints Pure Proof Spirit, 2 pints of Water, and 1 ounce Glycerin.

989. Peruvian Bitters Extract.

Peruvian or Calisaya Bark, in coarse powder,	1 ¹ / ₂ pound av.
Bitter Orange Peel, in coarse powder,	1 pound av.
Galangal Root, in fine powder,	1 ounce av.
Cinnamon Bark,	2 ounces av.
Nutmeg,	1 ounce av.
Cloves,	1 ounce av.
Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Make by water-bath percolation the same as Angostura Bitters.

To make *Peruvian Bitters* or *Cinchona Bitters* for bottling, mix 8 fl.ounces of this Extract with 6 pints of Pure Proof Spirit and 2 pints of Water, and add 1 ounce of Glycerin.

990. Stomach Bitters Extract.

Wahoo Bark,	2 pounds av.
Bitter Orange Peel,	1 pound av.
Hops,	8 ounces av.
Juniper Berries,	4 ounces av.
Cardamom Seed,	4 ounces av.
Cinnamon,	3 ounces av.
Cloves,	1 ounce av.
Nutmeg,	1 ounce av.
Alcohol,	6 pints.
Water,	2 pints.

Grind the Wahoo, Orange and Hops to a coarse powder and the other drugs to a fine powder, mix them and make by water-bath percolation as directed for making Angostura Bitters.

To make Stomach Bitters for bottling, mix 4 ounces of this Extract with 6 pints of Pure Proof Spirit, and 2 pints of Water, and add 1 ounce of Glycerin.

991. Stoughton Bitters Extract.

Gentian, in coarse powder,	1 pound av.
Virginia Snake Root, in coarse powder,	8 ounces av.
Bitter Orange Peel, in coarse powder,	1 pound av.
Sweet Flag (Calamus), in coarse powder,	8 ounces av.
Cardamom Seed, in fine powder,	4 ounces av.
Cloves, in fine powder,	1 ounce av.
Coriander Seed, in fine powder,	2 ounces av.
Red Saunders, in fine powder,	4 ounces av.
Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Make by water-bath percolation as directed for Angostura Bitters. This is a strong extract and is to be diluted for use.

992. Wild Cherry Bitters Extract.

Fluid Extract of Wild Cherry,	15 fl.ounces.
Oil of Cherry Laurel,	60 minims.
Cologne Spirit,	1 fl.ounce.

Dissolve the Oil in the Cologne Spirit, and mix with the Extract. A Wild Cherry Bitters may be made by mixing 6 ounces of this extract with 6 pints of Pure Proof Spirit, 2 pints of Water, and 1 ounce of Glycerin.

Cordial Essences or Flavors.

The following are familiar Cordials which are used for flavoring Liquors, etc., similar to the foregoing Bitters. Other Cordials will be found under other headings.

993. Absinthe Essence.

Absinthe is usually made by distillation from the drugs, but a good article may be made from this essence :

Oil of Wormwood,	4 fl.ounces.
Oil of Anise,	2 fl.ounces.
Oil of Fennel,	2 fl.ounces.
Oil of Coriander,	1 fl.drachm.
Cologne Spirit,	8 fl.ounces.

Mix them.

994. Absinthe.— To make Absinthe mix 2 fl.ounces of Absinthe Essence with 5 gallons of Cologne Spirit, and add 5 gallons of water in which 5 pounds of white sugar has formerly been dissolved, then color by adding 2 ounces fluid Extract of Wormwood and sufficient grass-green coloring to give the desired tint, or by macerating 1 pound of fresh Wormwood tops in the liquid. Filter if necessary.

995. Anisette Essence.

Many formulas, all differing somewhat in flavor, are employed for making Anisette. The following combination will be found as agreeable as any:

Oil of Aniseed,	8 fl.ounces.
Oil of Coriander,	1 fl.drachm.
Oil of Cinnamon	1 fl.drachm.
Oil of Nutmeg,	30 minims.
Oil of Neroli, .	30 minims.
Cologne Spirit,	8 fl.ounces.

Mix them.

996. Anisette or *Anisette Cordial*.—To make Anisette mix 2 fl.ounces of this essence with 4 gallons Cologne Spirit and add to the mixture 5 gallons of water and 15 pounds of white sugar. Let stand and filter through a little Carbonate of Magnesium, if necessary.

997. Kümmel Essence.

Oil of Caraway Seed,	8 fl.ounces.
Oil of Aniseed,	2 fl.drachms.
Oil of Calamus,	20 minims.

Oil of Coriander,	20 minims.
Oil of Bitter Almond,	20 minims.
Cologne Spirit,	8 fl.ounces.

Mix them.

998. Kümmel.—To make Kümmel mix 2 fl.ounces of Kümmel Essence with 4 gallons of Cologne Spirit and add 5 gallons of water in which 15 pounds of white sugar has previously been dissolved. Let stand and filter through a little Carbonate of Magnesium.

A good Kümmel may also be made by dissolving 1 fl.drachm Oil of Caraway Seed in 3 pints Cologne Spirit, adding 4 pints of water, 1¹/₂ pounds of sugar, and filtering through Carb. Magnesium.

Curacoa Cordial is noticed on page 262. Some other cordials will be mentioned under other headings, but do not properly belong with the foregoing.

EXTRACTA — EXTRACTS.

The class of Galenicals known as Extracts or Solid Extracts are preparations usually in the form of mass or powder, and intended to represent in a concentrated form the soluble portions of vegetable drugs. In pharmacy they are used for making pills, plasters, ointments, suppositories, and many other forms of medicine where a concentrated preparation is desirable. Various methods are employed for obtaining the soluble properties of the drugs, as may best be suited to their nature, and their solutions are then concentrated by evaporation in various ways to the required consistence.

In large manufacturing establishments the evaporation is usually conducted in vacuo, at a low temperature, as the volatile properties are best preserved in this manner; but as this process is not expedient to the ordinary pharmacist, the formulas here given are designed for such conveniences as may readily be employed by them.

For making small quantities of Solid Extracts the fluid extract of the drug may be evaporated by a water-bath to a pilular consistence.

For prescription work, Powdered Extracts are much used and are more convenient than extracts in mass. Many extracts cannot well be reduced to a powder without admixture with other substances, but they are furnished by manufacturers who claim to give a true representative of the extract in the form of powder.

The following formulae are for Extracts Official in the U. S., Br. and German Pharmacopoeias. They represent, however, but a small part of the number of extracts that may be made, for it is evident that extracts may be prepared from all vegetable drugs; but from the formulae given the intelligent druggist will have no trouble to prepare any extract that may be desired by using the same menstruum for exhausting the drug which is directed for making a Fluid Extract of the same and evaporation in the manner directed for making other Extracts of the same nature.

1001. General Formula for Making Extracts.

The general directions which apply to making all kinds of Extracts, may be briefly stated as follows:

The Substance, any convenient quantity.
The Menstruum, a sufficient quantity.

Moisten the drug with the Menstruum, allow to macerate from 12 to 24 hours, pack in the water-bath percolator, pour Menstruum upon it and set in a warm place for one or two days, then heat moderately, adding the Menstruum or Water to the drug, and percolate until the drug is exhausted. Evaporate the percolate by distillation if it contains alcohol, or by gentle heat if aqueous, to a pilular consistence, adding 5 per cent. of Glycerin to such extracts as become hard and dry after standing, unless wanted in powdered form.

1002. Extracts from Expressed Juices.

Inspissated Juices.

The Extracts made by evaporating the expressed juices of fresh plants have always been considered superior to those made from the dried plants, and the popularity of the English Extracts made by reliable houses in this manner is well known. The following is the general

process of the Br. P. for making extracts in this manner :

The fresh leaves, tops or plants, any convenient quantity.

Bruise in a stone mortar and press out the juice, heat it gradually to 130° F. (54°4 C.), and separate the green coloring matter by straining through a calico filter. Heat the strained liquid to 200° F. (93°3 C.) to coagulate the albumen, and again filter through calico. Evaporate the filtered liquid by a water-bath at a low temperature to the consistence of a thin syrup, then add to it the green coloring matter previously obtained, and pass through a hair sieve; then stir together and continue the evaporation at a temperature not exceeding 140° F. (60° C.) until an extract of pilular consistence is obtained.

1003. Extractum Absinthium — *Extract of Wormwood.*—Exhaust Wormwood with Alcohol 2 parts mixed with water 3 parts, by means of the water-bath percolator. Distill off the Alcohol and evaporate the remainder to a thick extract. This is official in the G. P. The dose is 1/2 to 2 grains.

1004. Extractum Aconiti — *Extract of Aconite Root.*— Exhaust Aconite Root with Alcohol by means of the water-bath percolator, distill off the Alcohol until a thick extract remains, to which add 5 per cent of its weight of Glycerin and mix thoroughly. Official in the U. S. and G. P. Dose 1/30 to 1/4 grain.

1005. Extract of Aconite Leaves.—This is official in the Br. P., and is made by bruising the fresh leaves and flowering tops of Aconite, expressing the juice, heating, evaporating, etc., as directed (1002). The dose is 1/4 to 1 grain.

It was formerly official in the U. S. P. and was made by exhausting the dried Aconite Leaves with diluted Alcohol, distilling off the Alcohol and evaporating the residue to a solid extract.

1006. Extractum Aloes—*Extract of Aloes.*—Dissolve Aloes 1 part in Boiling Water 10 parts, and strain. Set aside for 12 hours, then pour off the clear liquid from the residue and evaporate by a current of warm air or by the heat of a water-bath to dryness. The dose is from 2 to 6 grains.

The U. S. P. calls this Aqueous Extract of Aloes; the Br. directs an Extract both of Barbadoes and Socotrine Aloes.

1007. Extractum Arnicae Radicis—*Extract of Arnica Root.*—Exhaust Arnica Root with Diluted Alcohol, distill off the Alcohol and evaporate the remainder to a thick extract, add 5 per cent. of its weight of Glycerin, and mix thoroughly.

An *Extract of Arnica Flowers* is made in the same manner. Extract of Arnica is used in making plasters.

1008. Extractum Belladonna Alcoholicum — *Alcoholic Extract of Belladonna.*—The U. S. P. directs this to be made from Belladonna Leaves, while the Br. P. directs the Root to be used ; the following formula will do for either: Exhaust the Leaves or Root of Belladonna with Alcohol by means of the water-bath percolator, distill off the Alcohol until only a soft extract remains, then evaporate to a pilular consistence, add 5 per cent. of its weight of Glycerin and mix thoroughly. Dose $\frac{1}{16}$ to $\frac{1}{4}$ grain.

Under the name *Extractum Belladonnae* the Br. P. and G. P. direct Extract of Belladonna to be made from the fresh leaves, by bruising, expressing the juice, evaporating, etc., as directed (1002). The same process was official in the 1870 U. S. P. The dose is from $\frac{1}{4}$ to 1 grain.

1009. Extractum Calumbae—*Extract of Calumba.*—Exhaust Calumba Root with diluted Alcohol, by maceration and pressure with separate portions of the menstruum, mix the liquors, distill off the Alcohol, and evaporate the residue to an extract of pilular consistence. The dose is 2 to 10 grains, Br. P.

1010. Extractum Cannabis Indicae—*Extract of Indian Cannabis.*—Exhaust Indian Hemp with Alcohol by water-bath percolation, distill the Alcohol from the percolate until an extract of pilular consistence remains. The dose is $\frac{1}{4}$ to 1 grain.

1011. Extractum Cascarae Sagradae—*Extract of Cascara Sagrada.*— This is a new extract of the Br. P., and is made by exhausting the drug first with two parts of diluted Alcohol, then with Water by means of water-bath percolation. The Alcohol is then distilled

from the first portion of the percolate, and the residue, with the remaining percolate, is evaporated to an extract of pilular consistence. Dose from 2 to 8 grains.

1012. Extractum Cinchonae — *Extract of Cinchona, Extract of Bark.*— Exhaust Yellow Cinchona by means of the water-bath percolator, first with 2 parts of an alcoholic or partly alcoholic menstruum, then by continuing the percolation with water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the remainder of the percolate to an extract of pilular consistence, add 5 per cent. of its weight of Glycerin and mix thoroughly. The dose is 1 to 5 grains.

The German Pharmacopoeia directs an *Aqueous Extract of Cinchona* to be made by exhausting the drug with separate portions of water, by maceration and expression, evaporation, etc.; also an *Alcoholic Extract of Cinchona* made with diluted Alcohol in the same manner.

1013. Extractum Cardui Benedicti—*Extract of Blessed Thistle.*— Blessed Thistle is exhausted with boiling water, and the liquid strained and evaporated to pilular consistence. The dose is from 3 to 30 grains. G. P.

1014. Extractum Cascariillae— *Extract of Cascarilla.*—Exhaust Cascarilla in No. 40 powder with boiling water, strain the liquid and evaporate to pilular consistence. The dose is 2 to 20 grains. G. P.

1015. Extractum Calami— *Extract of Calamus.*—Exhaust Calamus Root in No. 30 powder by percolating in the water-bath percolator, first with diluted Alcohol, then with Water. Distill the Alcohol from the first portion of the percolate and evaporate the residue with the remainder of the percolate to pilular consistence. This is official in the G. P.

1017. Extractum Colocyntidis—*Extract of Colocynth.*—Exhaust the pulp of Colocynth, deprived of seeds, with diluted Alcohol by maceration with separate portions of the Menstruum and expression. Distill off the Alcohol and evaporate the remainder by means of a water-bath to dryness. The dose is $\frac{1}{8}$ to $\frac{1}{4}$ grain.

1018. Extractum Colocyntidis Compositum—*Compound Extract of Colocynth*—

Extract of Colocynth,	8 ounces.
Aloes,	25 ounces.
Cardamom in No. 60 powder,	3 ounces.
Resin of Scammony, in fine powder,	7 ounces.
Soap, dried and in coarse powder,	7 ounces.
Alcohol,	5 ounces.

Melt the Aloes on a water-bath, then add the Alcohol, and having stirred the mixture thoroughly, strain it through a fine sieve, which has just been dipped into boiling water. To the strained mixture add the Soap, Extract and Resin, and heat the mixture not to exceed 248°F., until it is perfectly homogeneous, and a thread taken from the mass becomes brittle when cool. Then remove from the heat, add the Cardamom, mix thoroughly, and cover. This is much used in making Cathartic Pills. The dose is from 3 to 10 grains.

1019. Extractum Conii Alcoholicum—*Alcoholic Extract of Conium.*
— The U. S. formula is :

Conium (fruit) in No. 40 powder, 16 ounces av.

Diluted Hydrochloric Acid, 1/2 ounce av.

Glycerin and Diluted Alcohol each a sufficient quantity. Exhaust the drug- with Diluted Alcohol, distill off the Alcohol, add the Diluted Hydrochloric Acid to the remainder, and evaporate by heat of water-bath not exceeding 122°F. to a pilular consistence, to this add 5 per cent. of its weight of Glycerin, and mix thoroughly.

The Br. P. directs it to be made from the Juice expressed from the bruised young branches and fresh leaves of Hemlock, as directed (1002), The dose is from 2 to 6 grains.

1022. Extractum Euonymi — *Extract of Euonymus (Wahoo).*— Exhaust Wahoo Bark with diluted Alcohol. Distill off the Alcohol, evaporate the remainder to the consistence of a solid extract, add 5 per cent. of its weight of Glycerin, and mix them thoroughly.

1024. Extractum Gelsemium Alcoholicum—*Alcoholic Extract of Gelsemium.*— Gelsemium in fine powder is exhausted first with Alcohol

4 parts, and the percolation then continued with Water. The Alcohol is distilled from the first percolate until it is reduced to a soft extract, the aqueous percolate is then evaporated and mixed with the soft extract, and the whole is reduced to a pilular consistence. The dose is $\frac{1}{2}$ to 2 grains.

1025. Extractum Gentianae—*Extract of Gentian*.—Gentian Root in very coarse powder is macerated in successive portions of boiling water, expressed, and the mixed liquids evaporated to a pilular consistence. The dose is from 2 to 10 grains.

1026. Extractum Glycyrrhizae Pura—*Pure Extract of Liquorice*. Exhaust Liquorice Root in coarse powder first with water in which 12 per cent. of the weight of the root of Water of Ammonia has been added, then with water until no more strength is perceptible. Heat the liquids obtained to boiling, then strain and evaporate by a water-bath to a solid extract.

Crude or common Extract of Liquorice is made by exhausting Liquorice with water and evaporating to an extract.

1027. Extractum Haematoxyli—*Extract of Logwood*.—Exhaust Logwood with hot water, boil, strain, and evaporate the liquid to a solid extract. Dose 10 to 30 grains.

1028. Extractum Hyoscyami Alcoholicum—*Alcoholic Extract of Hyoscyamus*. The U. S. P. directs recently dried Hyoscyamus leaves, which may be exhausted by means of the water-bath percolator by percolating first with 4 parts of a menstruum of two-thirds Alcohol and then with Water. The Alcohol is distilled from the first portion of the percolate and the residue together with the aqueous percolate evaporated by water-bath to pilular consistence. The dose is 5 to 10 grains.

The Br. P. directs the juice of the fresh leaves to be obtained by bruising them and pressure, and evaporated, strained, etc., in the same manner as is directed (1002).

1029. Extractum Helenii — *Extract of Inula (Elecampane)*.—Exhaust Inula in No. 40 powder by percolating in the water-bath percolator, first with Diluted Alcohol, then with water, distill the Alcohol from the first

portion of the percolate and evaporate the residue with the remainder of the percolate by water-bath, to pilular consistence. The dose is from 2 to 15 grains. This is official in the G. P.

1030. Extractum Iridis—*Extract of Iris (Blue Flag)*.—Exhaust the drug by water-bath percolation, first with Alcohol 4 parts, and then by percolating with Diluted Alcohol. Distill off most of the Alcohol and evaporate the residue by means of a water-bath to pilular consistence. The dose is $\frac{1}{4}$ to 1 grain. U. S.

1031. Extractum Jaborandi—*Extract of Jaborandi*.—Percolate the drug in the water-bath percolator first with Alcohol 4 parts and then with Water until exhausted. Distill the Alcohol from the first percolate until only a soft extract remains, evaporate the aqueous percolate and, having mixed the extracts thus obtained, reduce them to pilular consistence. The dose is 2 to 10 grains. This extract is official in the Br. P.

1032. Extractum Jalapa—*Extract of Jalap*.—Exhaust Jalap by means of water-bath percolation first with 4 times its weight of Alcohol and then with Water, distill the Alcohol from the first portion of the percolate until only a soft extract remains, then evaporate the aqueous percolate, and having mixed the two extracts thus obtained reduce them to pilular consistence. The dose is from 5 to 15 grains. This extract is official in the Br. P.

1033. Extractum Juglandis—*Extract of Juglans (Butternut Bark)*.—Exhaust the Bark of Butternut Root with Alcohol by means of water-bath percolation. Distill off the Alcohol until the residue is reduced to a pilular consistence; to this add 5 per cent. of its weight of Glycerin and mix thoroughly. The dose is 2 to 10 grains.

1034. Extractum Krameriae—*Extract of Rhatany*.—Exhaust the Rhatany Root by percolating in the water-bath percolator with hot water. Heat the percolate to boiling, strain and evaporate by a water-bath at a temperature not exceeding 158° F. to dryness. The dose is from 5 to 20 grains.

1035. Extractum Lactucae — *Extract of Lettuce*.—The Br. P. directs this to be made from the fresh flowering herb of Lettuce, by bruising, expressing the juice and evaporating, treating in the same manner as is

directed (1002). The dose is from 5 to 15 grains.

1036. Extractum Leptandrae—(*Extract of Leptandra Culvers Root*).— Exhaust Leptandra by percolating in the water-bath percolator, first with a menstruum of two thirds Alcohol and then with water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the aqueous percolate, by means of a water-bath to a pilular consistence, to this add 5 per cent. of Glycerin and mix thoroughly. The dose is 2 to 10 grains.

1037. Extractum Lupuli—(*Extract of Hop*).—The hops are first percolated in the water-bath percolator with Alcohol, 4 parts, and then with water until exhausted. Distill the Alcohol from the first portion of the percolate and evaporate the aqueous percolate to a soft extract, mix the two extracts, and evaporate to a pilular consistence. The dose is 5 to 15 grains. This is official in the Br. P.

1038. Extractum Malti—(*Extract of Malt*).—Exhaust coarsely ground Malt in a water-bath percolator with water heated to about 60°C. (140°F.) and as the percolate is received evaporate it by the heat of a water-bath not exceeding 60°C. (140°F.) until it is reduced to the consistence of a thick syrup. It is necessary in making this preparation to begin the evaporation at once as the percolate is received, and to continue it at a temperature as uniform as possible until it is evaporated to the proper consistence, for upon this depends the preservation of the Diastase which is its important constituent. Extract of Malt is combined with many other preparations, which may be added to it in concentrated form. These combinations will be noticed under the heading MALTUM, which see.

1039. Extractum Mezerei — (*Extract of Mezereum*). — The U. S. P. directs an Alcoholic Extract, which may be prepared by exhausting Mezereum Bark in No. 30 powder, with Alcohol, by means of the water-bath percolator, and then distilling the Alcohol from the percolate until only a soft extract remains, and evaporating this by a water-bath to pilular consistence.

The Br. P. directs an Ethereal Extract of Mezereum to be prepared in a similar manner as the above, but after being thus prepared, to dissolve the Extract in Ether and macerate with occasional agitation for 24 hours, then to decant the ethereal solution, recover part of the Ether by

distillation, and evaporate the remaining liquid to a soft extract.

1042. Extractum Papaveris—*Extract of Poppy*.—Exhaust Poppy Capsules, freed from their seeds and in No. 20 powder, with successive portions of boiling water. Evaporate the liquors by a water-bath to a pint for each pound of the capsules used, to this add 2 fl.ounces of Alcohol, allow to stand 24 hours, then filter and evaporate the filtered liquid to pilular consistence. The dose is 2 to 5 grains. Br. P.

1043. Extractum Pareirae—*Extract of Pareirae*.—Exhaust Pareira Root in No. 40 powder by percolating in the water-bath percolator with boiling Water, and evaporate the percolate by a water-bath to pilular consistence. The dose is from 10 to 30 grains. Br. P.

1045. Extractum Podophylli—*Extract of Podophyllum (Mandrake)*.—Exhaust Mandrake Root in No. 60 powder by percolating in a water-bath percolator first with a menstruum of 75 per cent. Alcohol, then with Water. Distill off the Alcohol from the first percolate and evaporate the residue with the remaining percolate to pilular consistence. The dose is $\frac{1}{2}$ to 2 grains.

1046. Extractum Quassiae—*Extract of Quassia*.—Exhaust Quassia by means of a water-bath percolator with boiling Water, and evaporate the percolate by a water-bath to pilular consistence, to this add 5 per cent. of its weight of Glycerin and mix thoroughly. The dose is from 2 to 5 grains.

1047. Extractum Rhamni Frangulae—*Extract of Frangula or Buckthorn Bark*. — Exhaust Buckthorn Bark in No. 40 powder by percolating in a water-bath percolator, first with Diluted Alcohol and then with Water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the remaining percolate to pilular consistence. Dose, 10 to 60 grains.

1048. Extractum Rhei—*Extract of Rhubarb*.—Exhaust Rhubarb in No. 30 powder by percolating in a water-bath percolator first with Diluted Alcohol and then with water. Distill the Alcohol from the first portion of the percolate and evaporate the residue together with the remainder of the percolate by a water-bath, at a temperature not exceeding 70° C. (158° F.) to pilular consistence. The dose is from 5 to 15 grains. This may also be prepared by macerating with successive

portions of Water and pressure, then evaporating the liquids as above.

1049. Extractum Rhei Compositum—*Compound Extract of Rhubarb.*—This is made according to the G. P. from—

Extract of Rhubarb,	30 parts.
Extract of Aloes,	10 parts.
Resin of Jalap,	5 parts.
Medicinal Soap,	20 parts.

Rub them together, and, having moistened the mixture with Diluted Alcohol, evaporate to a dry extract by means of a steam-bath.

1050. Extractum Sabinæ—*Extract of Savine.*—Exhaust Savine with Diluted Alcohol by means of the water-bath percolator. Distill off the Alcohol and evaporate the percolate, by a water-bath, to a thick extract. The dose is 2 to 15 grains. G. P.

1051. Extractum Scillæ—*Extract of Squill.*—Macerate Squill with separate portions of Diluted Alcohol and express. Mix the liquids, distill off the Alcohol, and evaporate the residue to a thick extract. The dose is $\frac{1}{2}$ to 2 grains. G. P.

1052. Extractum Stramonii—*Extract of Stramonium.* — Exhaust Stramonium Seed in No. 40 powder with diluted alcohol by percolating in the water-bath percolator. Distill the Alcohol from the percolate and evaporate the residue at a temperature not exceeding 50°C. (122°F.) by means of a water-bath to a pilular consistence. The dose is $\frac{1}{4}$ to $\frac{1}{2}$ grain.

1053. Extractum Taraxaci—*Extract of Dandelion.*—Fresh Dandelion Root, gathered in September, is cut fine, crushed in a mortar until reduced to a pulp, a little water added, and the juice expressed and allowed to deposit. It is then strained and heated to boiling, strained again and evaporated to pilular consistence. The dose is from 5 to 30 grains.

1054. Extractum Trifolii Fibrini—*Extract of Buckbean.*—Exhaust Buckbean with boiling water, strain and evaporate the liquid to a thick extract. This is official in the G. P.

1055. Extractum Tritici— *Extract of Couch Grass.* — Exhaust Triticum with boiling water, strain and evaporate the liquid to a thick extract. This is official in the G. P. under the name *Extractum Graminis*,

1056. Extractum Valerianae—*Extract of Valerian.*—Exhaust Valerian Root in No. 40 powder by percolating in the water-bath percolator with 75 per cent. Alcohol, then with water. Distill the Alcohol from the first portion of the percolate, and evaporate the residue with the remainder of the percolate, by water-bath, at a temperature not exceeding 50°C. (122°F.) to a pilular consistence. Dose 2 to 20 grains. Although this extract is not official, it is more frequently used than many of those which are.

1057. Other Extracts.

The foregoing Extracts, official in the U. S., Br. and German Pharmacopoeias are all that are usually required. But a great number are quoted by manufacturing houses, and may be made by druggists in the same general manner as is directed for the Official Extracts, by using for exhausting the drug the same menstruum as is directed for making a fluid extract of the drug.

EXTRACTA DESTILLATA—DISTILLED EXTRACTS.

In American Pharmacy only two or three Distilled Extracts are known, and none are official; but from the favor with which Distilled Extract of Witch Hazel has been received, it is evident that many such Distilled Extracts might with advantage be made. In French Pharmacy under the name *Alcoolats* quite a large number of preparations made by distilling aromatic substances with a spiritous medium are known, and several of them are official.

All drugs whose valuable medicinal properties are volatilized by the heat of boiling alcohol or water, and do not consist of essential oils which rise to the surface when cool, may be represented in the form of Distilled Extracts.

For making these Extracts the steam still, by which steam may be forced

through the substances, is the best; but for pharmaceutical use they may be distilled with the low shape still described on page 29 in the same manner as is directed on page 32 (Part 1) for distilling medicated waters from leaves, etc. A wire-cloth basket should be suspended in the boiler in which the drugs should be placed to preserve the drug from too close contact with the heat.

A few formulas only are given as samples from which the druggist may make any desired extract:

1058. Extractum Hamamelidis Destillatum.

Distilled Extract Witch Hazel.

Witch Hazel Leaves, fresh,	2 pounds av.
Water,	1 gallon.
Alcohol,	8 fl.ounces.

Bruise the leaves in a mortar, pour the Alcohol upon them; put them in the still without the water-bath, add the Water and distill 2 pints. This may also be made by distilling with Water alone and then adding to the distillate 25 per cent. of Alcohol.

Distilled Extract of Horseradish, Scurvy Grass, Mustard, Nasturtium, Smartweed, and all other substances possessing like volatile principles, may be made in a similar manner.

1059. Extractum Buchu Destillatum.

Distilled Extract Buchu.

Buchu Leaves,	1 pound av.
Water,	1 gallon.
Alcohol,	8 fl.ounces.

Moisten the Buchu leaves with the Alcohol and put them in the still without the water-bath, add the water and distill 2 pints. A great variety of similar aromatic dry substances may be treated in the same manner.

1060. Extractum Pruni Virginianae Distillatum.

Distilled Extract Wild Cherry.

Wild Cherry Bark, of root, fresh,	2 pounds av.
Water,	1 gallon.
Alcohol,	8 fl.ounces.

Bruise the bark, pour the Alcohol upon it and put in the still without the water-bath, pour the water upon it and distill 2 pints. This may also be made from the dry bark 1 pound, Alcohol 8 ounces, Water 1 gallon, and distill 2 pints, in the same manner as Extract Buchu.

Other extracts of similar substances, whose virtues consist of volatile principles. may be made in the same manner.

Alcoolats or Alcoholates.

These are extracts made in a similar manner, but with a much larger proportion of Alcohol. Many substances containing essential oils are distilled with alcohol and represented in this manner. When made from the Oils they would be classed as spirits. The following formulae are examples. In French Pharmacy they are variously called *Esprit* or *Eau* without reference to their Alcoholic strength or composition :

1061. Alcoolat d'Absinthe.—Fresh leaves and tops of Wormwood 1,000 parts, Alcohol 80 per cent., 4,000 parts, distilled Wormwood water 1,000 parts. Let them macerate for 4 days, then distill by a salt water-bath, 2,500 parts. Alcoolats of Sweet Basil, Hysop, Lavender, Marjorum, Balm, Peppermint, Spearmint, Sage, Thyme and other similar fresh substances are prepared in the same manner.

1062. Alcoolat d'Anis.—Aniseed 1 part, Alcohol 56 per cent., 5 parts, Let them macerate for two days then distill until all the Alcohol used is recovered. Alcoolats of Caraway, Coriander, Fennel, Spice and other similar substances are prepared in this manner.

1063. Alcoolat de Cannelle (Cinnamon).—Cinnamon Bark ground fine 1 part, Alcohol 50 per cent., 5 parts. Let macerate 4 days then distill until all the Alcohol used is recovered. Alcoolats of Angelica, Calamus,

Mace, Sassafras. Cloves, and a great variety of other strong aromatic substances are made in a similar manner.

The foregoing formula; will be sufficient to show the general method of making the Alcoolats of French Pharmacy. Many more are known and used, but they are seldom called for in this country, and generally the simple spirits or essences of the substances will do when simple Alcoolats are desired; of the compound Alcoolats so few are used here that it seems unnecessary to give their formulas.

EXTRACTA FLUIDA—FLUID EXTRACTS.

Fluid extracts are of American origin, and our Pharmacopoeia is the only one which recognizes preparations by this name. The British Pharmacopoeia has a few "Liquid Extracts," some of which are similar to Fluid Extracts, but this class of preparations may be claimed as distinctly American.

Fluid Extracts aim to represent the entire soluble medicinal constituents of a certain weight of drug in an equivalent fluid measure. As such, they are the most convenient of the galenicals, for they may be used in place of the drugs themselves in making many preparations extemporaneously that would otherwise require considerable time to prepare. They are also very convenient to prescribe, as the dose is the same as of the powdered drug or substances from which they are prepared.

Since the introduction of Fluid Extracts, some forty years ago, many methods for making them have been proposed, all having in view the same object, viz.: To represent the entire medicinal value of a specified weight of the drug in an equivalent quantity of Fluid Extract. While in main, this may readily be done, yet it must be borne in mind that the *entire* medicinal value of *some* drugs cannot be held in solution in an equivalent fluidmeasure of Fluid Extract, by the menstrua usually employed for making them.

A brief description of the principal methods which have heretofore been employed for making Fluid Extracts, is given for the convenience of our readers, but the process of water-bath percolation presents great advantages over any other, and is therefore employed in the formulae

for the preparations. It is, in fact, the only process by which first-class fluid extracts can be made economically, in a small way, by druggists.

The value of a fluid extract depends upon the amount of active medicinal agent that it contains, and the formulae given are designed to best secure that end, without producing preparations loaded with inert and worthless extractive matter as is often the case with those furnished by manufacturers.

The formulas are each calculated to make a pint of fluid extract, but larger quantities may be made somewhat more advantageously.

In making large quantities it may not be necessary to continue the heat so long as is directed, as the water-bath will retain its heat for some time, when once heated.

When Fluid Extracts are used for making Tinctures, Infusions, Syrups, etc., fluidmeasure equivalent to the weight of the drug, or drugs directed, may be used. Solid extracts may be made from nearly all the fluid extracts by evaporating them to the proper pilular consistence.

The following are the principal popular methods that have been employed or directed for making fluid extracts :

1064. U. S. 1870 Process.

"The quantity of powdered material directed to be used is 16 troyounces. This powder is to be moistened with a specified quantity of menstruum, and properly packed in a suitable percolator. The surface of the powder is then to be covered with a disc of paper, and the remaining portion of 16 fluid-ounces of menstruum is to be poured upon it. When the liquid begins to drop from the percolator, close the lower orifice with a cork, and, having closely covered the percolator to prevent evaporation, set it aside in a moderately warm place for four days.

"The cork is then to be removed, more menstruum is to be gradually poured on, and the percolation continued until 24 fluidounces have been obtained. Of these, the first 14 fluidounces are to be reserved, and the remainder having been carefully evaporated to two fluidounces, is to be mixed with the reserved portion, and filtered through paper if necessary."

The quantity of drug directed in the 1870 formula; is about 5 per cent. more than the equivalent fluid measure of the fluid extract obtained, the difference being the same as between troyweight and fluid measure.

1065. U. S. 1880 Process.

No general formula is given in the 1880 Pharmacopoeia for making fluid extracts, each drug having a detailed formula for itself; but from them the following general formula may be deduced:

100 grammes of the powdered material directed to be used are moistened with from 30 to 50 grammes of menstruum (according to the nature of the drug), and properly packed in a suitable percolator; enough menstruum is then added to saturate the powder, and leave a stratum above it. When the liquid begins to drop from the percolator, the lower orifice is closed, the percolator covered, and its contents allowed to macerate for 48 hours. The stopper is then loosened, and the percolation allowed to proceed gradually, adding first the remainder of 100 grammes of the menstruum, which has not previously been used, and then more menstruum, as is directed in the formula until the drug is exhausted. The first 85 cubic centimetres of the percolate received are reserved and, by means of a water-bath and still the Alcohol is recovered from the remainder, and the residue evaporated to a soft extract; this soft extract is then dissolved in the reserved portion, and enough menstruum (as is directed in the formula) added to make the fluid extract measure 100 cubic centimetres.

Fluid extracts made by this process represent the medicinal value of a gramme of a drug in a cubic centimetre, therefore the weight of the drug and fluid measure of the fluid extract are equivalent.

1066. Repercolation Process.

The following is an abstract of Squibb's method of Fractional or Repercolation. This process is probably the best cold process in use, but it is too tedious to be generally employed by druggists; some skill and experience are required to use it successfully:

To make 3 pints of a fluid extract take of

The required drug, or drugs, in powder as directed, 50 ounces av.
The required menstruum as directed, a sufficient quantity.

First.—Take $\frac{1}{3}$ of the powder ($16\frac{2}{3}$ ounces avoir.) and 3 pints of the menstruum required. Moisten the powder with from 6 to 8 fl.ounces of the menstruum, pack it properly in a suitable percolator, pour upon it sufficient menstruum to saturate the drug and leave a stratum above it, and when the percolate begins to drop, close the lower orifice and allow to-macerate from two or three days; then begin to percolate, adding the remainder of the menstruum (and more if necessary) to the powder, continuing the percolation until the drug is exhausted, receiving the percolate as it passes in the following manner:

Reserve the first 12 fl.ounces,	mark <i>a</i> .
the next 6 fl.ounces,	mark <i>b</i> .
the next 8 fl.ounces,	mark <i>c</i> .
the remainder of the percolate,	mark <i>d</i> .

The last portion, *d*, is a variable quantity, but should be from 20 to 30 fl.ounces. With some drugs this may be forced through by adding water through the percolator, while with others the same menstruum must be used throughout.

Second.—Take $\frac{1}{3}$ more of the powder ($16\frac{2}{3}$ ounces avoir.) as before, moisten it with the portion of percolate marked *b*, pack as before, pour upon it the percolate marked *c*, and afterward sufficient of the percolate marked *d* and sufficient fresh menstruum to exhaust the drug, receiving the percolate as follows.

Reserve the first 16 fl.ounces,	mark <i>e</i> ,
the next 6 fl.ounces,	mark <i>f</i> .
the next 8 fl.ounces,	mark <i>g</i> .
the remainder of the percolate,	mark <i>h</i> .

The last portion, *h*, is a variable quantity, but should be from 16 to 20 fl.ounces. With some drugs it may be forced out with water, while with others the same menstruum should be used throughout.

Third.—Take the remaining $\frac{1}{3}$ ($16\frac{2}{3}$ ounces avoir.) of the powder; moisten it with the portion marked *f*, pack as before, pour upon it the

When this process is employed the drugs should be inclosed in a coarse, canvas cloth or bag before putting in the press. The pressure should be gradual and long continued, that the moisture may be as nearly as possible extracted from the drugs. A 1-gallon tincture press will answer very well for making from 1 to 3 pounds of fluid extract.

Combination Process — Repercolation and Pressure. — A combination of the Repercolation and Pressure process is used by some manufacturers. The percolation is conducted the same as is directed for repercolation, except that the last portions, *d*, *h* and *j*, are obtained by pressure instead of by percolation. It is more economical than repercolation alone, as there is no loss of menstruum in the last part of the percolations, which is quite an important item of the expense of the Fluid Extracts.

1068. Fluid Extracts by Water-Bath Percolation.

To give a detailed formula for every Fluid Extract which is made or known on the market, would require a large volume, and, indeed, it is unnecessary, for they may be classed according to the nature of the drug employed, and a few formulas will represent them all, it being necessary only to insert the name of the drug in the specified formula to adapt it to the particular Fluid Extract being made.

The drugs from which Fluid Extracts are made are therefore divided as far as is practicable into Classes, and a general formula given which is suited to the nature of the drugs in each Class. The formulas given are by water-bath percolation, which, as previously explained, is considered the best process for making Fluid Extracts. Other processes, however, maybe employed by using the menstruum designated for the drug, and proceeding as is directed in the process.

Full detailed formulae for all the official Fluid Extracts will be found in FENNER'S WORKING FORMULAE.

Fluid Extracts, Class A.

In this class are included all Fluid Extracts made from drugs requiring Alcohol as a menstruum, except such as require special treatment or manipulation. To complete the formula for any Fluid Extract in this

class, put the name of the drug and the fineness of the powder in the following

1069. General Formula.

The Drug in No. powder, $16\frac{2}{3}$ ounces av.
Alcohol, a sufficient quantity.

Moisten the powder with from 6 to 8 fl. ounces of Alcohol, pack firmly in the water-bath percolator, pour upon it enough Alcohol to saturate and cover the drug and set in a warm place for two days; then heat very moderately, and after one hour begin to percolate slowly, adding Alcohol to the drug, and continuing the heat and percolation until 14 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with Alcohol until the drug is exhausted. Distill the Alcohol from this last portion of the percolate until only 2 fl.ounces remain, which add to the reserved portion to make a pint of the Fluid Extract. Lastly, after standing a few days filter through paper or muslin, adding enough Alcohol through the filter to make the measure a pint. If Glycerin is directed to be used it should be added to the first portion of the menstruum used.

The Alcohol remaining in the drug after percolation maybe recovered by distillation.

The star(*) before a formula denotes that a Fluid Extract is also made from the green plant. See Green Plant Fluid Extracts.

U. S. Official Fluid Extracts.

The following are the U. S. Official Fluid Extracts made with Alcohol in accordance with this formula :

1070. Extractum Aconiti Fluidum—*Fluid Extract of Aconite.*—Aconite Root in No. 60 powder — Alcohol. Make a fluid extract as directed (1069), and add 30 grains Tartaric Acid to a pint.

1071. Extractum Aromaticum Fluidum—*Aromatic Fluid Extract.*-Aromatic powder—Alcohol. Make a fluid extract as directed (1069).

1072. Extractum Belladonna Fluidum—*Fluid Extract of*

Belladonna Root. —Belladonna Root in No. 60 powder—Alcohol. Make a fluid extract as directed (1069). For Fluid Extract Belladonna Leaves see Class C.

1073. Extractum Brayerae Fluidum—*Fluid Extract of Kouso.*—Kouso Flowers in No. 40 powder — Alcohol. Make a fluid extract as directed (1069).

1074. Extractum Calami Fluidum—*Fluid Extract of Calamus (Sweet Flag).*—Calamus in No. 50 powder—Alcohol. Make a fluid extract as directed (1069).

1075. Extractum Cannabis Indicae Fluidum—*Fluid Extract of Indian Cannabis or Indian Hemp.*— Cannabis in No. 20 powder — Alcohol. Make a fluid extract as directed (1069).

1076. Extractum Capsici Fluidum — *Fluid Extract of Capsicum (Cayenne Pepper).*—Capsicum in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1077. *Extractum Cimicifugae Fluidum — *Fluid Extract of Cimicifuga (Black Cohosh).*—Cimicifuga in No. 50 powder—Alcohol. Make a fluid extract as directed (1069).

The British Liquid Extract of Cimicifuga is identical with this.

1078. Extractum Cubebae Fluidum—*Fluid Extract of Cubeb.*—Cubeb in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1079. *Extractum Cypripedii Fluidum— *Fluid Extract of Cypripedium (American Valerian, Nervine).*—Cypripedium in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1080. *Extractum Gelsemii Fluidum — *Fluid Extract of Gelsemium (Yellow Jasmine).*—Gelsemium in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1081. *Extractum Gossypii Radicis Fluidum — *Fluid Extract of Cotton Root.*—Gossypium (Cotton Root Bark) in No. 30 powder, $16\frac{2}{3}$

ounces av., Glycerin 4¹/₂ fl.ounces. Alcohol a sufficient quantity. Percolate first with the mixed Glycerin and Alcohol, then with Alcohol as directed (1069).

1082. Extractum Lupulinae Fluidum — *Fluid Extract of Lupulin.*—Lupulin—Alcohol. Make a fluid extract as directed (1069).

1083. Extractum Mezerii Fluidum — *Fluid Extract of Mezereum (Mezereon).*—Mezereum in No. 30 powder—Alcohol. Make a fluid extract as directed (1069).

1084. Extractum Sabinae Fluidum—*Fluid Extract of Savin,*—Savin (tops) in No. 40 powder — Alcohol. Make a fluid extract as directed (1069).

1085. Extractum Sanguinariae Fluidum—*Fluid Extract of Sanguinaria (Bloodroot).*—Sanguinaria in No. 50 powder—Alcohol. Make a fluid extract as directed (1069).

1086. Extractum Scillae Fluidum — *Fluid Extract of Squill.*—Squill in No. 20 powder—Alcohol. Make a fluid extract as directed (1069).

1087. * Extractum Veratri Viridis Fluidum—*Fluid Extract of Veratrum Viride (American Hellebore).*—Veratrum Viride in No. 60 powder—Alcohol. Make a fluid extract as directed (1069).

1088. Extractum Xanthoxyli Fluidum — *Fluid Extract of Xanthoxylum (Prickly Ash).*—Xanthoxylum (Prickly Ash) in No. 40 powder—Alcohol. Make a fluid extract as directed (1069).

1089. Extractum Zingiberis Fluidum—*Fluid Extract of Ginger.*—Ginger in No. 40 powder — Alcohol. Make a fluid extract as directed (1069).

Unofficial Fluid Extracts.

The following are unofficial Fluid Extracts which require *Alcohol* as a menstruum for preparing them, and are made in the same manner as directed (1069):

UNOFFICIAL FLUID EXTRACTS CLASS A.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powde No.
1090	<i>Actæa alba</i>	White Cohosh.	Root	60
1091	<i>Actæa rubra</i>	Baneberry, red.	Root	60
1092	<i>Agaricus albus</i>	White Agaric	Fungus	40
1093	<i>Akasga</i>	Boundon, Ikaju, Quai. .	Root	60
1094	<i>Alkanna</i> (<i>Anchusa</i>).	Alkanet.	Root	50
1095	<i>Alstonia constricta</i>	Australian Bitter Bark. .	Bark.	60
1096	<i>Alstonia scholaris</i>	Dita Bark.	Bark.	60
1097	<i>Angelica officinalis</i>	Angelica.	Root	60
1098	<i>Apium graveolens</i>	Celery.	Seed	60
1099	<i>Asarum Canadense</i>	Canada Snakeroot.	Root	60
1100	<i>Asclepias cornuti</i>	Silkweed.	Root	60
1101	<i>Asclepias incarnata</i>	White Indian Hemp.	Root.	60
1102	* <i>Asclepias tuberosa</i>	Pleurisy, or White Root. .	Root	60
1103	<i>Aspidium</i> (<i>Filix Mas</i>).	Male Fern.	Root	60
1104	<i>Avena Sativa</i>	Common Oats.	Seed	40
1105	<i>Azederach</i> (<i>melia A.</i>)	Pride of India or China. .	Root bark. .	60
1106	* <i>Baptisia tinctoria</i>	Wild Indigo.	Root	60
1107	<i>Boldus</i> (<i>Peumus B.</i>)	Boldo	Leaves	50
1108	<i>Boletus Laricis</i>	Agaric.	Fungus	40
1109	<i>Bryonia alba</i>	Bryony, White	Root	60
1110	<i>Canella alba</i>	Canella	Bark.	60
1111	* <i>Cannabis sativa</i>	American Hemp.	Plant	50
1112	<i>Cantharis vesicatoria</i>	Cantharides	Whole fly. . .	60
1113	<i>Capsella, B'a-pastoris</i>	Shepherd's Purse	Herb	50
1114	<i>Cardamomum</i>	Cardamom.	Seed	60
1115	<i>Carophyllus</i>	Cloves.	Flower buds	60
1116	* <i>Cereus</i>	Cactus.	Plant	50
1117	<i>Chenopodium</i>	Wormseed	Seed	60
1118	<i>Cinnamomum</i>	Cassia or Cinnamon.	Bark.	60
1119	<i>Cocculus Indicus</i>	Fish Berries.	Fruit.	60
1120	<i>Convallaria Majalis</i>	Lily of the Valley.	Root or flow's	60
1121	<i>Coriandrum</i>	Coriander	Fruit.	60
1122	<i>Curcuma longa</i>	Turmeric.	Rhizome . . .	60
1123	<i>Delphinium consolida</i>	Larkspur.	Seed	60
1124	<i>Delphinium Staphisagria</i>	Stavesacre.	Seed	60
1125	<i>Dioscorea villosa</i>	Wild Yam.	Rhizome. . . .	60
1126	<i>Dipterix odorata</i>	Tonka, Tonqua, or T. Bean	Seed	60
1127	<i>Dita</i> (<i>Alst'a scholaris</i>).	Dita Bark.	Bark	60
1128	<i>Drosera</i>	Sundew	Herb.	40
1129	<i>Drimys Winteria</i>	Winter's Bark.	Bark	60
1130	<i>Erechthites hieracif'a</i>	Fireweed.	Herb.	40
1131	<i>Erigeron Canadense</i>	Canada Fleabane.	Herb.	40
1132	* <i>Eriodictyon</i>	Yerba Santa.	Leaves.	50
1133	* <i>Euphorbia corollata</i>	Large Flowering Spurge	Root	60

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1134	Filix Mas (Aspid'm).....	Male Fern.....	Root.....	60
1135	Galanga.....	Galangal (Catarrh Root).	Rhizome....	60
1136	Gillenia stipulacea.....	American Ipecac.....	Root.....	60
1137	Gillenia trifoliata.....	Indian Physic.....	Root.....	60
1138	Guaiacum lignum.....	Guaiac.....	Wood.....	50
1139	*Helonias.....	False Unicorn.....	Root.....	60
1140	Hibiscus Abelmos's.....	Amber or Ambrette....	Seeds.....	50
1141	Humulus.....	Hops.....	Flowers....	50
1142	Hyoscyami semen.....	Henbane.....	Seed.....	60
1143	Ignatia.....	Ignatia Bean.....	Seed.....	60
1144	Imperatoria.....	Masterwort.....	Rhizome....	60
1145	Iris Florentina.....	Orris Root.....	Rhizome....	60
1146	Jalapa (Ipomea J'a).....	Jalap.....	Tuber.....	60
1147	Kamala (Rottlera).....	Kameela.....	Glands, etc.	60
1148	Kava (Methisticum).....	Ava Kava.....	Root.....	60
1149	Levisticum.....	Lovage.....	Root or seed	60
1150	Lindera.....	Spicewood, Fever Bush.	Berries or b'k	60
1151	Liquidambar.....	Sweet Gum Tree.....	Bark.....	60
1152	Lippia Mexicana.....	.....	Herb.....	50
1153	Liriodendron.....	Tulip Tree, Whitewood.	Bark.....	60
1154	*Lobelia.....	Lobelia, Indian Tobacco	Seed.....	60
1155	Magnolia glauca.....	Magnolia.....	Flowers or b	50
1156	Methysticum.....	Ava Kava, Kava Kava..	Root.....	60
1157	Micromeria.....	Yerba Buena.....	Plant.....	50
1158	Myrica cerefera.....	Bayberry.....	Bark.....	60
1159	Myristica fragrans.....	Mace or Nutmeg.....	Seed.....	60
1160	Petroselinum.....	Parsley Seed.....	Fruit.....	60
1161	Peumus Boldus.....	Boldo.....	Leaves.....	50
1162	Phelandrium.....	Water Fennel Seed.....	Fruit.....	50
1163	Physostigma.....	Calabar Bean.....	Seed.....	60
1164	P. menta.....	Allspice.....	Fruit.....	60
1165	Piper Methysticum.....	Ava or Kava Kava.....	Root.....	60
1166	Piper Nigrum.....	Black Pepper.....	Fruit.....	60
1167	Pimpinella saxifraga.....	Pimpernel, Small Saxifrage	Root.....	60
1168	*Populus Candicans.....	Balm or Balsam of Gilead	Leaf buds..	40
1169	Pyrethrum.....	Pellitory.....	Root.....	60
1170	*Rhus Toxicodendron.....	Poison Ivy or Oak.....	Leaves.....	40
1171	Ricinus.....	Castor Oil Bean.....	Seed.....	50
1172	Rottleræ glandulæ.....	(Kamala) Kameela.....	Glands, etc.	60
1173	Sabadilla.....	Cevadilla.....	Seed.....	60
1174	Santalum citrinum.....	White or Yellow Santal.	Wood.....	60
1175	Santalum rubrum.....	Red Saunders.....	Wood.....	60
1176	Santonica.....	Wormseed, unexpanded.	Flowerheads	40
1177	Silphium lacinatedum.....	Rosin weed.....	Root.....	60
1178	Staphisagria (Del. S.).....	Stavesacre.....	Seed.....	60
1179	Strychnos Ignatia.....	Ignatia Bean.....	Seed.....	60
1180	Sumbul (Ferula S.).....	Musk root.....	Root.....	60
1181	*Thuja occidentalis.....	Arbor Vitæ, Thuya,....	Twigs.....	30
1182	Trillium pendulum.....	Beth or Birth Root.....	Root.....	60
1183	Turnera aphrodis'ca.....	Damiana.....	Leaves.....	50
1184	Urechites suberecta.....	.....	Leaves.....	50
1185	Veratrum sabadilla.....	Cevadilla.....	Seed.....	60
1186	Wintera (Drimys W.).....	Winter's Bark.....	Bark.....	60
1187	Xanthoxylum.....	Prickly-Ash Berries....	Fruit.....	50
1188	Zedoaria.....	Zedoary.....	Root.....	60

Fluid Extracts Class B.

The following drugs require a menstruum of three measures of Alcohol to one measure of Water for preparing their Fluid Extracts. To complete the formula for any Fluid Extract in this class put the name of the drug and the fineness of powder required in the following

1189. General Formula.

The Drug, in No. powder, $16\frac{2}{3}$ ounces av.
Alcohol, Water, each, a sufficient quantity.

Mix three measures of Alcohol with 1 measure of Water, and having moistened the drug with from 8 to 10 ounces of the mixture, macerate for 24 hours in a covered vessel in a warm place ; transfer to the water-bath percolator, pack firmly, pour upon it sufficient menstruum to saturate and cover the drug and set in a warm place for two days; then heat moderately and after one hour begin to percolate slowly, adding menstruum to the drug and continuing the heat and percolation until 13 ounces have passed, which reserve. Turn off the heat and continue the percolation with the menstruum until the drug is exhausted. Distill the Alcohol ($\frac{3}{4}$ of the measure) from this last portion, evaporate the residue to a soft extract, which dissolve in the reserved portion and add enough of the menstruum to make a pint of the Fluid Extract. The Alcohol remaining in the drug after percolation may be recovered by distillation. If Glycerin is directed it should be added to the first portion of the menstruum used.

The * indicates that Fluid Extracts are also prepared from the fresh or green drug. See Green Plant Fluid Extract.

Many of the drugs that are included in Class A yield their medicinal properties to a menstruum of 3 parts Alcohol to 1 of Water, and might properly be included in this class, but as they have generally been made with Alcohol only as a menstruum we have not thought best to depart from the established custom for the small saving that would be made.

U. S. Official Fluid Extracts.

The following are the U. S. Official Fluid Extracts, requiring a menstruum of 3 parts by weight of Alcohol to 1 of Water. They may, however, be made by the general formula (1189), using 3 measures of Alcohol to 1 of Water.

1190. *Extractum Grindeliae Fluidum — *Fluid Extract of Grindelia*. — Grindelia in No. 30 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1191. Extractum Guaranae Fluidum—*Fluid Extract of Guarana*.—Guarana in No. 50 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1192. Extractum Hydrastis Fluidum — *Fluid Extract Hydrastis (Golden Seal)*. Hydrastis in No. 50 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1193. *Extractum Iridis Fluidum — *Fluid Extract of Iris (Blue Flag)*. Iris (Blue Flag Root) in No. 50 powder.—Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1194. Extractum Nucis Vomicae Fluidum — *Fluid Extract Nux Vomica*.—Nux Vomica in No. 60 powder.—Alcohol 8, Water 1. Make a fluid extract as directed (1189).

The official formula directs a menstruum of 8 parts by weight (9 by measure) of Alcohol to 1 part of Water. This formula is included in this class, but the menstruum as here directed should be used.

1195. Extractum Podophylli Fluidum—*Fluid Extract of Podophyllum (Mandrake)*. —Podophyllum (Mandrake Root) in No. 50 powder. —Alcohol 3, Water 1. Make a fluid extract as directed (1189).

1196. Extractum Serpentariae Fluidum—*Fluid Extract of Serpentaria*. — Serpentaria in No. 50 powder. — Alcohol 3, Water 1. Make a fluid extract as directed (1189).

Fluid Extracts of *Digitalis*, *Hyoscyamus*, *Rhubarb* and *Stramonium*, are

directed by the U. S. P. to be made with 3 parts by weight of Alcohol to 1 of Water, but in our opinion their properties are as well obtained by a menstruum of less Alcoholic strength, and we have put them in Class C.

Some of the fluid extracts included in this class might be made with a menstruum of less alcoholic strength, but it is rather difficult to direct the exact proportion of Alcohol which would be necessary to hold the medicinal properties of the drugs, as they are found in the market, in solution; therefore, it is best to have the menstruum contain an excess rather than a deficiency of spirit.

Unofficial Fluid Extracts.

The following are unofficial Fluid Extracts which require 3 measures of Alcohol to 1 measure of Water as a menstruum for preparing them, and are made in the same manner as directed (1189):

UNOFFICIAL FLUID EXTRACTS CLASS B.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1197	<i>Acalypha Virginica</i>	Mercury Weed.....	Herb.....	40
1198	<i>Anemopsis Californica</i>	Yerba Mansa.....	Plant.....	40
1199	* <i>Arum triphyllum</i>	Wild or Indian Turnip..	Cormus ...	50
1200	<i>Asimina triloba</i>	Papaw.....	Seed.....	50
1201	<i>Aspidosperma</i>	Quebracho.....	Bark.....	50
1202	* <i>Baccharis pilularis</i>	Kidney Root.....	Root.....	50
1203	* <i>Calycanthus Floridus</i>	Carolina Allspice.....	Bark.....	50
1204	<i>Cascarilla</i> (<i>Croton Eluteria</i>)	<i>Cascarilla</i>	Bark.....	50
1205	<i>Cochlearia armoracia</i>	Horseradish.....	Root.....	50
1206	Coto (add 4 fl. oz. Glycerin)	Coto Bark.....	Bark.....	50
1207	<i>Eremocarpus Setigerus</i> ...	Ginger Leaf.	Herb.....	40
1208	<i>Erythrophloeum, Casca</i> ...	Sassy or Mancona.....	Bark.....	50
1209	<i>Ephedra Antisyphilitica</i> ..	<i>Ephedra</i>	Plant.....	50
1210	<i>Euphorbia Ipecacuanha</i> ..	<i>Ipecacuanha Spurge</i> ...	Root.....	50
1211	<i>Euphorbia pilulifera</i>	Pill Bearing Spurge....	Plant.....	40
1212	* <i>Grindelia squarrosa</i>.....	.....	Leaves, tops	40
1213	<i>Juglans cinerea</i>	American Butternut....	Root bark...	50
1214	<i>Menispermum</i>	Yellow Parilla.....	Root.....	50
1215	<i>Mercurialis annua</i>	Mercury Herb.....	Herb.....	40
1216	<i>Nectandra</i>	Bebeeru.....	Bark.....	50
1217	* <i>Polygonum</i>	Smartweed.....	Herb.....	30
1218	* <i>Polymnia uvedalia</i>	Bearsfoot, Leafcup....	Root.....	50
1219	<i>Sassafras officinalis</i>	<i>Sassafras</i>	Root bark...	50
1220	* <i>Stramonium (Datura S.)</i> ..	<i>Stramonium</i>	Leaves.....	40

Fluid Extracts, Class C.

The following drugs require a menstruum of two measures of Alcohol to one measure of Water, for preparing their Fluid Extracts. To complete the formula for any Fluid Extract in this Class, put the name of the drug and the fineness of powder required in the following

1221. General Formula.

The Drug in No. powder, $16\frac{2}{3}$ ounces av.
Alcohol, Water, each, a sufficient quantity

Mix two measures of Alcohol with one measure of Water, and having moistened the drug with from 8 to 10 ounces of the mixture, macerate for 24 hours in a covered vessel in a warm place; transfer to the water-bath percolator, pack firmly, pour upon it sufficient menstruum to saturate and cover the drug, and set in a warm place for two days; then heat moderately, and after one hour begin to percolate slowly, adding menstruum to the drug, and continuing the heat and percolation until 13 ounces have passed, which reserve. Turn off the heat and continue the percolation with the menstruum until the drug is exhausted. Distill the Alcohol ($\frac{2}{3}$ of the measure) from this last portion, evaporate the residue to a soft extract, which dissolve in the reserved portion, and add enough of the menstruum to make a pint of the fluid extract. The Alcohol remaining in the drug after percolation may be recovered by distillation. If Glycerin is directed it should be added to the first portion of menstruum used.

The * indicates that fluid extracts are also prepared from the fresh or green drug. See Green Plant Fluid Extract.

U. S. Official Fluid Extracts.

The following U. S. Official Fluid Extracts are directed by the U. S. P. to be made with a menstruum of Alcohol 2 parts by weight to Water i part, but they may be made by the general formula (1221), using Alcohol 2 parts by measure to Water i part.

1222. Extractum Aurantii Amari Fluidum — *Fluid Extract of Bitter Orange Peel.*— Bitter Orange Peel in No. 20 powder — Alcohol 2,

Water 1. Make a fluid extract as directed (1221).

1223. Extractum Buchu Fluidum—*Fluid Extract of Buchu*.—Buchu in No. 40 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1224. Extractum Colchici Radicis Fluidum—Fluid Extract of Colchicum Root.—Colchicum Root in No. 50 powder—Alcohol 2, Water 1., Make a fluid extract as directed (1221).

1225. Extractum Colchici Seminis Fluidum—*Fluid Extract of Colchicum Seed*. — Colchicum Seed in No. 30 powder — Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1226. Extractum Digitalis Fluidum — *Fluid Extract of Digitalis (Foxglove)*.—Digitalis (recently dried) in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1227. Extractum Hyoscyami Fluidum—*Fluid Extract of Hyoscyamus (Henbane)*.—Hyoscyamus in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1228. Extractum Matico Fluidum—*Fluid Extract of Matico*.—Matico in No. 40 powder—Alcohol, Water, Glycerin. Mix 14 fl.ounces of Alcohol 3 fl.ounces each Water and Glycerin for first percolation, then finish with Alcohol 2, Water 1, as directed (1221).

1229. Extractum Rhei Fluidum—*Fluid Extract of Rhubarb*.—Rhubarb in No. 30 powder— Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1230. Extractum Rubi Fluidum — *Fluid Extract of Rubus (Blackberry)*. — Blackberry Root-Bark in No. 50 powder — Alcohol, Glycerin, Water. Mix 8 fl.ounces Alcohol, 5 fl.ounces of Water and 1¹/₄ fl.ounces of Glycerin for first percolate, then finish with a menstruum of 26 fl.ounces Alcohol to 16 fl.ounces of Water.

1231. Extractum Senegae Fluidum — *Fluid Extract of Senega*—Senega in No. 40 powder—Alcohol 2, Water 1, Water of Ammonia. Make a fluid extract as directed (1221), and when completed add 3 fl.drachms Water of Ammonia to a pint.

1232. Extractum Stramonii Fluidum — *Fluid Extract of Stramonium.*— Stramonium in No. 40 powder — Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1233. Extractum Valerianae Fluidum—*Fluid Extract of Valerian.*— Valerian in No. 50 powder — Alcohol 2, Water 1. Make a fluid extract as directed (1221).

1234. *Extractum Viburni Fluidum—*Fluid Extract of Viburnum.*— Viburnum (Black Haw) in No. 50 powder—Alcohol 2, Water 1. Make a fluid extract as directed (1221).

Fluid Extract of *Digitalis*, *Hyoscyamus*, *Rhubarb* and *Stramonium*, are directed by the U. S. P. to be made with a menstruum of 3 parts Alcohol by weight to 1 part Water, but we have classed them here, as we think the alcoholic strength of the menstruum sufficient.

Many of the fluid extracts included in this class might readily be made with diluted Alcohol instead of 2 parts of Alcohol to 1 part of Water but for the difficulty experienced in percolating with the weaker menstruum, on account of the larger proportion of water softening their mucilaginous constituents, thus making it impossible for the menstruum to pass through them. It is therefore necessary in exhausting them to use a menstruum of sufficient alcoholic strength to prevent this difficulty and allow the percolation to proceed freely. Some manufacturers first exhaust these drugs with an alcoholic menstruum and then distill off a portion, making up the quantity with water, but this is hardly expedient in making small quantities.

Unofficial Fluid Extracts.

The following are unofficial Fluid Extracts which require 2 measures of Alcohol to 1 measure of Water for preparing them, and are made in the same manner as is directed (1221):

UNOFFICIAL FLUID EXTRACTS CLASS C.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1235	<i>Acacia jurema</i>	Adstringens.....	Bark.....	50
1236	<i>Aconiti folia</i>	Aconite, Monkshood...	Leaves.....	30
1237	<i>Æsculus glabra</i>	Buckeye.....	Bark.....	40
1238	<i>Æsculus Hippocastanum</i> .	Horse Chestnut.....	Seed.....	40
1239	* <i>Ailanthus</i>	Tree of Heaven.....	Root bark...	40
1240	<i>Adansonia digitata</i>	Baobab.....	Bark.....	40
1241	<i>Alnus rubra</i> (or <i>Serrulata</i>).	Tag Alder.....	Bark.....	40
1242	<i>Althææ radix</i>	Marsh Mallow.....	Root.....	20
1243	<i>Anemopsis Californica</i> ...	Herba Mansa.....	Root.....	40
1244	<i>Anethum graveolens</i>	Dill Seed.....	Fruit.....	40
1245	<i>Angostura</i> (<i>Galip'cuspora</i>).	Angustura.....	Bark.....	50
1246	<i>Anisum</i>	Anise Seed.....	Fruit.....	40
1247	<i>Apocynum androsæ'um</i> ...	Bitter Root.....	Root.....	50
1248	<i>Apocynum cannabinum</i> ...	Black Indian Hemp...	Root.....	50
1249	<i>Arnicae flores</i>	Arnica Flowers.....	Flowers.....	30
1250	<i>Artemisia frigida</i>	Mountain Sage.....	Plant.....	30
1251	<i>Artemisia vulgaris</i>	Mugwort.....	Root.....	40
1252	<i>Asclepias curassavica</i>	Blood Flower.....	Plant.....	30
1253	<i>Belladonnæ folia</i>	Belladonna.....	Leaves.....	30
1254	* <i>Berberis aquifolium</i>	Oregon Grape.....	Root.....	50
1255	<i>Berberis vulgaris</i>	Barberry.....	Bark.....	50
1256	<i>Betonica officinalis</i>	Betony.....	Herb.....	30
1257	<i>Buxus sempervirens</i>	Box.....	Bark or l'v's.	30
1258	<i>Calendula</i>	Marigold.....	Flowers.....	30
1259	<i>Carum carvi</i>	Caraway Seed.....	Fruit.....	50
1260	<i>Carrota</i> (<i>Daucus C.</i>).....	Carrot Seed.....	Fruit.....	50
1261	<i>Catalpa</i> (<i>Bignonia C.</i>)...	Cigar Tree.....	Bark, pods..	50
1262	<i>Caullophyllum</i>	Blue Cohosh.....	Root.....	50
1263	* <i>Cheledonium majus</i>	Garden Celandine.....	Herb.....	40
1264	<i>Chiococca racemosa</i>	Cachinca.....	Root bark...	40
1265	<i>Chrysophyllum</i>	Monesia.....	Bark.....	40
1266	* <i>Collinsonia</i>	Stone Root, Heal All...	Root.....	40
1267	<i>Corallorhiza</i>	Coral Root, Crawley....	Root.....	50
1268	* <i>Corydalis</i> (<i>Dicentra Can.</i>).	Turkey Corn.....	Tuber.....	50
1269	<i>Corypha cerefera</i>	Carnauba, Wax Palm...	Root.....	50
1270	<i>Cuminum Cyminum</i>	Cummin Seed.....	Fruit.....	50
1271	* <i>Draconitum</i>	Skunk Cabbage.....	Root.....	50
1272	<i>Duboisia Myoporoides</i>	Duboisia.....	Leaves.....	30
1273	<i>Equisticum</i>	Horsetail.....	Stems.....	40
1274	* <i>Eryngium aquaticum</i>	Water Eryngo.....	Root.....	50

1275	<i>Eryngium yuccæfolium</i> ...	Corn Snakeroot.....	Root.....	50
1276	* <i>Euonymus</i>	Wahoo.....	Bark.....	50
1277	<i>Fœniculum</i>	Fennel Seed.....	Fruit.....	50
1278	<i>Francisca uniflora</i>	Manaca.....	Root.....	50
1279	<i>Garrya Fremontii</i>	Quinine Bush.....	Herb.....	40
1280	<i>Hedeoma</i>	Pennyroyal.....	Leaves.....	30
1281	<i>Helianthus</i>	Sunflower.....	Seed.....	30
1282	<i>Helleborus niger</i>	Black Hellebore.....	Root.....	50
1283	<i>Hyoscyami radix</i>	Henbane.....	Root.....	50
1284	<i>Illicium Anisatum</i>	Star Anise Seed.....	Fruit.....	50
1285	<i>Inula Helenium</i>	Elecampane.....	Root.....	50
1286	<i>Laurus nobilis</i>	Bay Laurel, Bay Tree..	Leaves.....	30
1287	<i>Ledum palustre</i>	Labrador Tea.....	Twigs, Tops	40
1288	<i>Manzanita</i> (<i>Arctostaphylos</i>)	<i>Glauca</i>	Leaves.....	30
1289	<i>Matricaria</i>	German Chamomile....	Flowers.....	20
1290	<i>Monarda fistulosa</i>	Wild Bergamont.....	Herb.....	30
1291	<i>Monarda punctata</i>	Horsemint.....	Herb.....	30
1292	<i>Monotropa uniflora</i>	Fit Root, Ice Plant....	Plant.....	50
1293	<i>Myrtus Checan</i>	Cheken, Chequin.....	Leaves.....	40
1294	<i>Nuphar advena</i>	Yellow Pond Lily.....	Root.....	40
1295	<i>Nymphaea odorata</i>	White Pond Lily.....	Root.....	40
1296	<i>Onosmodium Virginianum</i>	False Gromwell.....	Seeds, root..	40
1297	<i>Origanum</i>	Wild Majoram.....	Herb.....	30
1298	<i>Pæonia officinalis</i>	Peony.....	Root.....	50
1299	* <i>Penthorium sedoides</i>	Virginia Stone Crop....	Herb.....	30
1300	* <i>Phytolacca</i>	Garget or Poke.....	Root.....	50
1301	<i>Phellandrium aquaticum</i> ..	Water Fennel.....	Seed.....	40
1302	<i>Piscidia</i>	Jamaica Dogwood.....	Root bark...	50
1303	<i>Polemonium reptans</i>	Abscess Root.....	Root.....	50
1304	<i>Polygonatum giganteum</i> ..	Soloman's Seal.....	Root.....	30
1305	<i>Potentilla Canadensis</i>	Cinquefoil, Firefinger..	Plant.....	30
1306	<i>Potentilla Tormentilla</i> ...	Tormentil.....	Root.....	40
1307	<i>Populus alba</i>	White Poplar.....	Inner bark..	50
1308	<i>Ptelea trifoliata</i>	Waferash, Hoptree....	Inner bark..	50
1309	<i>Pulsatilla</i> (<i>Anemone P.</i>)..	<i>Pulsatilla</i>	Herb.....	30
1310	<i>Pycnanthemum</i>	Mountain Mint.....	Herb.....	30
1311	<i>Quillaia</i>	Soap Tree.....	Bark.....	50
1312	* <i>Rhus aromatica</i>	Sweet Sumach.....	Root Bark..	50
1313	<i>Rhododendron maximum</i> ..	Great Laurel.....	Inner bark..	50
1314	<i>Robina</i>	Locust Tree.....	Leaves.....	40
1315	<i>Sabal serrulata</i>	Palmetto Saw Berries...	Fruit.....	40
1316	<i>Salix alba</i>	White Willow.....	Bark.....	40
1317	<i>Salix nigra</i>	Black Willow.....	Bark.....	40
1318	<i>Saponaria</i>	Soapwort.....	Root.....	50
1319	<i>Satureja hortensis</i>	Summer Savory.....	Herb.....	30
1320	<i>Sessamum orientale</i>	Benne.....	Leaves.....	30
1321	<i>Simaba Cedron</i>	Cedron Seed.....	Seed.....	50
1322	<i>Sterculia acuminata</i>	Cola or Kola.....	Nuts.....	50
1323	<i>Symplocarpus</i> (<i>Draconitum</i>)	Skunk Cabbage.....	Root.....	50
1324	<i>Veratrum album</i>	White Hellebore.....	Root.....	50
1325	<i>Xanthium Strumarium</i>	Cockleburr.....	Burrs.....	40
1326	<i>Xanthium spinosum</i>	Spiny Burweed.....	Plant.....	40
1327	<i>Uvularia perfoliata</i>	Bellwort.....	Root.....	40
1328	<i>Viburnum opulus</i>	Cramp, Cranberry.....	Bark.....	40
1329	<i>Zanthorrhiza Apiifolia</i> ...	Yellow Root.....	Root.....	50

Fluid Extracts Class D.

The following drug's require Diluted Alcohol as a menstruum for preparing their fluid extracts; equal measure of Alcohol and water, although it is not the present officinal standard for Diluted Alcohol, will be of sufficient Alcoholic strength for these Fluid Extracts. To complete the formula for any Fluid Extract in this class, put the name of the drug and the fineness of powder required in the following

1330 General Formula.

The Drug in No. powder, 16²/₃ ounces av.
Diluted Alcohol, a sufficient quantity.

Moisten the drug with from 8 to 10 ounces of Diluted Alcohol mixed with the Glycerin, if any is directed to be used, and macerate for 24 hours in a covered vessel in a warm place; transfer to the water-bath percolator, pack firmly, pour upon it sufficient Diluted Alcohol to saturate and cover the drug, and set in a warm place for two days, then heat moderately and after one hour begin to percolate slowly, adding Diluted Alcohol to the drug and continuing the heat and percolation until 13 ounces have passed, which reserve. Turn off the heat and continue the percolation with Diluted Alcohol until the drug is exhausted. Distill the Alcohol (1/2 the measure) from this last portion, evaporate the residue to a soft extract, which dissolve in the reserved portion and add enough Diluted Alcohol to make a pint of the Fluid Extract. The Alcohol remaining in the drug after percolation may be recovered by distillation.

The * indicates that Fluid Extracts are also prepared from the fresh or green drug. See Green Plant Fluid Extract.

U. S. Official Fluid Extracts.

The following are the U. S. Official Fluid Extracts made with *diluted Alcohol*, in accordance with this formula. When Glycerin is used it should be added to the diluted Alcohol used to moisten the drug:

1331. Extractum Arnicae Radicis Fluidum — *Fluid Extract of Arnica Root.*—Arnica Root in No. 50 powder—Diluted Alcohol. Make a

fluid extract as directed (1330).

1332. Extractum Calumbae Fluidum — *Fluid Extract of Calumba (Columbo)*.—Calumba (Columbo), in No. 20 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1333. Extractum Chimaphilae Fluidum—*Fluid Extract of Chimaphila (Pipsissewa)*.—Chimaphila (Prince's Pine), in No. 20 powder—Diluted Alcohol—Glycerin (1¹/₄ fl.ounce to a pint.) Make a fluid extract as directed (1330).

1334. Extractum Chiratae Fluidum—*Fluid Extract of Chirata*.—Chirata in No. 30 powder—Diluted Alcohol—Glycerin (1¹/₄ fl.ounce to a pint). Make a fluid extract as directed (1330).

1335. Extractum Conii Fluidum—*Fluid Extract of Conium*.—Conium (Fruit), in No. 40 powder—Diluted Alcohol— Diluted Hydrochloric Acid (1/2 fl.ounce to a pint). Make as directed (1330), adding the diluted acid to the portion to be evaporated.

1336. Extractum Cornus Fluidum—*Fluid Extract of Cornus (Dogwood)*.—Cornus (Dogwood Bark), in No. 50 powder—Diluted Alcohol— Glycerin (2¹/₂ fl.ounces to a pint). Make a fluid extract as directed (1330).

1337. Extractum Dulcamarae Fluidum—*Fluid Extract of Dulcamara (Bittersweet)*.—Dulcamara (Bittersweet), in No. 50 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1338. Extractum Erythroxyli Fluidum—*Fluid Extract of Erythroxyton (Coca)*. — Erythroxyton (Coca leaves), in No. 40 powder—Diluted Alcohol. Make a fluid extract as directed (1330). The Br. Liquid Extract of Coca is similar to this fluid extract.

1339. Extractum Eupatorii Fluidum—*Fluid Extract of Eupatorium Boneset (Thoroughwort)*.—Eupatorium (Boneset), in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1340. Extractum Gentianae Fluidum — *Fluid Extract of Gentian*—Gentian in No. 20 powder—: Diluted Alcohol. Make a fluid extract as

directed (1330).

1341. Extractum Geranii Fluidum — *Fluid Extract of Geranium (Cranesbill)*.—Geranium (Cranesbill Root), in No. 30 powder—Diluted Alcohol — Glycerin (1¹/₄ fl.ounce in a pint). Make a fluid extract as directed (1330).

1342. Extractum Glycyrrhizae Fluidum — *Fluid Extract of Glycyrrhiza (Liquorice)*.—Glycyrrhiza (Liquorice Root), in No. 30 powder—Diluted Alcohol—Water of Ammonia (1¹/₂ fl.ounce in a pint). Mix the Water of Ammonia with the first portions diluted Alcohol used and make a fluid extract as directed (1330).

1343. Extractum Krameriae Fluidum—*Fluid Extract of Krameria (Rhatany)*.—Krameria (Rhatany), in No. 30 powder—Diluted Alcohol—Glycerin (2¹/₄ fl.ounces in a pint). Make a fluid extract as directed (1330).

1344. * Extractum Leptandrae Fluidum—*Fluid Extract of Leptandra (Culver's Root)*.—Leptandra (Black Root) in No. 50 powder—Diluted Alcohol—Glycerin (2 fl.ounces in a pint). Make a fluid extract as directed (1330).

1345. * Extractum Lobeliae Fluidum — *Fluid Extract of Lobelia*.—Lobelia (herb) in No. 50 powder.— Diluted Alcohol. Make a fluid extract as directed (1330).

1346. Extractum Pareirae Fluidum—*Fluid Extract of Pareira*.—Pareira in No. 40 powder—Diluted Alcohol— Glycerin (2¹/₂ fl.ounces in a pint.) Make a fluid extract as directed (1330).

1347. Extractum Pilocarpi Fluidum—*Fluid Extract of Pilocarpus (Jaborandi)*. Pilocarpus (Jaborandi) in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1348. Extractum Quassiae Fluidum—*Fluid Extract of Quassia*.—Quassia in No. 50 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1349. Extractum Rhois Glabrae Fluidum—*Fluid Extract of Rhus*

Glabra (Sumac).—*Rhus Glabra* (Sumac "bobs") in No. 30 powder—Diluted Alcohol—Glycerin (1¼ fl.ounces in a pint). Make a fluid extract as directed (1330).

1350. Extractum Rosae Fluidum—*Fluid Extract of Rose*.—Red Rose in No. 30 powder—Diluted Alcohol—Glycerin (1¼ fl. ounce in a pint). Make a fluid extract as directed (1330).

1351. Extractum Rumicis Fluidum—*Fluid Extract of Rumex (Yellow Dock)*.—*Rumex* (Yellow Dock) in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1352. Extractum Spigeliae Fluidum—*Fluid Extract of Spigelia (Pink Root)*.—*Spigelia* (Pink Root) in No. 50 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1353. * Extractum Stillingiae Fluidum — *Fluid Extract of Stillingia (Queensroot)*.—*Stillingia* in No. 30 powder—Diluted Alcohol. Make a fluid extract as directed (1330).

1354. Extractum Uvae Ursi Fluidum — *Fluid Extract of Uva Ursi*.— *Uva Ursi* in No. 30 powder—Diluted Alcohol—Glycerin (1¼ fl.ounce in a pint). Make a fluid extract as directed (1330).

Unofficial Fluid Extracts.

The following are unofficial fluid extracts which require Diluted Alcohol as a menstruum for preparing them, and are made in the same manner as directed (1330). Many of these extracts may be made with a menstruum of less alcoholic strength, but, generally, their soluble properties are better held in solution with Diluted Alcohol than with a weaker menstruum.

UNOFFICIAL FLUID EXTRACTS CLASS D.

No.	LATIN NAME.	COMMON NAME.	Parts Used.	Powder No.
1355	<i>Abies balsamea</i>	Balsam Fir Tree.....	Inner bark..	40
1356	<i>Absinthium</i> (<i>Artemisia</i>)..	Wormwood	Leaves, tops.	30
1357	<i>Acanthus mollis</i>	<i>Acanthus</i>	Leaves	30
1358	<i>Achillea millefolium</i>	Yarrow	Leaves, tops.	30
1359	<i>Adiantum</i>	Maidenhair Fern.....	Plant.....	30
1360	<i>Agrimonia Eupatoria</i>	<i>Agrimony</i>	Whole plant.	30
1361	* <i>Aletris farinosa</i>	Unicorn, Star Grass....	Root	50
1362	<i>Althææ flores</i>	Marshmallow	Flowers.....	20
1363	<i>Ambrosia trifida</i>	Richweed, Ragweed....	Herb.....	30
1364	<i>Ampelopsis</i>	Virginia Creeper.....	Twigs, bark.	30
1365	* <i>Amygdalus Persica</i>	Peach Tree.....	Leaves	30
1366	<i>Anagallis arvensis</i>	Scarlet Pimpernel.....	Herb.....	30
1367	<i>Anemone</i>	Wood Anemone.....	Herb.....	30
1368	<i>Anthemis nobilis</i>	English Chamomile....	Flowers.....	30
1369	<i>Andira inermis</i>	Cabbage Tree, Yellow..	Bark	40
1370	<i>Aralia hispada</i>	Dwarf Elder	Root	40
1371	<i>Aralia spinosa</i>	Southern Prickly Ash..	Bark	40
1372	<i>Aralia nudicaulis</i>	Amer. Sarsaparilla....	Root	30
1373	<i>Aralia racomosa</i>	Spikenard.....	Root	30
1374	<i>Areca catechu</i>	Betel nut.....	Seed	50
1375	<i>Aster punicus</i>	Red Stalked Aster.....	Root	40
1376	<i>Asparagus officinalis</i>	<i>Asparagus</i>	Young shoots	30
1377	<i>Aurantii cortex, dulcis</i>	Sweet Orange Peel....	Fruit rind...	20
1378	<i>Betula Lenta</i>	Black or Cherry Birch..	Bark	40
1379	<i>Bidens bipinnata</i>	Spanish Needles.....	Root	50
1380	<i>Bistorta</i> (<i>Polygonum B.</i>)..	Bistort, Snakeweed....	Rhizome....	50
1381	<i>Borago officinalis</i>	Borage	Herb.....	30
1382	<i>Caffea</i>	Coffee Berries, green...	Seeds.....	30
1383	<i>Caffea tosta</i>	Coffee Berries, roasted..	Seeds.....	40
1384	<i>Carduus Benedictus</i>	Blessed Thistle.....	Leaves, tops.	30
1385	<i>Carya alba</i>	White Hickory.....	Inner bark..	50
1386	<i>Carthamus tinctorius</i>	Safflower, Am. Saffron..	Flowers.....	30
1387	<i>Cascara amarga</i>	Honduras Bark.....	Bark	40
1388	<i>Cascara sagrada</i>	Rhamnus Prushiana....	Bark	50
1389	<i>Cataria</i> (<i>Nepeta C.</i>).....	Catnip, Catmint.....	Herb.....	30
1390	<i>Cephalanthus</i>	Button Bush.....	Bark	50
1391	<i>Celastrus scandens</i>	Staff Tree.....	Root bark...	50
1392	<i>Cercis Canadensis</i>	Judas Tree.....	Root bark...	50
1393	<i>Cetraria</i>	Iceland Moss.....	Entire plant.	20
1394	<i>Ceonothus Americanus</i>	Jersey Tea, Red Root..	Root	50
1395	<i>Chelone glabra</i>	Balmomy, Snakehead...	Herb.....	20

I396	<i>Chicorium Intybus</i>	Chicory.....	Root.....	20
I397	China (<i>Smilax glabra</i>)...	China Root.....	Rhizome....	40
I398	* <i>Chionanthus Virginica</i> ...	Fringe Tree.....	Root bark...	50
I399	<i>Cochleria</i> , fresh.....	Scurvy Grass.....	Bruised herb.	20
I400	<i>Colocynthus</i>	Colocynth, Bitter Apple.	Fruit.....	20
I401	<i>Comptonia asplenifolia</i> ...	Sweet Fern.....	Herb.....	30
I402	<i>Conii folia</i>	<i>Cicuta</i> , <i>Conium</i>	Leaves.....	30
I403	<i>Convulvulus panduratus</i> ..	Wild Jalap.....	Root.....	40
I404	<i>Coptis teeta</i>	East Indian <i>Coptis</i>	Rhizome....	40
I405	<i>Coptis trifolia</i>	<i>Coptis</i> , Gold Thread....	Entire plant.	30
I406	<i>Cornus circinata</i>	Green Ozier.....	Bark.....	50
I407	<i>Cornus sericea</i>	Swamp Dogwood.....	Bark.....	50
I408	<i>Crocus sativus</i>	True Saffron.....	Stigmas....	30
I409	<i>Cucumis citrullus</i>	Watermelon Seed.....	Seed.....	30
I410	<i>Cucumis pepo</i>	Pumpkin Seed.....	Seed.....	30
I411	<i>Cunderango</i>	<i>Cunderango</i>	Bark.....	40
I412	<i>Cunila Mariana</i>	<i>Dittany</i> , American.....	Root.....	40
I413	<i>Cynoglossum</i>	Hound's Tongue.....	Herb.....	30
I414	<i>Cyperus articulatus</i>	Adrue.....	Root.....	40
I415	<i>Diospyros cortex</i>	Persimmon.....	Bark.....	40
I416	<i>Diospyros fructus</i>	Persimmon.....	Green fruit..	12
I417	<i>Dirca palustris</i>	Leatherwood.....	Bark.....	40
I418	<i>Dulcamara</i> (<i>Solanum D.</i>)..	Bittersweet.....	Twigs.....	40
I419	<i>Elephantopus tomentosus</i> ..	Elephant's Foot.....	Herb.....	30
I420	<i>Epiphegus</i> (<i>Orobanche</i>)..	Cancer Root.....	Plant.....	40
I421	<i>Epigæa repens</i>	Trailing Arbutus.....	Leaves.....	30
I422	* <i>Epilobium</i>	Wickup or Willow.....	Herb.....	30
I423	<i>Erythracea</i>	<i>Canchalagua</i>	Herb.....	30
I424	<i>Erythraea Centaurium</i>	European Centaury....	Herb.....	30
I425	<i>Eupatorium aromaticum</i> ..	White Snakeroot.....	Root.....	40
I426	<i>Eupatorium perfoliatum</i> ..	Boneset, Thoroughwort.	Herb.....	30
I427	<i>Eupatorium purpureum</i> ..	Queen of the Meadow..	Root.....	50
I428	<i>Euphrasia</i>	Eyebright.....	Herb.....	30
I429	<i>Fagus ferruginea</i>	American Beech.....	Inner bark..	40
I430	* <i>Frankenia</i>	<i>Yerba Rheuma</i>	Plant.....	30
I431	<i>Frasera</i>	American Columbo.....	Root.....	30
I432	<i>Fraxinus Americana</i>	White Ash.....	Bark.....	50
I433	<i>Fraxinus sambucifolia</i>	Black Ash.....	Bark.....	50
I434	<i>Fucus vesiculosus</i>	Bladder or Sea Wrack..	Plant.....	20
I435	<i>Fumaria officinalis</i>	Fumitory.....	Leaves.....	30
I436	<i>Galla</i>	Nutgall.....	Excrecenses.	40
I437	<i>Galium aperine</i>	Cleavers.....	Herb.....	30
I438	<i>Galium verum</i>	Lady's Bedstraw.....	Herb.....	30
I439	<i>Gaultheria</i>	Wintergreen.....	Leaves.....	30
I440	<i>Gentiana quinqueflora</i>	Five-Flowered Gentian.	Plant.....	30
I441	<i>Geum rivale</i>	Water Avens.....	Root.....	40
I442	<i>Geum urbanum</i>	European Avens.....	Root.....	40
I443	<i>Gnaphalium</i>	Life Everlasting.....	Herb.....	30
I444	<i>Gouania Domingensis</i>	Chewstick.....	Stems.....	40
I445	<i>Granati fructus cortex</i>	Pomegranate.....	Fruit rind...	20
I446	<i>Granatum</i>	Pomegranate.....	Root bark...	50
I447	<i>Gratiola officinalis</i>	Hedge Hyssop.....	Herb.....	30
I448	Guaco (<i>Mikania G.</i>).....	Guaco.....	Leaves.....	30
I449	<i>Hæmatoxylon</i>	Logwood.....	Wood.....	40
I450	<i>Hamamelidis cortex</i>	Witch Hazel.....	Bark.....	50

I451	<i>Helianthemum</i>	Frostwort, Rockrose....	Herb.....	30
I452	<i>Hemidesmus</i>	Indian Sarsaparilla....	Root.....	40
I453	<i>Hepatica</i>	Liverwort, Kidney Leaf.	Leaves.....	30
I454	<i>Heracleum</i>	Masterwort.....	Leaves, root.	30
I455	<i>Heuchera</i>	Alum Root.....	Root.....	40
I456	<i>Hippocastanum</i>	Horse Chestnut.....	Bark.....	40
I457	<i>Hydrangea arborecens</i> ...	Hydrangea, Seven B'ks.	Root.....	50
I458	<i>Hyssopus</i>	Hysop (Am., European)	Plant.....	30
I459	<i>Hypericum perforatum</i> ...	Johnswort.....	Herb.....	30
I460	<i>Ilex Paraguayensis</i>	Paraguay Tea.....	Leaves.....	30
I461	<i>Jeffersonia diphylla</i>	Twin Leaf.....	Root.....	40
I462	<i>Jacaranda Caroba</i>	Caroba.....	Leaves.....	40
I463	<i>Juglans nigra</i>	Black Walnut.....	Bark.....	40
I464	<i>Juglans regia</i>	European Butternut....	Leaves.....	30
I465	<i>Kalmia latifolia</i>	Mountain Laurel.....	Leaves.....	30
I466	<i>Lactuca virosa</i>	Wild Lettuce.....	Leaves.....	30
I467	<i>Lappæ fructus</i>	Burdock Seed.....	Fruit.....	40
I468	<i>Lappæ radix</i>	Burdock Root.....	Root.....	40
I469	<i>Larix Americana</i>	Tamarack.....	Bark.....	40
I470	<i>Lavendula vera</i>	Lavender.....	Flowers....	30
I471	<i>Leonorus cardiaca</i>	Motherwort.....	Herb.....	30
I472	<i>Limonis cortex</i>	Lemon Peel.....	Fruit rind...	20
I473	<i>Liatris odoratissima</i>	Vanilla Plant.....	Leaves.....	30
I474	<i>Liatris spicata</i>	Button Snakeroot.....	Root.....	50
I475	<i>Liatris squarrosa</i>	Blazing Star.....	Root.....	50
I476	* <i>Lycopus Europæus</i>	Bitter Bugle.....	Herb.....	30
I477	<i>Lycopus Virginicus</i>	Bugle Weed.....	Herb.....	30
I478	<i>Maltum</i>	Barley Malt.....	Malted Seed.	30
I479	<i>Malva sylvestris</i>	Common Mallow.....	Leaves.....	20
I480	<i>Mangifera Indica</i>	Mango.....	Bark rind...	30
I481	<i>Mangostana</i>	Mangosteen.....	Fruit rind...	30
I482	<i>Marjorana (Origanum M.)</i>	Sweet Marjoram.....	Herb.....	30
I483	<i>Marrubium vulgare</i>	Hoarhound.....	Herb.....	30
I484	<i>Marunta cotula</i>	May Weed.....	Herb.....	30
I485	<i>Melissa</i>	Sweet Balm.....	Herb.....	30
I486	<i>Melilotus officinalis</i>	Melilot, Sweet Clover..	Flowers....	30
I487	<i>Mentha piperita</i>	Peppermint.....	Herb.....	30
I488	<i>Mentha viridis</i>	Spearmint.....	Herb.....	30
I489	<i>Menyanthes trifoliata</i>	Buck Bean, Bog Bean..	Leaves.....	30
I490	<i>Mikania Guaco</i>	Guaco Leaves.....	Leaves.....	30
I491	<i>Mitchella repens</i>	Partridgeberry.....	Herb.....	30
I492	<i>Morus nigra</i>	Mulberry.....	Root.....	40
I493	<i>Myrica Gale</i>	Sweet Gale.....	Herb.....	30
I494	* <i>Oenothera biennis</i>	Evening Primrose.....	Twigs, leaves	40
I495	<i>Osmarrhiza longistylis</i> ...	Sweet Cicely.....	Root.....	40
I496	<i>Osmunda regalis</i>	Buckhorn Brake.....	Root.....	40
I497	<i>Ostrya Virginica</i>	Ironwood.....	Bark.....	40
I498	<i>Oxydendron arboreum</i> ...	Sourwood.....	Twigs.....	30
I499	<i>Panax (Aralia quiquefolia)</i>	Ginseng.....	Root.....	30
I500	<i>Papaver Sonimiferum</i>	Poppy.....	Cap., leaves.	50
I501	<i>Pepo (Cucurbita P.)</i>	Pumpkin.....	Seed.....	20
I502	<i>Persia gratissima</i>	Alligator Pear.....	Seed.....	40
I503	<i>Petroselinum</i>	Parsley.....	Root, seed..	30
I504	<i>Pinus Strobus</i>	White Pine..	Inner bark..	40
I505	<i>Phoradendron</i>	American Mistletoe....	Plant.....	30

1506	<i>Plantago major</i>	Common Plantain.....	Plant.....	30
1507	<i>Pinus Canadensis</i>	Hemlock.....	Inner bark..	30
1508	<i>Polygala amara</i>	Bitter Polygala.....	Plant.....	30
1509	<i>Polypodium vulgare</i>	Polypody.....	Root.....	40
1511	<i>Polytrichum</i>	Hair Cap Moss.....	Plant.....	30
1512	<i>Prinos verticillatus</i>	Black Alder.....	Bark.....	40
1513	<i>Pulmonaria</i>	Lungwort.....	Herb.....	30
1514	<i>Pyrethrum Parthenum</i> ...	Feverfew.....	Herb.....	30
1515	<i>Pyrola rotundifolia</i>	Canker Lettuce.....	Herb.....	30
1516	<i>Pyrus Malus</i>	Apple Tree.....	Root bark..	40
1517	<i>Quercus alba</i>	White Oak.....	Bark.....	40
1518	<i>Rhamnus catharticus</i>	Buckthorn.....	Berries.....	20
1519	<i>Rhamnus Prushiana</i>	Cascara Sag. Chitem...	Bark.....	40
1520	<i>Rhœas (Papaver R.)</i>	Red Poppy.....	Flowers....	30
1521	<i>Ricini folia</i>	Castor Oil Leaves.....	Leaves.....	30
1522	<i>Rubus strigosus</i>	Red Raspberry.....	Leaves.....	30
1523	<i>Rubia</i>	Madder.....	Root.....	30
1524	<i>Rudbeckia</i>	Thimbleweed.....	Tops.....	30
1525	<i>Ruta graveolens</i>	Rue.....	Leaves.....	30
1526	<i>Sabbatia angularis</i>	Am. or Red Centaury..	Plant.....	30
1527	<i>Sabbatia Elliottii</i>	Quinine Flower.....	Herb.....	30
1528	<i>Salvia officinalis</i>	Sage.....	Leaves.....	30
1529	<i>Sambucus Canadensis</i>	Elder.....	Bark, flowers	30
1530	<i>Sarracenia purpurea</i>	Pitcher Plant.....	Plant.....	30
1531	<i>Scrofularia nodosa</i>	Carpenter's Square....	Root.....	30
1532	* <i>Senecio gracilis</i>	Life Root.....	Plant.....	30
1533	<i>Simaruba officinalis</i>	Simaruba.....	Bark.....	30
1534	<i>Smilax Sarsaparilla</i>	Bamboo Brier.....	Root.....	30
1535	<i>Solidago odora</i>	Golden Rod.....	Herb.....	30
1536	<i>Spiræa tomentosa</i>	Hardhack.....	Herb.....	30
1537	<i>Statice Caroliniana</i>	Marsh Rosemary.....	Root.....	40
1538	<i>Stigmata Maydis</i>	Corn Silk.....	Stigmas....	20
1539	<i>Symphytum officinale</i>	Comfrey.....	Root.....	30
1540	<i>Tabacum (Nicotiana T.)</i> ..	Tobacco.....	Leaf.....	30
1541	<i>Tanacetum vulgare</i>	Tansy.....	Herb.....	30
1542	<i>Tecoma radicans</i>	Trumpet Creeper.....	Bark.....	40
1543	<i>Thea Chinensis</i>	Tea.....	Leaves.....	30
1544	<i>Theobroma Cacao</i>	Chocolate.....	Seeds.....	40
1545	<i>Thymus Vulgaris</i>	Thyme.....	Herb.....	30
1546	<i>Trifolium partense</i>	Red Clover.....	Flowers....	30
1547	<i>Triosteum perfoliatum</i> ...	Fever Wort.....	Herb.....	30
1548	<i>Tilia</i>	Linden.....	Flowers....	30
1549	<i>Tonga</i>	Mixed Fiji Island Barks	Barks.....	50
1550	<i>Tormentilla</i>	Tormentil.....	Rhizome....	30
1551	<i>Tussilago Farfara</i>	Coltsfoot.....	Leaves.....	40
1552	<i>Ulmus fulva</i>	Slippery Elm.....	Bark.....	30
1553	<i>Umbellaria</i>	California Laurel.....	Leaves.....	30
1554	<i>Urtica dioica</i>	Nettle... ..	Root.....	40
1555	<i>Ustilago Maydis</i>	Corn Smut or Ergot...	Fungus....	50
1556	<i>Verbascum thapsus</i>	Mullein.....	Flowers, l'v's	30
1557	<i>Verbena hastata</i>	Vervain.....	Herb.....	30
1558	<i>Viburnum dentatum</i>	Arrow Wood.....	Bark.....	40
1559	<i>Viola tricolor</i>	Wild Violet or Pansy...	Plant.....	30
1560	<i>Viscum Album</i>	Mistletoe.	Plant.....	30
1561	<i>Vaccinum Crassifolium</i> ...	Creeping Huckleberry..	Plant.....	30

Other U. S. Official Fluid Extracts.

The following U. S. Official Fluid Extracts cannot well be included under the foregoing classes as they require a different menstruum or some special manipulation. The essential details only are given here. For full detailed formulas, see FENNER'S WORKING FORMULA. They should be made by water-bath percolation in a manner similar to those classed in A, B, C, or D.

1562. Extractum Castaneae Fluidum—*Fluid Extract of Castanea (Chestnut Leaves)*.—Castanea (Chestnut Leaves) in No. 12 powder $16\frac{2}{3}$ ounces av.. Water, Alcohol, each sufficient. Percolate the drug with hot Water till exhausted, evaporate the percolate, by water-bath, to 2 pints, add 5 fl.ounces Alcohol, let stand 24 hours for precipitate to subside, filter through calico, evaporate the filtered liquid to $12\frac{1}{2}$ fl.ounces, and add enough Alcohol to make a pint.

1563. Extractum Cinchonas Fluidum—*Fluid Extract Cinchona (Calisaya)*.—Yellow Cinchona (Calisaya Bark) in No. 50 powder $16\frac{2}{3}$ ounces av., Glycerin 5 fl.ounces, Alcohol, Water, each sufficient. Mix the Glycerin with $14\frac{1}{2}$ fl.ounces of Alcohol and percolate first with the mixture, then with a menstruum of 3 measures of Alcohol mixed with one measure of Water until the drug is exhausted. Reserve the first 13 fl.ounces. Distill the Alcohol from the remainder of the percolate and evaporate the residue to 3 fl.ounces, which add to the reserved portion.

Liquid Extract of Cinchona—The Br. P. directs an *Aqueous Fluid Extract of Cinchona* to be prepared from Cinchona Bark by the aid of a small quantity of Hydrochloric Acid. This is then to be assayed and the quantity of liquid so regulated that it shall contain 5 per cent. of total Alkaloids.

1564. Extractum Ergotae Fluidum—*Fluid Extract of Ergot (Spurred or Smut Rye)*.—Ergot recently ground in No. 50 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each sufficient, diluted Hydrochloric Acid 1 fl.ounce. Percolate first with 6 fl.ounces Alcohol mixed with 10 fl.ounces

of Water, then with Water. Reserve first 13 ounces that pass. Mix the dilute Hydrochloric Acid with the remainder of the percolate, evaporate to 3 ounces, and add to the reserved portion.

The Br. *Liquid Extract of Ergot* is similar to this but contains no acid.

1565. Extractum Frangulae Fluidum—Fluid Extract of Frangula (Buckthorn Bark).—Frangula (Buckthorn Bark) in No. 40 powder $16\frac{2}{3}$ ounces av, Alcohol, Water, each sufficient. Percolate first with 6 fl.ounces Alcohol mixed with 8 fl.ounces Water, then with Water until exhausted. Reserve the first 13 fl.ounces of percolate, evaporate the remainder to 3 fl.ounces, and add.

The Br. *Liquid Extract of Rhamnus Frangula* is similar to this Fluid Extract.

1566. Extractum Hamamelidis Fluidum—*Fluid Extract of Hamamelis (Witch Hazel)*.—Hamamelis (Witch Hazel Leaves) in No. 40 powder $16\frac{2}{3}$ ounces av.. Alcohol, Water. Percolate first with 6 fl.ounces Alcohol mixed with 12 fl.ounces of Water, then with Water until exhausted. Reserve the first 13 fl.ounces of percolate, evaporate the remainder to 3 fl.ounces, and add.

1567. Extractum Ipecacuanha Fluidum—*Fluid Extract of Ipecac.*—Ipecac in No. 60 powder $16\frac{2}{3}$ ounces av., Alcohol. Water, each sufficient. Percolate the drug with Alcohol until exhausted, distill off the Alcohol until only 4 fl.ounces remain, mix this with a pint of Water and evaporate by water-bath to 12 fl.ounces, let stand 48 hours, then filter and add Water through the filter until the washings are tasteless, evaporate the filtrate and washings to half a pint, and, when cool, add half a pint of Alcohol, and filter. This process removes all the resinous matter and makes an extract mixable with syrup without cloudiness.

1568. Extractum Lactucarii Fluidum—*Fluid Extract of Lactucarium.*—Lactucarium $16\frac{2}{3}$ ounces av. is first macerated and washed with gasoline, then dried and percolated with a menstruum of Alcohol 8 fl.ounces mixed with Water 20 fl.ounces. The first 12 fl.ounces of percolate are reserved and the remainder evaporated to 4 fl.ounces and added. This makes an extract that can be mixed with syrup to make Syrup of Lactucarium.

1569. Extractum Pruni Virginianae Fluidum— *Fluid Extract of Wild Cherry*.—Wild Cherry in No. 20 powder $16\frac{2}{3}$ ounces av., glycerin $2\frac{1}{4}$ fl.ounces, diluted Alcohol, Water, each sufficient. Mix the Glycerin with 6 ounces of Water and moisten the drug, macerate 48 hours, pack in percolator and percolate with diluted Alcohol until 13 fl.ounces have passed, which reserve, then with Water until exhausted. Evaporate the last portion to 3 fl.ounces and add to the reserved portion.

1570. Extractum Sarsaparilla Fluidum—*Fluid Extract of Sarsaparilla*.—Sarsaparilla in No. 30 powder $16\frac{2}{3}$ ounces av., Glycerin $1\frac{1}{4}$ fl.ounce, Alcohol, Water, each sufficient. Mix the Glycerin with 6 fl.ounces Alcohol and 10 fl.ounces of Water and percolate first with this mixture, then with a mixture of 1 measure of Alcohol to 2 measures of Water until the drug is exhausted. Reserve the first 13 fl.ounces and evaporate the remainder to 3 fl.ounces, and add to the reserved portion.

The Br. *Liquid Extract of Sarsaparilla* is similar to this but contains a little sugar.

1571. *Extractum Scutellariae Fluidum — *Fluid Extract of Scutellaria (Skullcap)*.—Scutellaria (Skullcap) in No. 30 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each sufficient. Mix Alcohol and Water in the proportion of 10 fl.ounces of Alcohol to 16 fl.ounces of Water and percolate the drug with the mixture until exhausted, reserve the first 13 fl.ounces of percolate, distill the Alcohol from the remainder, and evaporate the residue to 3 fl.ounces and add to the reserved portion.

1572. Extractum Sennae Fluidum—*Fluid Extract of Senna*.—Senna in No. 20 powder $16\frac{2}{3}$ ounces av.. Alcohol, Water, each sufficient. Mix Alcohol and Water in the proportion of 13 fl.ounces Alcohol to 16 fl.ounces of Water, and percolate, reserving- the first 13 fl.ounces, distilling the Alcohol from the remainder and evaporating the residue to 3 fl.ounces, which add to the reserved portion.

1573. Extractum Taraxaci Fluidum—*Fluid Extract of Taraxacum (Dandelion)*.—Taraxacum (Dandelion Root) in No. 20 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each sufficient. Mix Alcohol and Water in the proportion of 9 fl.ounces of Alcohol to 12 fl.ounces of Water and

percolate with the mixture, reserving the first 14 fl.ounces of percolate and distilling the Alcohol from the 'remainder, evaporating the residue to 2 fl ounces, which add to the reserved portion.

The Br. *Liquid Extract of Dandelion* is similar to this Fluid Extract.

Other Unofficial Fluid Extracts Requiring Special Treatment.

The following are unofficial Fluid Extracts requiring special treatment, which cannot well be included in Classes A, B, C and D :

1574. Fluid Extract of Cinchona, Detannated — Mix 6 ounces of freshly precipitated, washed, moist Hydrated Peroxide of Iron (Ferric Hydrate) with a pint of Fluid Extract of Cinchona, and allow to stand for 4 days, shaking frequently; then filter, adding through the filter enough Diluted Alcohol to make the measure a pint. If the filtered extract still shows traces of Tannin when tested with Tincture of Chloride of Iron, add an ounce more of the moist Ferric Hydrate, and proceed as before, until it is detannated.

1575. Fluid Extract Garlic — *Allium Sativum*.—Garlic, crushed, 16 ounces av., Alcohol 10 fl.ounces. Water, a sufficient quantity. Mash the Garlic to a pumice in a mortar, pour the Alcohol upon it and macerate for twenty-four hours in a covered vessel in a warm place; transfer to the water-bath percolator, pack moderately, pour upon it sufficient Water to cover the drug, heat very moderately at once, and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until a pint of the fluid extract has passed. Although this fluid extract does not properly come in this class, it is placed here for want of a more convenient place.

1576. Fluid Extract of Hydrastis, Purified—*Fluid Hydrastis*.—Hydrastis in No. 50 powder 16²/₃ ounces av., Glycerin 5 fl.ounces. Alcohol, Water, each a sufficient quantity. Moisten the powder with 8 ounces of Alcohol, and pack firmly in the water-bath percolator, pour upon it a pint of Alcohol and set in a warm place for two days; then heat very moderately and after one hour begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until it is exhausted. Distill the Alcohol from the percolate until it is reduced to a soft extract. To this add the Glycerin and 6 ounces of Water, and agitate; then filter and add through the filter enough Water to make a

pint of the fluid extract. The resinous matter remains on the filter. This makes a preparation similar to "Fluid Hydrastis," containing the valuable principles of the drug which are soluble in an aqueous menstruum, and omitting the objectionable ones that are obtained when Water or Alcohol alone is used as a menstruum.

1577. Fluid Extract Ignatia Bean. — Ignatia Bean in No. 60 powder $16\frac{2}{3}$ ounces av., Alcohol, Water, each a sufficient quantity. This Fluid Extract is made with the same menstruum and in precisely the same manner as Fluid Extract of Nux Vomica, which see.

1578. Fluid Extract of Senna, Alcoholized — *Purified Fluid Extract of Senna.*—Senna in No. 20 powder $16\frac{2}{3}$ ounces av.. Alcohol, Water, each a sufficient quantity. Pack the Senna moderately in the water-bath percolator, pour upon it enough Alcohol to saturate and cover it and set in a warm place for twenty-four hours ; then heat very moderately and after one hour begin to percolate, adding a pint and a half of Alcohol to the drug and continuing the percolation until it will no longer drop. [The object of this proceeding is to remove from the Senna the principles which cause it to "gripe" when taken. The Alcohol which is used may be distilled.] Then pour Water upon the Senna and percolate until exhausted. Reserve the first 12 fl.ounces that pass, evaporate the remainder to 4 fl.ounces and add to the reserved portion to make a pint of the Purified Fluid Extract.

1579. Fluid Extract Vanilla—[One half strength.]—Vanilla 8 ounces av.. Alcohol, Water, each a sufficient quantity. Mix three measures of Alcohol with two measures of Water, and having cut the Vanilla in fine pieces and reduced it to a coarse powder by thoroughly beating in a mortar, moisten it with 6 ounces of the menstruum, pack firmly in the water-bath percolator, pour upon it 10 ounces of menstruum and set in a warm place for seven days; then heat moderately and after one hour begin to percolate slowly, adding menstruum to the drug and continuing the heat and percolation until $14\frac{1}{2}$ fl.ounces have passed, which reserve. Continue the percolation with the menstruum until the drug is exhausted, then distill the Alcohol from this last portion, evaporate the residue to a soft extract, add to the reserved portion, and afterward sufficient menstruum to make a pint of the fluid extract. After standing a few days filter through muslin.

It will be observed that this is but half the strength of ordinary fluid extracts. It is thus made because a fluid extract of full strength cannot be obtained without impairing the flavor of the preparation by the heat required to evaporate it.

To make Flavoring Extract of Vanilla from this Fluid Extract, use from 1 to 2 fl.ounces, with enough Alcohol and Water mixed in the proportion of three measures of Alcohol to two of Water to make a pint.

To make Tincture of Vanilla, U. S., 1880, use 3 ounces of this fluid extract with enough Alcohol and Water, mixed as above, to make a pint.

1580. Fluid Extract Wild Cherry, Detannated.— Mix 6 ounces freshly precipitated, washed, moist, Hydrated Peroxide of Iron (Ferric Hydrate) with a pint of Fluid Extract of Wild Cherry and allow to stand for four days, shaking frequently; then filter, adding through the filter enough Diluted Alcohol to make the measure a pint.

If the filtered extract still shows traces of tannin, when tested with Tincture of Chloride of Iron, add an ounce more of the moist Ferric Hydrate and proceed as before until it is detannated.

Compound Fluid Extracts.

Under this heading are included all fluid extracts that are made from two or more powdered drugs combined. As only two of them are official, they are called by their ordinary commercial or trade names as they are known and quoted in the market.

Compound fluid extracts may be conveniently made by mixing the fluid extracts of the drugs which compose them in the same proportion as they are directed to be used in the formulas. The prescribing and use of compound fluid extracts should be discouraged, for the reason that there is no official standard for them, and as made by different manufacturers they represent varying proportions of the drugs composing them, and are therefore indefinite.

The following formulae contain the essential directions for making the fluid extracts, but detailed formulas are given in full in FENNER'S WORKING FORMULA :

1581. Fluid Extract Blackberry Compound.—Blackberry Root 12¹/₂ ounces av., Cinnamon 2 ounces av., Nutmeg, Coriander, each 1 ounce av., all in No. 40 powder, Glycerin 2 fl.ounces, Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1582. Fluid Extract Black Cohosh Compound.—Black Cohosh in No. 40 powder, 6 ounces av.. Wild Cherry in No. 20 powder 4 ounces av., Liquorice Root in No. 30 powder 4 ounces av., Ipecac, Senega, each, in No. 40 powder, 1 ounce av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1583. Fluid Extract Blue Cohosh Compound.—Blue Cohosh in No. 40 powder 8²/₃ ounces av., Cramp Bark in No. 30 powder 3 ounces av., Unicorn Root in No. 40 powder 3 ounces av.. Celery Root in No. 40 powder, 2 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1584. Fluid Extract of Buchu and Juniper with Acetate of Potassium. — Buchu Leaves in No. 40 powder 8 ounces av., Juniper Berries in No. 40 powder 4 ounces av., Acetate of Potassium 5 ounces av.. Alcohol 2, Water 1. a sufficient quantity. Make 13 ounces of fluid extract from the Buchu and Juniper and add the Acetate of Potassium.

1585. Fluid Extract Buchu and Pareira Brava.—Buchu Leaves in No. 40 powder, Pareira Brava in No. 50 powder, each 8 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1586. Fluid Extract Buchu Compound.—Buchu Leaves, Juniper Berries, Cubeb, Uva Ursi, each in No. 50 powder 4 ounces av.. Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1069).

1587.—Fluid Extract of Cardamom Compound.—Cardamom, Cinnamon, each 6¹/₂ ounces av.. Caraway 2 ounces av., Cochineal 1¹/₂ ounce av.. all in No. 50 powder. Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1588. Fluid Extract Chinchona Aromatic.—Cinchona Bark 8¹/₂ ounces av.. Cinnamon 3 ounces av., Nutmeg, Bitter Orange, each 2

ounces av., all in No. 50 powder, Glycerin 2 fl.ounces, Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1589. Fluid Extract Cinchona Compound.—Red Cinchona Bark in No. 50 powder $8\frac{1}{2}$ ounces av.. Bitter Orange Peel in No. 20 powder $6\frac{1}{2}$ ounces av., Serpentaria in No. 50 powder $1\frac{1}{2}$ ounces av., Glycerin 2 fl.ounces, Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1590. Fluid Extract Colocynth Compound.—Purified Aloes, Colocynth Pulp, each in coarse powder $6\frac{1}{2}$ ounces av.. Liquorice Root in coarse powder, Resin of Scammony, Cardamom Seed, each in fine powder 1 ounce av., Carbonate of Potassium $\frac{1}{2}$ ounce av., Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1591. Fluid Extract Dandelion and Rhubarb.—Dandelion, Rhubarb, each in No. 20 powder $8\frac{1}{3}$ ounces av., Diluted Alcohol, a sufficient quantity. Make a pint of fluid extract as directed (1330).

1592. Fluid Extract Dandelion and Senna.—Dandelion, Senna, each in No. 20 powder $8\frac{1}{3}$ ounces av.. Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1593. Fluid Extract Dandelion Compound.—Dandelion in No. 20 powder $14\frac{2}{3}$ ounces av., Mandrake in No. 40 powder, Conium Leaves in No. 30 powder, each 1 ounce av., Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1594.— Fluid Extract Gentian Compound. — Gentian in No. 20 powder 10 ounces av.. Bitter Orange Peel in No. 20 powder 4 ounces av., Cardamom in No. 50 powder $2\frac{2}{3}$ ounces av., Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1595. Fluid Extract of Grindelia Compound.—Grindelia Robusta in No. 30 powder $8\frac{2}{3}$ ounces av., Jaborandi in No. 30 powder 4 ounces av., Cubeb in No. 40 powder, Conium Leaves in No. 30 powder, each 2 ounces av., Alcohol, a sufficient quantity. Make a pint of fluid extract as

directed (1069).

1596. Fluid Extract Helonias Compound.— Helonias in No. 40 powder 9 ounces av., Buchu, Gentian, Golden Seal, each in No. 30 powder $2\frac{1}{2}$ ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1597. Fluid Extract Hoarhound Compound.— Hoarhound in No. 20 powder, Red Root, Elecampane, Spikenard, Comfrey, Wild Cherry, Blood-root, each in No. 30 powder $2\frac{1}{3}$ ounces av., Alcohol 3, Water 2, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1598. Fluid Extract Ipecac and Senega.— Ipecac, Senega, each in No. 50 powder $8\frac{1}{3}$ ounces av.. Diluted Alcohol, a sufficient quantity. Make a pint of fluid extract as directed (1330).

1599. Fluid Extract Jalap and Rhubarb.—Jalap in No. 40 powder, Rhubarb in No. 20 powder each $8\frac{1}{3}$ ounce av., Carbonate of Potassium $\frac{1}{2}$ ounce av , Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1189).

1600. Fluid Extract Jalap and Senna.—Jalap in No. 40 powder, Senna in No. 30 powder, each $8\frac{1}{3}$ ounces av.. Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1601. Fluid Extract of Liquorice Compound—*For Quinine Mixtures.* — Liquorice Root 7 ounces av., Wild Cherry 6 ounces av.. Anise, Coriander, Caraway, each 1 ounce av.. all in No. 30 powder, Alcohol 3 fl.ounces, Water, sufficient to make 13 fl.ounces of aqueous fluid extract, and add the Alcohol.

1602. Fluid Extract Lobelia Compound.— Lobelia Herb in No. 30 powder, Bloodroot, Skunk Cabbage in No. 40 powder, each $5\frac{1}{2}$ ounces av., Alcohol 2. Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1603. Fluid Extract of Mandrake Compound.—Mandrake in No. 50 powder, Leptandra in No. 40 powder. Senna in No. 30 powder, each 5

ounces av., Canella in No. 40 powder $1\frac{2}{3}$ ounce av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1604. Fluid Extract of Matico Compound.— Matico, Buchu, Cubeb, each in No. 40 powder, $5\frac{1}{2}$ ounces av., Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1069).

1605. Fluid Extract Mitchella Compound.— Mitchella (Squaw Vine) $9\frac{1}{2}$ ounces av., Helonias Root, Blue Cohosh, each $2\frac{1}{2}$ ounces av., Cramp Bark 2 ounces av., all in No. 40 powder, Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1606. Fluid Extract Pink Root and Senna.— Pink Root in No. 40 powder $9\frac{1}{3}$ ounces av.. Senna in No. 30 powder $5\frac{1}{3}$ ounces av., Caraway, Anise, each in No. 50 powder 1 ounce av., Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1607. Fluid Extract Poke Root Compound.—Poke Root (Phytolacca), Black Cohosh (Cimicifuga), each in No. 40 powder, $6\frac{3}{4}$ ounces av., Prickly-Ash Berries, Juniper Berries, each in No. 30 powder 2 ounces av., Alcohol, a sufficient quantity. Make a pint of fluid extract as directed (1069).

1608. Fluid Extract of Rhubarb and Senna.— Rhubarb in No. 20 powder 10 ounces av., Senna in No. 20 powder 3 ounces av., Coriander, Fennel and Liquorice, each in No. 50 powder, $1\frac{1}{4}$ ounce av., Alcohol 2. Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1609. Fluid Extract of Rhubarb, Aromatic.— Rhubarb in No. 20 powder 10 ounces av.. Cloves, Cinnamon, each in No. 50 powder 2 ounces av., Nutmeg in No. 50 powder 1 ounce av., Carbonate of Potassium $\frac{1}{2}$ ounce av., Alcohol 3, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1069).

1610. Fluid Extract of Rumex Compound.—*Compound Fluid Extract of Yellow Dock.*—Yellow Dock Root in No. 20 powder $8\frac{1}{3}$ ounces av., False Bitter-Sweet Bark in No. 30 powder $4\frac{1}{2}$ ounces av., American

Ivy Bark, Figwort, each in No. 30 powder 2 ounces av.. Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1611. Fluid Extract Sarsaparilla and Dandelion.— Sarsaparilla, Dandelion, each in No. 30 powder, $8\frac{1}{3}$ ounces av.. Diluted Alcohol a sufficient quantity. Make a pint of fluid extract as directed (1330).

1612. Extractum Sarsaparillae Compositum Fluidum, U. S.— *Compound Fluid Extract of Sarsaparilla.*— Sarsaparilla in No. 30 powder $12\frac{1}{2}$ ounces av., Liquorice Root in No. 30 powder 2 ounces av.. Sassafras Bark in No. 30 powder $1\frac{3}{4}$ ounces av., Mezereum in No. 30 powder $\frac{1}{2}$ ounce av., Glycerin $1\frac{1}{4}$ fl.ounce, Alcohol, Water, each a sufficient quantity. Mix the Glycerin with 6 fl.ounces of Alcohol and 10 fl.ounces of Water, and having moistened the mixed powders with 8 ounces of the mixture, macerate for 24 hours in a close vessel; transfer to the water-bath percolator, pack firmly. pour upon them the remainder of the mixture and set in a warm place for two days ; then heat very moderately and after one hour begin to percolate slowly, adding to the drugs, after the liquid has ceased to drop. Alcohol and Water mixed in the proportion of one part of Alcohol to two parts of Water, and continuing the heat and percolation until the drugs are exhausted. Reserve the first 13 fl.ounces that pass, evaporate the remainder to a soft extract, which dissolve in the reserved portion, and add enough of the menstruum last used to make a pint of the fluid extract. Lastly, after standing a few days filter through muslin.

1613. Fluid Extract Skullcap Compound.— Skullcap in No. 20 powder $6\frac{2}{3}$ ounces av., Cypripedium in No. 40 powder 4 ounces av., Hops, Wild Lettuce, each in No. 20 powder 3 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1614. Fluid Extract Senna Compound.—Senna in No. 30 powder $8\frac{2}{3}$ ounces av., Rhubarb in No. 20 powder 4 ounces av., Jalap, Mandrake, each in No. 50 powder 2 ounces av., Alcohol 2, Water 1, a sufficient quantity. Make a pint of fluid extract as directed (1221).

1615. Fluid Extract Spikenard Compound — *Compound Fluid Extract of Aralia.*—Spikenard Root, Yellow Dock Root, Burdock Root,

Guaiac Wood, Sassafras Bark, each in No. 20 powder 2¹/₂ ounces av., Southern Prickly-Ash, Elder Flowers, Blue Flag Root, each in No. 30 powder 2 ounces av., diluted Alcohol a sufficient quantity. Make a pint of Fluid Extract as directed (1330).

1616. Fluid Extract Squill, or Scilla Compound.— Squill in No. 20 powder, Senega in No. 40 powder, each 8¹/₃ ounces av., Water of Ammonia 1/2 fl.ounce, Alcohol 2, Water 1, a sufficient quantity. Make a pint of Fluid Extract as directed (1221), and add the Water of Ammonia.

1617. Fluid Extract Stillingia Compound.—Stillingia, Turkey Corn, each 4 ounces av.. Elder Flowers, Blue Flag, Pipsissewa, each 2 ounces av., Coriander Seed, Prickly-Ash Bark, each 1 ounce av., all in No. 30 powder, Alcohol 2, Water 1, a sufficient quantity. Make a pint of Fluid Extract as directed (1221).

1618. Fluid Extract Wild Cherry Compound.—Wild Cherry in No. 20 powder 8²/₃ ounces av., Hoarhound, Wild Lettuce, each in No. 20 powder 3 ounces av., American Hellebore, Bloodroot, each in No. 40 powder i ounce av.. Alcohol 2, Water 1, a sufficient quantity. Make a pint of Fluid Extract as directed (1221).

Other Compound Fluid Extracts. — The foregoing formula; for Compound Fluid Extracts represent nearly all that are at present quoted by manufacturers, but other combinations will, no doubt, be added, and it is only necessary for the intelligent druggist to follow the data here given to prepare any Compound Fluid Extract that may be desired.

Green Plant Fluid Extracts.

Fluid Extracts prepared from recently gathered herbs, barks, flowers, roots, etc., have been extensively advertised by manufacturing houses, and some of them are deservedly popular with physicians. Although they cannot have the same uniformity of strength as Fluid Extracts prepared from dry drugs, yet many of them are stronger and better, especially such as depend for their medicinal value upon volatile principles, which would be lost by the process of drying. As there is no

standard of strength established for green plant Fluid Extracts except that the liquid shall be saturated with the medicinal properties of the drug, the following general formula, which is adapted for making all of them, is given. These Fluid Extracts are called by some manufacturers concentrated or specific tinctures:

1619. General Formula for Green Plant Fluid Extracts.

The fresh drug, cut, bruised, crushed, dessicated, or otherwise reduced to proper fineness for macerating and percolating, a convenient quantity, Alcohol a sufficient quantity. Having reduced the drug to the proper fineness, pack it in the water-bath percolator, pour sufficient Alcohol upon it to saturate and cover it, and set in a warm place for 2 days; then heat very moderately, and after one hour begin to percolate slowly, and continue until the liquid ceases to drop. Reserve this portion and continue the percolation with Alcohol until the drug is exhausted. Distill the Alcohol from this last portion until the residue is reduced to the consistence of thin syrup, which add to the reserved portion to complete the fluid extract. The Alcohol remaining in the drug after percolation may be recovered by distillation. The following are the drugs from which Green Plant Fluid Extracts are usually prepared. The * denotes that the drug should be macerated as soon as gathered, the † denotes that it should be partly dried before macerating, and the ‡ denotes that the recently gathered drug should be dried or nearly dried before making up. Herbs should be gathered when in flower, roots and barks in the autumn or early spring:

No.	LATIN NAME.	COMMON NAME.	PART USED.
1620	<i>Ailanthus Glandulosa</i>	Chinese Sumac	Root bark, crushed. †
1621	<i>Aletris Farinosa</i>	Star Grass, Unicorn	Root, crushed. †
1622	<i>Amygdalus Persica</i>	Common Peach	Leaves, bruised. *
1623	<i>Arum Triphyllum</i>	Indian or Wild Turnip	Cormus, mashed.*
1624	<i>Asclepias Tuberosa</i>	Pleurisy or White Root	Root, crushed. †
1625	<i>Baptisia Tinctoria</i>	Wild Indigo	Root, crushed. †
1626	<i>Berberis Aquifolium</i>	Oregon Grape,	Root, crushed. †
1627	<i>Cimicifuga Racemosa</i>	Black Cohosh	Root, crushed. †
1628	<i>Cactus Grandiflora</i>	Fresh Plant, or	Fresh flowers, bruised.*
1629	<i>Cannabis Sativa</i>	American Hemp	Plant, bruised. *
1630	<i>Cereus Bonplandi</i>	Cactus	Plant, mashed. *
1631	<i>Chelidonium Majus</i>	Garden Celandine	Leaves, bruised. *
1632	<i>Chionanthus Virginicus</i>	Fringe Tree	Bark, crushed. †
1633	<i>Collinsonia Canadensis</i>	Stone Root, Ox Balm	Root, crushed. †
1634	<i>Corydalis Formosa</i>	Turkey Corn or Pea	Root, crushed. †
1635	<i>Cypripedium Pubescens</i>	Lady's Slipper	Root, cut and crushed. †
1636	<i>Datura Stramonium</i>	Stramonium	Leaves, bruised. *
1637	<i>Epilobium Paulustre</i>	Wickup	Herb, bruised. *
1638	<i>Eridiction Glutinosa</i>	Yerba Santa	Leaves, bruised. *
1639	<i>Eryngium Aquaticum</i>	Water Eryngo	Root, crushed. *
1640	<i>Euonymus Atropurpureus</i>	Wahoo	Bark, crushed. †
1641	<i>Euphorbia Hipericifolia</i>	Large Spotted Spurge	Leaves, bruised. *
1642	<i>Frankenia Grandifolia</i>	Yerba Rheuma	Plant, cut.
1643	<i>Gelsemium Sempervirens</i>	Yellow Jasmine	Root, crushed. †
1644	<i>Gossypium</i>	Cotton Root	Bark, crushed. †
1645	<i>Grindelia Robusta</i> . . . . .	. . . . .	Herb, bruised. *
1646	<i>Grindelia Squarrosa</i> . . . . .	. . . . .	Herb, bruised. *
1647	<i>Helonias Diocia</i>	False Unicorn	Root, crushed. †
1648	<i>Iris Versicolor</i>	Blue Flag	Root, crushed. †
1649	<i>Juglans Cineria</i>	Butternut	Root bark, crushed. †
1650	<i>Leptandra Virginica</i>	Culver's or Black Root	Root, crushed. †
1651	<i>Lobelia Inflata</i>	Lobelia	Herb, bruised. *
1652	<i>Lycopus Virginicus</i>	Bugleweed	Herb, bruised. *
1653	<i>Macrotys Racemosa</i>	Black Cohosh	Root, crushed. †
1654	<i>Oenothera Biennis</i>	Evening Primrose	Plant, bruised. *
1655	<i>Penthorum Sedoides</i>	Virginia Stone Crop	Herb, bruised. *
1656	<i>Phytolacca Decandra</i>	Poke, Skoke or Garget	Root, crushed. †
1657	<i>Polygonum Punctatum</i>	Water Pepper	Herb, bruised. †
1658	<i>Polymnia Uvedelia</i>	Bearsfoot, Leaf Cup	Root, bruised. *
1659	<i>Populus Candicans</i>	Balm or Balsam Gilead	Buds, bruised. *
1660	<i>Ptelia Trifoliata</i>	Wafer Ash	Bark, crushed. †
1661	<i>Rhus Toxicodendon</i>	Poison Oak or Ivy	Leaves, bruised. †
1662	<i>Rhus Aromatica</i>	Aromatic Sumach	Root bark, crushed. *
1663	<i>Scutellaria Laterifolia</i>	Skullcap	Herb, bruised. *
1664	<i>Senecio Aureus</i>	Liferoot, Lifewort	Herb, bruised. *
1665	<i>Stillingia Sylvatica</i>	Stillingia, Queen's Root	Root, crushed. †
1666	<i>Symplocarpus Foetidus</i>	Skunk Cabbage	Root, crushed. †
1667	<i>Thuja Occidentalis</i>	Arbor Vitæ	Leaves, bruised. *
1668	<i>Veratrum Viride</i>	American Hellebore	Root, crushed. *
1669	<i>Vibunum Prunifolium</i>	Black Haw	Root bark, crushed. †

Acetic Fluid Extracts.

A few Fluid Extracts made with Acetic Acid, instead of an Alcoholic menstruum, have some merit and reputation; as they are all made by the same general formula and with the same menstruum it is unnecessary to repeat the formula for each.

1670. General Formula for Acetic Fluid Extracts.

To complete the formula for any Acetic Fluid Extract, substitute the name of the drug- and the required fineness of powder in the following general formula :

The Drug in No. powder, 16²/₃ ounces av.
 Acetic Acid, 16 fl.ounces.
 Water, a sufficient quantity.

Moisten the powder with the Acetic Acid, and macerate in a closed earthenware, or glass vessel, for twenty-four hours; transfer it to the water-bath percolator, pack moderately, pour upon it a pint of water, and heat at once; after one hour begin to percolate adding water to the drug and continuing the heat and percolation until 14 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with Water until the drug is exhausted. Evaporate the last portion to two fl.ounces and add to the reserved portion to make a pint of the Fluid Extract. After standing a few days filter through muslin.

The following drugs are those from which Acetic Fluid Extracts are usually prepared. They may be made from any other drugs which yield their virtues to Acetic Acid.

No.	LATIN NAME.	COMMON NAME.	Part Used.	Powder No.
1671	Digitalis.....	Foxglove.....	Leaves.....	40
1672	Ergota.....	Ergot.....	Fungus.....	50
1673	Lobelia.....	Indian Tobacco.....	Herb.....	40
1674	Sanguinaria.....	Bloodroot.....	Root.....	50
1675	Scilla.....	Squill.....	Bulb.....	20

To make the 1870 Vinegars of these Fluid Extracts mix two fl.ounces with 14 fl.ounces of water.

To make the 1880 Vinegars, mix $1\frac{2}{3}$ fl.ounces of these Extracts with enough water to make a pint.

To make Syrup of Squill, mix 1 fl.ounce of the Acetic Fluid Extract of Squill with 15 fl.ounces of Syrup.

Aqueous Fluid Extracts.

In this class of Fluid Extracts are included all those in which water is mainly employed for extracting their medicinal virtues, and in which Alcohol would be objectionable, either as a menstruum, or for the uses required. In some, however, Alcohol is added as a preservative.

But few Aqueous Fluid Extracts are used, but it is evident that a larger variety might be employed with advantage by the profession. Any drug which yields its medicinal value to water may very properly be exhibited in an Aqueous Fluid Extract, and the formulas which follow will be sufficiently explicit for making any preparation of this kind that may be desired.

Several Aqueous Fluid Extracts are given in the Br. P. under the name of Liquid Extracts,

1676. Fluid Extract Bael Fruit—*Bela Fructus, Bengal Quince, Ægle Marmelos, Indian Bael.*—Bael Fruit, cut in pieces, 16 ounces av., Water, 12 pints, Alcohol, 3 fl.ounces. Put the Bael Fruit loosely in the water-bath percolator, pour upon it 4 pints of Water and macerate in a warm place for 12 hours, then draw off the liquid by the stop-cock and reserve. Pour on the drug again 4 pints of Water, macerate for two hours and draw off as before. Mix the liquids, evaporate them by gentle heat to 14 fl.ounces, and after straining add 3 fl.ounces of Alcohol to preserve the extract and complete the measure. This is an astringent aromatic demulcent, officinal in the British Pharmacopoeia under the name Liquid Extract of Bael, but little used in this country.

1677. Fluid Extract of Broom Tops, Aqueous—*Sarothamnus Scoparius*.—Broom Tops, in No. 20 powder, $16\frac{2}{3}$ ounces av.. Glycerin, 5 fl.ounces, Water, a sufficient quantity. Moisten the drug with 10 ounces of Water and macerate for 24 hours in a warm place; then pack moderately in the water-bath percolator, pour upon it a pint of Water, heat moderately, and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate to 10 fl.ounces, filter and add through the filter enough Water to make n fl.ounces, then add the Glycerin to make a pint of the fluid extract.

1678. Fluid Extract Cascara Sagrada, Aqueous—*Rhamnus Prushiana*.—Cascara Sagrada Bark in No.30 powder $16\frac{2}{3}$ ounces av., Glycerin 5 fl.ounces, Water, a sufficient quantity. Mix the Glycerin with a pint of Water and having moistened the powder with 10 ounces of the mixture, macerate for 24 hours in a warm place; then pack moderately in the water-bath percolator, pour upon it the remainder of the mixture, heat moderately, and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate, by means of a water-bath to a pint; and after standing a few days filter through muslin. The Br. P. directs *Liquid Extract of Cascara Sagrada* to be made by boiling 1 pound av. of the bark in successive quantities of Water till exhausted, then evaporating the strained liquors to 12 ounces and adding 4 ounces Alcohol. A fluid extract of Cascara Sagrada is also made with Diluted Alcohol as a menstruum, but the Aqueous Extract seems to contain all the valuable medicinal properties of the drug.

1679. Fluid Extract Golden Seal, Aqueous—*Hydrastis without Alcohol. Fluid Hydrastis*.— Golden Seal (*Hydrastis*) in No. 30 powder, $16\frac{2}{3}$ ounces av., Glycerin 6 fl.ounces, Water, a sufficient quantity. Mix the Glycerin with 10 ounces of Water, moisten the powder with 8 ounces of the mixture, and macerate for 24 hours in a warm place; transfer to the water-bath percolator, pack moderately, pour the remainder of the liquid upon it and set in a warm place for two days, then heat moderately and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until 13 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with Water until the drug is exhausted. Evaporate this last portion to 3 fl.ounces, which add to the reserved portion to make a pint of the fluid

extract, and after standing a few days filter through muslin.

1680. Fluid Extract Ipecac, Aqueous.—Ipecac in No. 30 powder $16\frac{2}{3}$ ounces av.. Glycerin 6 fl.ounces, Water, a sufficient quantity. Moisten the powder with 12 ounces of Water and macerate for 24 hours, then pack moderately in the water-bath percolator, pour upon it a pint of Water and heat moderately at once. After one hour begin to percolate slowly, adding Water to the drug, and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate to 10 fl.ounces, filter, and add enough Water through the filter to make 10 fl.ounces; then add the Glycerin to make a pint of the fluid extract. This formula makes a preparation which is essentially the same as the officinal fluid extract; but it is much easier and less complicated to prepare. To make Syrup of Ipecac, mix 1 fl.ounce of this extract with 15 fl.ounces of Syrup.

1681. Fluid Extract Liquorice, Aqueous—*For Quinine Mixtures, etc.*
— Liquorice Root in No. 20 powder $16\frac{2}{3}$ ounces av., Glycerin 5 fl.ounces, Water of Ammonia 3 fl.ounces, Water, a sufficient quantity. Mix the Water of Ammonia with 8 ounces of Water, moisten the drug with the mixture and set in a warm place for one day, then pack moderately in the water-bath percolator, pour upon it a pint of Water, heat at once, and after one hour begin to percolate slowly, adding Water and continuing the heat and percolation until the drug is exhausted. Reserve the first $\frac{1}{2}$ pint that passes, evaporate the remainder to 3 fl.ounces; mix it with the reserved portion, and add the Glycerin to make a pint of fluid extract. After standing a few days filter through muslin. This is an excellent adjuvant for quinine and other bitter medicines. *Liquid Extract of Liquorice* of the Br. P. is made by exhausting 1 pound av. of Liquorice Root with Water by successive maceration and pressures, straining the liquors, evaporating to a sp. gr. of 1.160 when cold, and adding $\frac{1}{6}$ of its volume of rectified spirit.

To make Elixir of Liquorice for quinine mixtures, mix two fl.ounces of this Fluid Extract with six fl.ounces of Syrup of Wild Cherry and half a pint of simple elixir. To make Syrup of Liquorice, mix two fl.ounces of the Fluid Extract with 14 fl.ounces of Syrup.

1682. Fluid Extract of Opium, Aqueous.—Powdered Opium, 4 ounces av., Glycerin, 5 fl.ounces. Water, a sufficient quantity. Pour 8

ounces of Boiling Water upon the Opium, and after macerating for 2 hours, having covered the perforated diaphragm of the water-bath percolator with a coarse piece of muslin, pour the mixture upon it, heat to about 185° F. and begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate by means of a water-bath until it is reduced to 10 fl.ounces, filter and add enough Water through the filter to make the measure 11 fl.ounces, then add the Glycerin to make a pint of the Fluid Extract. Each minim of this Extract represents about 1/4 grain Opium. Manufacturers have no definite standard for Fluid Extract of Opium, many of them making it only the same strength as the Tincture.

The Br. P. directs *Liquid Extract of Opium* to be made so that the finished product shall contain 5 per cent. of Opium.

1683. Fluid Extract Senega, Aqueous — *For making Syrup of Senega.* — Senega Root in No. 20 powder, 16²/₃ ounces av., Glycerin, 5 fl.ounces, Water of Ammonia, 10 fl.ounces. Water, a sufficient quantity. Moisten the powder with 10 ounces of Water and macerate for 24 hours, then pack moderately in the water-bath percolator; pour upon it a pint of Water, heat very moderately and after one hour begin to percolate, adding Water to the drug and continuing the heat and percolation until the drug is exhausted. Evaporate the percolate to 10 fl.ounces, add the Ammonia and strain through muslin, adding through the strainer enough Water to make the measure 11 fl.ounces, and then add the Glycerin to make a pint of the Fluid Extract. In evaporating this Extract quite a precipitate of albuminous and starchy matter is formed; when the Water of Ammonia is added the valuable portion of this precipitate, *Polygalic Acid*, is dissolved, and the remainder, which is worthless, is retained on the filter.

To make Syrup of Senega mix 2 fl.ounces of this Extract with 14 fl.ounces of Syrup.

1684. Fluid Extract Senna, Aqueous.—Senna, in No. 12 powder, 16²/₃ ounces av., Glycerin, 5 fl.ounces, Water, a sufficient quantity. Pour upon the Senna 4 pints of hot Water and steep with gentle heat for two hours, pour off the Liquid, press the drug gently, and reserve the liquid; pour two pints more of hot water upon it, steep for half an hour, pour off and press as before, adding the liquid to the reserved portion. Again

pour on two pints of Water, steep, pour off and press as before, adding the liquid to the reserved portion. Evaporate the liquid to 10 fl.ounces, strain, add through the strainer enough Water to make 11 fl.ounces, and then add the Glycerin to make a pint of the Fluid Extract.

Aqueous Fluid Extract of Senna does not "gripe" as does that made with a partly Alcoholic menstruum. Senna leaves may be percolated first with Alcohol, to remove the principles which produce griping, and a fluid extract may then be made with Water or Diluted Alcohol, in the ordinary manner.

Fluid Extracts of Gums, Resins, Etc.

Liquid Extracts.

This class of preparations (which are not in fact Fluid Extracts as the term is generally applied, but which might much more properly be called Liquid Extracts) seem superfluous, and would not here be given but for the reason that they are quoted and supplied by many manufacturers and will therefore be demanded by many druggists.

They are seldom used except to prepare tinctures or other preparations which would be much better made from the substances themselves. They generally represent about 50 per cent. of the drug from which they are prepared, although it cannot be said for all of them that they represent as much as is claimed for them.

1690. Fluid Extract of Aloes—*Liquid Extract of Aloes.*—Socotrine Aloes in No. 50 powder $8\frac{1}{3}$ ounces av., diluted Alcohol a sufficient quantity.

Mix the Aloes with 10 fl.ounces of diluted Alcohol and heat moderately in a tightly-stopped, wide-mouth bottle on a water-bath, for three hours; then strain through muslin and add enough diluted Alcohol through the strainer to make a pint of the Fluid Extract.

To make the 1880 U. S. tincture, mix 3 fl.ounces each of the Fluid Extract of Aloes and the Fluid Extract of Liquorice Extract with 10 fl.ounces of diluted Alcohol.

1691. Fluid Extract Aloes and Myrrh—*Liquid Extract of Aloes and Myrrh.*—Socotrine Aloes in No. 50 powder 4 ounces av., Myrrh in No. 50 powder 4 ounces av., Alcohol a sufficient quantity. Mix the powders with 12 fl.ounces of Alcohol and macerate them for seven days in a warm place, then heat moderately on a water-bath for two hours and strain through muslin, adding through the strainer enough Alcohol to make a pint of the Fluid Extract.

To make Tincture of Aloes and Myrrh mix 6 fl.ounces of this Extract with 10 fl.ounces of Alcohol.

1692. Fluid Extract Asafetida—*Liquid Extract of Asafetida.*—Asafetida in coarse powder $8\frac{1}{3}$ ounces av., Alcohol a sufficient quantity. Mix the Asafetida with an equal bulk of rice chaff and pack moderately in the water-bath percolator; pour upon it sufficient Alcohol to saturate and cover the drugs, and set in a warm place for seven days; then heat very moderately and after one hour begin to percolate, adding Alcohol to the drug and continuing the heat and percolation until a pint of the Fluid Extract has passed. This preparation seems entirely unnecessary, and would not be given here except that several manufacturers quote such a Fluid Extract for making Tincture of Asafetida.

To make Tincture of Asafetida mix 6 fl.ounces with 10 fl.ounces of Alcohol.

1693. Fluid Extract Benzoin—*Liquid Extract of Benzoin.*—Benzoin in No. 50 powder, $8\frac{1}{3}$ ounces av., Alcohol, a sufficient quantity. Mix the powder with a pint of Alcohol and macerate in a warm place for 3 days, then, having covered the perforated diaphragm of the water-bath percolator with a piece of coarse muslin or burlap, pour the mixture upon it, heat moderately for two hours ; then begin to percolate slowly, adding Alcohol to the drug after the percolate has ceased to drop, and continuing the heat and percolation until a pint of the Fluid Extract is obtained.

To make Tincture of Benzoin mix 6 fl.ounces of this Fluid Extract with 10 fl.ounces of Alcohol.

1694. Fluid Extract Benzoin Compound—*Liquid Extract of Benzoin Compound.* — Benzoin, in No. 50 powder, $6\frac{1}{2}$ ounces av.,

Purified Aloes, No. 50 powder, 1 ounce av., Storax, 4¹/₂ ounces av., Balsam Tolu, 2¹/₄ ounces av., Alcohol, a sufficient quantity. Mix the gums with a pint of Alcohol and macerate in a warm place for 3 days, then, having covered the perforated diaphragm of the water-bath percolator with a piece of coarse muslin or burlap, pour the mixture upon it, heat moderately for two hours ; then begin to percolate, adding Alcohol to the drugs when the percolate has ceased to drop, and continuing the heat and percolation until a pint of the Fluid Extract is obtained.

To make Compound Tincture of Benzoin mix 4 fl.ounces of this Fluid Extract with 12 fl.ounces of Alcohol.

1695. Fluid Extract of Catechu — *Liquid Extract of Catechu.* — Catechu, in coarse powder, 8¹/₃ ounces av., Alcohol, 4 fl.ounces, Water, a sufficient quantity. Mix the Catechu with a pint of Water, and heat it on a water-bath until the Catechu is dissolved; strain through coarse muslin and evaporate the liquid to 12 fl.ounces; when cool add the Alcohol, strain through muslin and add enough Water through the strainer to make a pint of the Fluid Extract.

To make Compound Tincture of Catechu mix 3¹/₄ fl.ounces of this Extract with 2¹/₂ fl.ounces of Fluid Extract of Cinnamon and enough Diluted Alcohol to make a pint.

1696. Fluid Extract of Guaiac — *Liquid Extract of Guaiac.* — Guaiac Resin, in coarse powder, 8¹/₃ ounces av., Alcohol, a sufficient quantity. Mix the Guaiac with 12 fl.ounces of Alcohol in a wide mouth bottle, and heat moderately on a water-bath for 3 hours, then strain through muslin; add enough Alcohol through the strainer to make a pint of the Fluid Extract.

To make the Tincture, mix 5¹/₂ fl.ounces with 10¹/₂ fl.ounces of Alcohol.

1697. Fluid Extract Kino — *Liquid Extract of Kino.* — Kino in No. 40 powder, 6 ounces av.. Glycerin, 4 fl.ounces, Alcohol, a sufficient quantity. Mix the Glycerin with 8 fl.ounces of Alcohol and, having mixed the Kino with the liquid in a wide mouth bottle, stop tightly, and

heat gently on a water-bath until the Kino is dissolved, then strain through muslin and add through the strainer enough Alcohol to make the measure a pint.

Two fl.ounces of this Extract mixed with n fl.ounces of Alcohol and 3 fl.ounces of Water makes the officinal tincture.

1698. Fluid Extract Liquorice Extract — *Liquid Extract of Liquorice.* — Extract Liquorice, in No. 50 powder, 8 ounces av., Alcohol, 4 fl.ounces, Water, a sufficient quantity. Mix the Liquorice with a pint of Water and heat it on a water-bath until the Liquorice is dissolved : strain through muslin and evaporate to 12 fl.ounces; when cool add the Alcohol; strain through muslin, and add through the strainer enough Water to make a pint of the fluid extract.

1699. Fluid Extract Myrrh—*Liquid Extract of Myrrh.*—Myrrh in moderately fine powder $8\frac{1}{3}$ ounces av., Alcohol, a sufficient quantity. Mix the Myrrh with an equal bulk of rice chaff, pack it moderately in the water-bath percolator, pour upon it a pint of Alcohol and set in a warm place for seven days; then heat very moderately, and after one hour begin to percolate slowly, adding Alcohol to the drug and continuing the heat and percolation until 14 fl.ounces have passed, which reserve. Turn off the heat and continue the percolation with the reserved portion to make a pint of fluid extract. To make Tincture of Myrrh, mix $5\frac{1}{2}$ fl.ounces of this fluid extract with enough Alcohol to make a pint.

1703. Fluid Extract Tolu—*Liquid Extract of Tolu.*—Balsam of Tolu $8\frac{1}{3}$ ounces av., Alcohol, a sufficient quantity. Mix the Balsam with 8 ounces of Alcohol in a wide mouth bottle, and, having stopped it tightly, heat on a water-bath until the Balsam is dissolved ; then strain through muslin and add enough Alcohol through the strainer to make a pint of the fluid extract.

To make the 1870 Tincture of Tolu, mix $3\frac{1}{4}$ fl.ounces of this extract with enough Alcohol to make a pint.

To make the 1880 Tincture, mix $2\frac{3}{4}$ ounces with enough Alcohol to make a pint.

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*Of Valuable Information for Pharmacists, Manufacturers of
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and Students of Pharmacy and Medicine.*

Compiled and written by

B. FENNER,

AUTHOR OF FENNER'S FORMULARY, FENNER'S WORKING FORMULÆ
AND EDITOR OF THE FORMULARY.

Sixth Edition.

WESTFIELD, N. Y.
B. FENNER, PUBLISHER AND PROPRIETOR.
1888.

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.

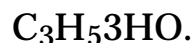
1744. Gelatin Suppositories.— For making medicated suppositories, bougies, etc., with elastic Gelatin, 3 parts of Gelatin are soaked in 2 parts of Water and then dissolved by heat and 7 parts of Glycerin added. The solution is then strained and the required medicinal substances added, thoroughly mixed, 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 Senegae—*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*, $C_{10}H_{16}$, 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 Marjorana.....	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 1 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

syrup of white sugar and a sprinkling of starch from time to time, while the globe is slowly revolved, a very moderate heat being applied at the same time, until the coating is of sufficient thickness. To give a finish or polish to the Pills after they are coated, they are agitated in the coater with a few lumps of paraffine or wax. It is obvious that small quantities of Pills cannot be conveniently sugar-coated in this manner.

It will thus be seen that sugar-coating Pills as they are found in the market requires expensive machinery, experience and time, which are not at the disposal of the ordinary druggist in his business.

Gelatine Coating.—Pills may be coated with Gelatine by sticking them on pins and dipping them in a Solution of Gelatine, etc., heated sufficiently to keep it liquid, then revolving them in the air until the coating is sufficiently set so that the Pills will not adhere when put together. The solution for Gelatine or Soluble Coating may be made as follows :

2458. Gelatine Coating.

Best White Gelatine, Cooper's, Cox's, or French,	1 ounce av.
Water,	4 fl.ounces.

Dissolve the Gelatine in the water, by heat of water-bath, and strain through a tin strainer or a sieve into a water-bath, which must be kept warm, adding a trifle of warm water occasionally to make up for the evaporation. Dip the Pills in the Solution quickly, and revolve in the air until dry.

2459. Gelacacia or Soluble Coating.

Gelatin, best white,	1 ounce av.
Gum Arabic, select,,	1/2 ounce av.
Glycerin,	1/4 ounce av.
Water,	4 1/2 ounces av.

Dissolve the Gum Arabic in 2 ounces of the Water by allowing to stand over night, add this to the Gelatin and balance of the Water and Glycerin and heat to dissolve the Gelatin. When dissolved strain and

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*, H₂C₄H₄O₄, 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 *Convulvulus 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, Cypripedin, 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:

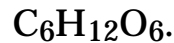
Trommer's Test.—To a solution of the sugar or saccharine liquid desired to be tested, add a little solution of sulphate of copper, and then solution of potassa in excess; heat the mixture to boiling. When cool, if the saccharine solution contained only saccharose or cane-sugar, there will

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.

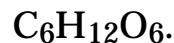
Myose.—Obtained from ergot, identical with trehalose.

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.

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.

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 $3\frac{1}{3}$ 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 (<i>Jeffersonia Diphylla</i>),	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-lined 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-bath 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.

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.

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 miniums 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 $\frac{1}{2}$ 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 $37\frac{2}{3}$ 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 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 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, 6¹/₄ 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 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 $2\frac{1}{2}$ ounces, Proof Spirit to make 20 fl.ounces. Made by maceration and percolation as directed in the preceding.

The dose is $\frac{1}{2}$ to 2 fl.drachms as a stimulant and diaphoretic.

3541. Tinctura Sumbul.

Tincture of Sumbul.

Sumbul, in No. 30 powder, 10 parts or $2\frac{3}{4}$ 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, $2\frac{3}{4}$ 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 $2\frac{1}{2}$ 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.drs.
3591	Aralia Spinosa (Prickly Elder)	Bark.....	Diluted Alcohol.	10 to 60 m.
3592	Arbor Vita (Thuja)	Fresh twigs..	Alcohol	1 to 4 fl.drs.
3593	Aspidosperma (Quebracho)..	Bark.....	Alcohol	1 to 2 fl.drs.
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.drs.
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.drs.
3604	Elecampane.....	Root.....	Diluted Alcohol.	½ to 2 fl.drs.
3605	Erigeron (Fleabane)	Plant	Diluted Alcohol.	1 to 2 fl.drs.
3606	Encalyptus	Leaves.....	Alcohol	1 to 2 fl.drs.
3607	Guaiacum Wood.....	Wood.....	Diluted Alcohol.	1 to 2 fl.drs.
3608	Kamala, Rottlera.....	Glands.....	Diluted Alcohol.	1 to 2 fl.drs.
3609	*Mastic	Resin.....	Alcohol	For cement.
3610	Matico.....	Leaves.....	Diluted Alcohol.	1 to 2 fl.drs.
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.

TRITURATIONS—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 1¹/₂ ounce, Watercress Leaves 1¹/₂ ounce, Buckbean 1¹/₂ ounce, Mustard Seed 1¹/₂ ounce, Chloride of Ammonium 5¹/₂ drachms. Wine 5 pints. Compound Spirit of Scurvygrass 1³/₄ 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, 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, 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 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.

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B. FENNER,

AUTHOR OF FENNER'S FORMULARY, FENNER'S WORKING FORMULÆ
AND EDITOR OF THE FORMULARY.

Sixth Edition.

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PART IV.

THE STANDARD REMEDIES AND PROPRIETARY MEDICINES.

The following formulas are designed for making a complete line of Standard Proprietary Remedies, which may be prepared and put up by druggists, or others, for local trade or for the market.

It is well known to all who are conversant with the business that the making of Proprietary or "Patent" Medicines requires no knowledge nor facilities which are not ready at hand or readily obtainable by the average druggist,

With reliable formulas and outfits of wrappers, cartoons, and labels, which may now be had specially designed for the purpose, druggists may prepare and put up a line of Proprietary medicines or articles, such as they may select, with but a slight outlay and with an abundant reward in the way of profits.

It is needless to urge the advantages to druggists of putting up and furnishing, as far as is possible, their own "Patent" Medicines in place of manufacturers. The profit of several hundred per cent., the reputation which naturally comes of putting before the people their own preparations, the constantly increasing trade in this line, and the satisfaction of furnishing reliable articles worth the money, should be inducement enough for any enterprising druggist to make the attempt to run a line of his own preparations.

The formulas which follow in this department are mainly original, and intended to make preparations similar to those which have been best received or which possess the greatest merit. They are not, however, given as the exact formulas of particular proprietary preparations now in the market or made by any particular manufacturer.

Some formulas, not original, for old and well-known preparations, are also given as selected from the best authorities. Besides the formulas given in this section, many others that may be put up as proprietary remedies are given in various departments of this work, and may be found by referring to the index.

ALTERATIVES.

Although most of the Blood Purifiers and Sarsaparillas on the market are also known as Alteratives, a few preparations which are Supposed to have an especially alterative action on the various organs of secretion are known particularly as Alteratives. The following are representative of this class of preparations :

3919. Alterative Compound.

Blood and Liver Syrup.

Stillingia, in No. 40 powder,	8 ounces av.
Sarsaparilla, in No. 30 powder,	8 ounces av.
Burdock Root, in No. 30 powder,	3 ounces av.
Blue Flag Root, in No. 20 powder,	1½ ounce av.
Mandrake, in No. 50 powder,	1½ ounce av.
Senna, in No. 20 powder,	1½ ounce av.
Prickly-Ash Bark, in No. 50 powder,	¾ ounce av.
Sarsaparilla Flavoring,	½ ounce av.
Diluted Alcohol,	4 pints.
Sugar,	5 pounds av.
Water, a sufficient quantity.	

Mix the drugs, moisten them with 2 pints of diluted Alcohol and macerate in a covered vessel in a warm place for 24 hours, transfer to the water-bath percolator, pack moderately, pour upon them 2 pints of diluted Alcohol and set in a warm place for one day; then heat moderately and, after one hour, begin to percolate slowly, adding Water to the drugs after the liquid has ceased to drop, and continuing the heat and percolation until 5½ pints have passed. To this add the Sarsaparilla Flavoring and, after standing a few days, filter, adding

Water, sufficient to make 1 gallon.

Grind the drugs to a coarse powder, moisten them with 3 pints of Alcohol mixed with 2 pints of Water and macerate for 24 hours in a covered vessel, then transfer to a water-bath percolator, pack firmly, pour on the remainder of the Alcohol (3 pints) mixed with 3 pints of Water, and set in a warm place for one day; then heat moderately and, after one hour, begin to percolate, adding Water to the drugs, and continuing the heat and percolation until 7 pints of percolate are obtained. Continue the percolation with Water until 4 pints more have passed, evaporate this to a soft extract, add to it the Glycerin and the 7 pints of percolate previously obtained and, after standing a few days, filter.

The dose is a teaspoonful to a dessertspoonful, three times a day.

ASTHMA REMEDIES.

The Asthma Remedies which are put up as Proprietary are in various forms, as powders and pastilles for burning slowly, the smoke being inhaled, cigarettes for smoking, remedies to take, and inhalants. The design of most of them is to produce diaphoresis and expectoration as well as to subdue the spasmodic action of the inflamed bronchial organs. The following formulas make preparations representative of the various remedies;

3923. Asthma Remedy.

A Powder for Fumigation.

Grindelia Robusta, in fine powder,	8 ounces.
Jaborandi Leaves, in fine powder,	8 ounces.
Eucalyptus Leaves, in fine powder,	4 ounces.
Coca Leaves, in fine powder,	4 ounces.
Digitalis Leaves, in fine powder,	4 ounces.
Cubeb, in fine powder,	4 ounces.
Stramonium Leaves, in fine powder,	16 ounces.
Nitrate of Potassium, in fine powder,	12 ounces.
Cascarilla Bark,	1 ounce.

Mix the powders and dry them thoroughly before putting up. This is used by burning a half teaspoonful or more on a piece of saltpetre paper and inhaling the smoke which rises. It affords prompt relief and will cure cases not too far advanced. It is also excellent for catarrh, hay-fever, and other troubles of the nasal passages, throat, and lungs.

3924. Asthma Cure.

A Liquid to Take.

Fluid Extract Grindelia,	3 fl. ounces.
Fluid Extract Skunk Cabbage,	1 fl. ounce.
Fluid Extract Lobelia,	1 fl. ounce.
Fluid Extract Bloodroot,	2 fl. drachms.
Fluid Extract Senega,	2 fl. drachms.
Chloroform,	4 fl. drachms.
Alcohol,	20 fl. ounces.
Water,	6 fl. ounces.

Mix them thoroughly and, after standing, decant or filter. This may also be prepared from the drugs Grindelia 3 ounces, Skunk Cabbage, Lobelia, each 1 ounce, Senega and Bloodroot, each 2 drachms, percolated with a mixture of 4 measures of Alcohol with 1 measure of Water, sufficient to make 2 pints, and Chloroform 1 fl. ounce, added to the tincture.

The dose is a teaspoonful, in sweetened water, every 15 to 30 minutes, when the attack of asthma comes on, until relieved. It should also be continued, in small doses, three times a day to effect a cure.

3927 Asthma Pastilles.

Benzoin, in fine powder,	1 ounces av.
Jaborandi, in fine powder,	2 ounces av.
Stramonium Leaves, in fine powder,	4 ounces.
Nitrate of Potassium, in fine powder,	4 ounces.
Charcoal,	20 ounces.
Mucilage of Tragacanth, thin, sufficient.	

Beat the powders with the mucilage to a stiff mass and roll out into a cake about $\frac{1}{4}$ inch thick, cut this into strips $\frac{3}{8}$ inches wide and $1\frac{1}{2}$ inches long and dry by warm air.

One end of the pastil is ignited and the smoke inhaled until relieved.

3928. Asthmatic Cigarettes.

Stramonium Leaves,	4 ounces.
Cascarilla Bark,	$\frac{1}{2}$ ounce.
Lobelia Leaves,	2 drachms.
Mullein Leaves,	4 ounces.

Cut the leaves and drugs fine like smoking tobacco and make into cigarettes. This may also be smoked in a pipe.

BALMS OR PANACEAS.

In proprietary medicines Balms are remedies intended for internal or external use, and designed to allay pain, colic, cholera morbus, inflammation, etc. The following will be found satisfactory and similar in composition to those most popular in the market, known as Magic Balms, Pain Killers, Ready Reliefs, Magic Oils, etc. They are as a class hot, stimulating preparations, increasing the action of the parts with which they come in contact, or acting as counter-irritants, and thus, on the Indian principle, frightening away the disease. They are sold as general panaceas for pain, etc. Many other similar preparations for external and internal use will be found among the Liniments and under other headings. The sale for this class of preparations as proprietary medicines is as large as of nearly any other class, and they may readily be prepared by druggists, affording a good profit.

3929. Eucalyptus Balm.

Oil of Eucalyptus,	1 fl. ounce.
Oil of Cloves,	$\frac{1}{4}$ fl. ounce.

Oil of Hemlock,	1/2 fl. ounce.
Capsicum,	1/2 ounce av.
Camphor,	1/2 ounce av.
Alcohol,	1 pint.

Mix them, macerate for a week or ten days, agitating occasionally, and filter.

3930. Magic Balm.

Oil of Sassafras,	1 fl. ounce.
Oil of Cloves,	1/4 fl. ounce.
Oil of Hemlock,	1/2 fl. ounce.
Chloroform,	1/8 fl. ounce.
Ether,	1/2 fl. ounce.
Capsicum,	1/2 ounce av.
Camphor,	1/2 ounce av.
Water of Ammonia,	1/2 fl. ounce.
Alcohol,	1 pint.

Mix them. Macerate for a week or ten days, agitating frequently and filter.

3931. Magnetic Balm.

Oil of Sassafras,	1 fl. ounce.
Oil of. Peppermint,	1/2 fl. ounce.
Oil of Hemlock,	1 fl. ounce.
Capsicum,	1/2 ounce av.
Camphor,	1/2 ounce av.
Alcohol,	1 pint.

Mix them. Macerate for a week or ten days, agitating frequently and filter.

3932. Pain Cure Balm or "Pain Killer."

Guaiac Resin,	1 ounce av.
Capsicum,	1/2 ounce av.
Camphor,	1/8 ounce av.
Opium, in powder,	60 grains.
Water of Ammonia,	1/4 fl. ounce.
Alcohol,	1 pint.

Mix them. Macerate for a week or ten days and filter. This is similar, to some of the Pain Killers.

The preparation known as No. 6, or Tincture of Myrrh and Capsicum (3646), is often put up as a Pain Killer.

3933. Ready Balm or "Ready Relief."

Camphor,	1/2 ounce av.
Capsicum,	1/2 ounce av.
Oil of Turpentine,	1/2 fl. ounce.
Water of Ammonia, U. S. P.,	5 fl. ounces.
Alcohol,	12 fl. ounces.

Dissolve the Camphor and Oil of Turpentine in the Alcohol, add the Capsicum and Ammonia, and after standing a week or ten days, filter rapidly. This is similar to Ready Relief. It should be given internally only in small doses, 10 to 20 minims.

3934. Wizard Balm.

Oil of Cajuput,	1/4 fl. ounce.
Oil of Sassafras,	1 fl. ounce.
Oil of Hemlock,	1/4 fl. ounce.
Oil of Origanum,	1/4 fl. ounce.

Oil of Cedar,	1/8 fl. ounce.
Capsicum,	1/4 ounce av.
Camphor,	1/4 ounce av.
Chloroform,	1/4 fl. ounce.
Alcohol,	1 pint.

Mix them. Macerate for a week and filter.

BALSAMS.

Many proprietary preparations, called "Balsams," are classed with other remedies, as "Cough Balsam" or "Lung Balsam," among the cough remedies; "Carminative Balsam," "Diarrhoea Balsam," etc., under cholera cures, etc.

Others are included under other headings throughout the book. The few remaining unclassified, and known more particularly as Balsams, because they resemble the liquid Balsams, are noted in this department.

3935. Anodyne Balsam.

Castile Soap,	1 ounce.
Opium Tin'cture,	3 ounces.
Camphor,	3 drachms.
Alcohol,	10 ounces.

Cut the soap in fine pieces and digest, by gentle heat, with the Tincture of Opium and Alcohol until dissolved, then add the Camphor, dissolve and filter.

This is for external use for swellings, pain, etc.

3936. Canker Balsam.

Marsh Rosemary Root, in coarse powder,	4 ounces av.
Borax, in powder,	1 ounce av.
Glycerin,	6 ounces av.

Alcohol, 12 fl. ounces.
Water, a sufficient quantity.

Mix Alcohol and Water, equal measures, and percolate the Marsh Rosemary Root with the liquid until it ceases to drop, then add sufficient Water through the percolator to make 27 fl. ounces of the percolate, dissolve the Borax in the liquid, add the Glycerin, and filter if necessary.

This is an astringent liquid, useful as a gargle for sore throat, a mouth wash, etc., and as an application for cracked nipples or other similar sores.

3938. Locatelle's Balsam.

Yellow Wax, 4 ounces.
Olive Oil, 1 pound.
Venice Turpentine, 1 pound.
Alkanet Root, 2 ounces.

Steep the Alkanet Root for several days in the Olive Oil and strain, melt the Wax, add the Oil and the Turpentine and mix them well together.

This is used as a pectoral in doses of $\frac{1}{2}$ to 1 teaspoonful.

3939. Thibault's Balsam.

Myrrh, Aloes, and Dragon's Blood, each 1 drachm.
St. John's Wort Flowers, 1 ounce.
Spirit of Wine (Alcohol), 10 ounces.
Canada Balsam, $\frac{1}{2}$ ounce.

Digest the Flowers in the Spirit for three days, then express the liquor and dissolve in it the other ingredients and, after standing, filter.

This is used as a healing Balsam for wounds, cuts, etc., and is given as a diuretic and for kidney and bladder troubles, gonorrhoea, etc., in doses of a teaspoonful or more.

3940.

Turlington's Balsam.

Benzoin,	12 ounces.
Storax (liquid),	4 ounces.
Balsam Peru,	2 ounces.
Myrrh,	1 ounce.
Aloes,	1 ounce.
Balsam Tolu,	4 ounces.
Extract Liquorice,	4 ounces.
Angelica Root,	1/2 ounce.
Alcohol,	1 gallon.

Reduce the gums to a coarse powder and macerate all together with the Spirit for two weeks, with agitation, then filter.

This has been a popular panacea for internal and external use.

3941.

Vegetable Healing Balsam.

White Resin,	1 pound av.
Oil of Turpentine,	1 pint.

Melt the Resin, remove it from the fire and add the Oil of Turpentine, mixing them well together.

This is similar to *Peckham's Balsam*, as it is now put up and sold, as a proprietary medicine. It is used for coughs and colds, also for kidney and bladder troubles, in doses of 3 to 10 minims or more. It is also used externally on sores, wounds, swellings, etc.

The following is said to be the formula from which this Balsam was formerly prepared : Pale Resin 3 pounds, melted and strained; then add Oil of Turpentine 2 pints, Balsam of Tolu 1 ounce, Balsam of Fir 4 ounces, Oil of Hemlock, Oil of Origanum, Venice Turpentine, each 1 ounce, Strained Honey 4 ounces. Mix well together.

Similar "Vegetable Healing Balsams" are also prepared by others and sold under similar names.

The following formulas may be used :

Burgundy Pitch,	1 ¹ / ₄ pound av.
Oil of Turpentine,	1 pint.

Melt the Pitch, remove from the fire and gradually add the Oil of Turpentine, mixing them well together.

Resin,	1 pound.
Venice Turpentine,	1 pound.
Oil of Turpentine,	1 pint.

Melt the Resin, add the Venice Turpentine, warm together and add the Oil of Turpentine while cooling.

Resin,	1 pound.
Balsam Fir,	1/2 pound.
Venice Turpentine,	1/2 pound.
Oil of Turpentine,	1 pint.

Melt the Resin, add the Balsam Fir and Venice Turpentine, warm together, and when cooling, add the Oil of Turpentine, mixing them well together.

BITTERS.

A great variety of Bitters are sold under various names as proprietary medicines. They are designed for various uses, and may naturally be divided into three classes, as follows :

Class A.

These Bitters are weakly medicinal preparations designed to be taken in large doses, and depend for their effect more upon the liquor which they contain than the other medicinal ingredients.

They are stimulating Bitters, and are to a great extent substitutes for liquors, although if properly used are very beneficial for disordered

digestion, dyspepsia, malaria, etc. The most popular Bitters of this class found in the market are known as Hostetter's, Drake's, Wahoo, Niagara, etc. The following formulas make good preparations of this kind. .

3742.

Stomach Bitters.

Bitter Orange Peel,	2 drachms.
Wahoo Bark,	2 drachms.
Sweet Flag Root,	1 drachm.
Cinnamon Bark,	1 drachm
Cloves,	10 grains.
Coriander,	30 grains.
Whisky,	6 pints.
Sugar,	2 ounces
Water,	2 pints.

Reduce the drugs to a coarse powder and macerate with the Whisky and Water for several days, until the strength is obtained, then filter. If desired, Cologne Spirit (Alcohol proof) may be diluted with an equal quantity of Water and used instead of Whisky.

The dose is from half to a wineglassful or more.

3943.

Hop Bitters.

Hops, in coarse powder,	3 ounces av.
Buchu, in coarse powder,	1 ounce av.
Dandelion Root, in coarse powder,	1 ounce av.
Mandrake Root, in coarse powder,	80 grains.
Bitter Orange Peel, in coarse powder,	2 drachms.
Wahoo Bark,	1 drachm.
Whisky,	5 pints.
Water, q. s., or	3 ¹ / ₂ pints.

Mix the Whisky with 3 pints of Water and macerate the drugs with the mixture for several days, then filter and add through the filter enough Water to make the measure a gallon.

The dose is a tablespoonful to a wineglassful or more. This is much stronger of the medicinal ingredients than the proprietary Hop Bitters. It may be reduced with diluted Cologne Spirit.

3944.

Wahoo Bitters.

Wahoo Bark, in coarse powder,	1/2 ounce.
Sweet Flag Root, in coarse powder,	1/4 ounce.
Cinnamon Bark, in coarse powder,	1 drachm.
Cardamom Seed, in coarse powder,	20 grains.
Oil of Orange (fresh),	10 drops.
Whisky,	6 pints.
Water,	2 pints.
Glycerin,	1 ounce.

Mix and macerate for several days, then filter.

Dose, from half to a wineglassful or more.

Other Bitters of this class may be made in the same general way by using other bitter drugs, other liquors or other flavoring ingredients.

3945.

Plantation Bitters.

Wild Ginger Root,	1/2 ounce
Bitter Orange Peel,	1 ounce
Dandelion Root,	1 ounce
New England Rum,	1 pint
Whisky,	5 pints
Sugar,	4 ounces
Water,	2 pints

Reduce the drugs to a coarse powder and macerate with the mixed liquids for a few days, then filter.

Class C.

In this class the formulas are given for the stronger medicinal Bitters, similar to proprietary Bitters, which have been or are popular. They differ from the other classes of Bitters by being put up in smaller packages, containing more of the medicinal agents and being taken in smaller doses.

3949. **Blood Bitters, or Burdock Bitters.**

Tonic System Renovator.

Burdock Root,	12 ounces av.
Mezereum Bark,	2 ounces av.
Wild Cherry Bark,	2 ounces av.
Senna Leaves,	2 ounces av.
Columbo Root,	1 ounce av.
Sassafras Bark,	2 ounces av.
Liquorice Root,	2 ounces.
Cinnamon,	1/2 ounce av.
Cloves,	1/4 ounce av,
Sugar,	4 ounces.
Alcohol,	4 pints.
Water, a sufficient quantity to make	1 gallon.

Grind the drugs to coarse powder, mix the Alcohol with 3 pints of Water, moisten the powder with a pint of the mixture and macerate, in a warm place, in a covered vessel for 24 hours; transfer to the water-bath percolator, pour upon it 2 pints of menstruum, pack moderately, and set in a warm place for one day, then heat very moderately and, after one hour, begin to percolate, adding the remainder of the menstruum, and then Water to the drug, and continuing the heat and percolation until a gallon of the, Bitters is obtained, dissolve the Sugar in the liquid and filter.

This may be made by cold percolation, but this method does not so thoroughly exhaust the drugs.

The dose is from 1 to 2 teaspoonfuls three or four times a day. This is

similar to, but a better preparation than, several of the Blood Bitters in the market.

3950.

German Liver Bitters.

Leptandra (Culver's Root),	8 ounces av.
Mandrake Root,	2 ounces av.
Burdock Root,	6 ounces av.
Liquorice Root,	2 ounces av.
Sassafras Bark,	2 ounces av.
Cinnamon Bark,	1/2 ounce av.
Alcohol,	4 pints.
Water, a sufficient quantity.	

Grind the drugs to a coarse powder, mix the Alcohol with 4 pints of Water, moisten the powder with, a pint of the menstruum and macerate in a covered vessel for 24 hours; transfer to the water-bath percolator, pack firmly, pour upon it 2 pints of the menstruum and set in a warm place for one day, then heat moderately and, after one hour, begin to percolate, adding the remainder of the menstruum, and then Water to the drugs, and continuing the heat and percolation until a gallon of the Bitters is obtained; filter.

This may be made, also, by cold percolation, but this process does not so thoroughly exhaust the drugs.

The dose is from 1 to 2 teaspoonfuls three or four times a day.

This is similar to the German Bitters and Liver Invigorators that have been popular, The preparation is a good liver and blood remedy.

A great variety of other similar preparations are put up and sold under various names, all of them being intended to act on the liver to increase its secretion of bile, thereby acting as laxative. The sale of this kind of Bitters is much less than it was formerly, but they are, nevertheless, good preparations.

3951. Jaundice or Laxative Bitters.

Cape Aloes, in powder,	2 ounces av.
Carbonate of Potassium (Sal Tartar),	1/2 ounce.
Culver's Root, irr powder,	2 ounces av.
Cinnamon, in powder,	1 ounce.
Anise, in powder,	1 ounce.
Coriander, in powder,	1 ounce.
Liquorice Root, in powder,	2 ounces.
Alcohol,	2 pints.
Water, a sufficient quantity to make	1 gallon.

Mix the drugs and macerate them with the Alcohol and 6 pints of Water for seven days, then pour off the supernatant liquid, put the drugs in a percolator, pour the liquid upon them and percolate, adding Water through the percolator until a gallon of Bitters is obtained, and filter.

This is similar to several Laxative and Jaundice Bitters on the market,, which have had a popular sale.

3952. Poor Man's Bitters.

A class of Bitters made with a small percentage of Alcohol, and put up usually in half-pint bottles, to retail at 25 cents, are known by the above title, and by various other names. They are neither very profitable nor satisfactory proprietary medicines, but may be made, if desired, as follows :

Quassia, ground,	4 ounces.
Orange Peel, ground,	1 ounce.
Cloves, in powder,	1/4 ounce.
Cinnamon, in powder,	1/4 ounce.
Alcohol,	1 1/2 pint.
Water, q. s., about	7 pints.

Mix the powders with the ground drugs and, having mixed the Alcohol with 1 1/2 pint of Water, moisten the drugs with 6 fl. ounces of the

mixture and pack in the water-bath percolator, pour upon them the remainder of the mixed Alcohol and Water and, after 24 hours, heat moderately for one hour and percolate, adding Water through the percolator to make 1 gallon of the Bitters ; after standing, filter clear.

The dose is a tablespoonful or more.

Mandrake Bitters may be made by adding 2 ounces of Mandrake to the above.

3953. Vinegar Bitters.

A proprietary medicine known as "Vinegar Bitters" at one time had a large sale, the result of extensive advertising as a "*no vile fancy drink*," and other temperance mottoes. It had the reputation of being a pharmaceutical compound (?) of Aloes and sour Beer.

A Vinegar Bitters of much value, but entirely unlike the preparation mentioned, may be made as follows :

Cascara Sagrada Bark,	6 ounces.
Leptandra Root,	2 ounces.
Mandrake Root,	1 ounce.
Cinnamon,	1/2 ounce.
Allspice,	1/2 ounce.
Good Wine or Cider Vinegar,	4 pints.
Alcohol,	1 pint.
Water,	4 pints.

Grind the drugs to a coarse powder and infuse them with the Vinegar at a temperature of about 200° F. for four hours, then pour off the liquid, pour the Water upon the dregs, and infuse as before; mix the liquors obtained, add the Alcohol and, after standing, strain. This is a good laxative and liver regulator. Other forms of Bitters will be found under other headings.

3954.

Bitters in Powder.

Gentian, in fine powder,	4 ounces.
Golden Seal, in fine powder,	4 ounces.
Black Cohosh, in fine powder,	2 ounces.
Rhubarb, in fine powder,	1 ounce.
Cinnamon, in fine powder,	1/2 ounce.
Nutmeg, in fine powder,	1 ounce.
Aloes, in fine powder,	1 ounce.
Bicarbonate of Sodium,	1/2 ounce.
Ginger, in fine powder,	1/4 ounce.

Mix thoroughly.

This is to be put up in boxes, or packages of about 1 ounce, which sell generally for 25 cents.

The contents of the package is to be put into $\frac{3}{4}$ of a pint of Water, and $\frac{1}{4}$ pint of Alcohol, and a tablespoonful is to be taken before meals.

A much cheaper Bitters Powder, which has had a good sale under various names, may be made with

Aloes, in fine powder,	8 ounces.
Canella, in fine powder,	8 ounces.
Lupulin, in fine powder,	1/2 ounce.
Cassia, in fine powder,	1/2 ounce.

Mix them. To take, prepare as above, using only half the quantity of the powder

BLOOD PURIFIERS.

Remedies for purifying the blood are mostly included under other headings, as Alteratives, Bitters, Sarsaparillas, etc. A few only of such as are known by the title of "Blood Purifiers " are given here.

3955.

Blood Purifier.

Burdock Root,	8 ounces av.
Stillingia,	8 ounces av.
Sarsaparilla,	8 ounces av.
Senna Leaves,	4 ounces av.
Sassafras Bark,	2 ounces av.
Iodide of Potassium,	1 ounce av.
Oil of Wintergreen,	20 minims..
Sugar,	1 pound av.
Alcohol,	3 ¹ / ₂ pints.

Water, sufficient to make a gallon.

Grind the drugs to a coarse powder, and, having mixed a pint of the Alcohol with a pint of Water, macerate them for 24 hours with the liquid; then pack in a percolator, mix the remaining 2¹/₂ pints of Alcohol with an equal measure of Water and pour upon the drugs; set in a warm place for 24 hours, then percolate slowly, adding Water to the drugs after the liquid has all disappeared from the surface, and continuing the percolation until 7¹/₂ pints have passed. Dissolve the Oil of Wintergreen in half an ounce of Alcohol and add the solution, with the Sugar and Iodide of Potassium, to the percolate ; dissolve and filter.

The dose is a teaspoonful to a tablespoonful.

This may be put up as Blood Purifying Bitters, Blood Cleanser, or by any other similar title.

3956.

Blood Purifying Tea.

Burdock Root, cut,	4 ounces.
Blue Flag Root, cut,	1 ounce.
Dandelion Root, cut,	3 ounces.
Sassafras Bark, cut, .	1 ounce.
Sarsaparilla Root, cut,	4 ounces.
Wild Cherry Bark, cut,	2 ounces.
Yellow Dock Root, cut,	1 ounce.

Mix thoroughly and put up in packages of about 2 ounces. Directions for

preparing: Steep the contents of the package in a quart of Water, with gentle heat, for two hours, strain off 1¹/₂ pint into a quart bottle and add half a pint of Alcohol and 4, ounces of Sugar. The dose is a wineglassful for adults, before meals and at bedtime; children in proportion, according to age.

CARMINATIVES.

Carminatives are a class of mild, aromatic astringent preparations intended to be used for diarrhoea, summer complaints and like disorders. They are particularly adapted to children, being mild, pleasant to take, and effective. Other preparations of a similar nature will be found under other headings. See also Cholera Cures, Dysentery Remedies, etc.

3957. Blackberry Carminative.

Blackberry Juice,	4 pints.
Tincture of Opium,	3 fl. ounces.
Fluid Extract of Blackberry,	8 fl. ounces.
Fluid Extract of Wild Yam,	2 fl. ounces.
Oil of Cinnamon,	30 minims.
Oil of Nutmeg,	20 minims.
Oil of Sassafras,	30 minims.
Sugar,	2 pounds av.
Alcohol,	2 pints.
Water, sufficient to make	1 gallon.

Mix the Fluid Extracts with the Juice and dissolve the Sugar in the mixture by agitation. Dissolve the Oils in the Alcohol and add to the mixture, then add enough Water to make a gallon of the preparation and, after standing a few days, filter.

Dose, for children, from half to a teaspoonful; for adults, from a teaspoonful to a tablespoonful.

3958.

Carminative Cordial.

Catechu,	4 ounces av.
Opium,	1 ounce av.
Camphor,	1/2 ounce av.
Oil of Peppermint,	1 fl. drachm.
Oil of Cinnamon,	20 minims.
Oil of Cloves,	20 minims.
Sugar,	2 pounds av.
Alcohol,	2 pints.
Water, sufficient to make	1 gallon.

Macerate the Catechu, Opium and Camphor, with 1¹/₂ pints of Alcohol, mixed with 2 pints of Water for seven days, agitating every day, pour off the liquid and reserve; pour the drugs upon a filter and percolate them with Water until 3 pints of percolate have been obtained, mix this with the reserved liquid; dissolve the Oils in the remaining half pint of Alcohol, and add to the mixture, then filter, dissolve the Sugar in the filtrate, and add enough Water, if necessary, to make a gallon of, the finished product.

Dose, for children, from half to a teaspoonful; for adults, a teaspoonful to a tablespoonful.

3959.

Ginger Carminative.

Jamaica Ginger, in No. 40 powder,	6 ounces av.
Blackberry Root, in No. 40 powder,	1 pound av.
Cinnamon, in No. 50 powder,	1 ounce av.
Nutmeg, in No. 50 powder,	1 ounce av.
Sassafras, in No. 40 powder,	1 ounce av.
Tincture of Opium,	4 fl. ounces.
Sugar,	2 pounds av.
Alcohol,	3 pints.
Water, sufficient to make	1 gallon.

Mix the powdered drugs and, having mixed the Alcohol with 3 pints of Water, moisten the drugs with 2 pints of the liquid and macerate in a closed vessel for 24 hours; then pack in a percolator, pour the remainder

of the liquid upon it and, after standing one day, percolate, adding Water through the percolator after the liquid has disappeared from the surface, and continuing the percolation until 6 pints are obtained; add the Tincture of Opium and filter, and to the filtrate add the Sugar and, after the Sugar is dissolved, enough Water to make a gallon.

Dose, for children, from half to a teaspoonful; for adults, a teaspoonful to a tablespoonful.

CATARRH REMEDIES.

Besides the general remedies which are taken for catarrh, which will be found under-other headings, as Alteratives, Blood Purifiers, Tonics, etc., there are several preparations designed for application, to be used by insufflation or to be applied in the form of an ointment. They are as follows :

3960. Catarrh Remedy—Liquid.

Fluid Extract of Hydrastis (Aqueous) or "Fluid	
Hydrastis,	3 fl. ounces.
Carbolic Acid,	2 drachms.
Sulphate of Zinc,	4 drachms.
Sulphate of Morphine,	10 grains.
Glycerin,	8 fl. ounces.
Water,	5 fl. ounces.

Mix them. To use, put 1 teaspoonful of common salt in a small cup of water, add 1 teaspoonful or more of the Remedy and use by insufflation or with a douche. This also makes an excellent gargle for sore throat, etc.

3962. Camphorated Cream Salve. *For Catarrh, Etc.*

Camphor, in coarse powder,	80 grains.
Carbolic Acid,	60 grains.
Oil of Eucalyptus,	2 fl. drachms.

Tincture of Aconite Root,	2 fl. drachms.
Yellow Wax,	2 ounces av.
Petrolatum,	16 ounces av.

Melt the Wax and Petrolatum, mix the Camphor, Carbolic Acid, Oil of Eucalyptus, and Tincture of Aconite, and, when the Camphor is dissolved, add the mixture to the melted mass while cooling. This may also be used as an ointment for chilblains, chaps, etc., and whenever a soothing, healing ointment is desired.

3963. Catarrh Cream Balm.

Tincture of Aconite,	2 fl. drachms.
Carbolic Acid (crystals),	1 drachm. Oil
Sassafras,	30 minims.
White Pine Turpentine,	2 drachms.
Yellow Wax,	2 ounces av.
Petrolatum,	16 ounces.

Melt the Wax, Turpentine, and Petrolatum together and, when cooling, add the Tincture, Carbolic Acid, and Oil, mixing them well together.

3964. Catarrh Cure or Salve.

Oil of Tar,	30 minims.
Oil of Sassafras,	1 fl. ounce.
Oil of Eucalyptus,	2 fl. drachms.
Oil of Peppermint,	10 minims.
Tincture Aconite Root,	2 fl. drachms.
Yellow Wax,	2 ounces av.
Petrolatum,	16 ounces av.

Melt, and make in the same manner as the preceding.

3965. Catarrh Snuff.

Catarrh Snuff, which was once a popular proprietary remedy, has now become of slow sale. The following formula will be sufficient:

Euphorbium, in very fine powder,	1/4 ounce.
Bismuth Subnitrate,	1/2 ounce.
Salicylic Acid,	1/4 ounce.
Oil of Wintergreen,	30 minims.
Scotch Snuff,	15 ounces.

Mix them by rubbing the Oil of Wintergreen with a portion of the Snuff, adding the Euphorbium and Salicylic Acid, and then mixing with the remainder of the Snuff.

CATHARTICS AND LAXATIVES.

A great variety of preparations designed to act as laxatives or cathartics are found among proprietary medicines, most of them, however, under some other title. The following are specially representative of this class of preparations, but others, which act as cathartics or laxatives, will be found under other headings. See Elixirs, Tinctures, Syrups, etc*

3966. Buckthorn Cordial.

Cathartic or Laxative Elixir.

A cathartic or laxative remedy—something for constipation and the many disorders that proceed from it — is as frequently called for as any patent medicine on the druggist's shelves. Cathartic or Laxative Elixirs, under various names, have been considerably called for of late, and are rapidly taking the place of pills and other physic.

The following has been thoroughly tried and is recommended :

Buckthorn Bark,	16 ounces av.
Rochelle Salts,	8 ounces av.
Senna Leaves,	8 ounces av.
Liquorice Root,	4 ounces av.
Ginger Root,	2 ounces av.
Sweet Flag Root,	1 ounce av.
Coriander Seed,	2 ounces av.

The dose, as a cathartic, is a tablespoonful to a wineglassful ; as a laxative, from a teaspoonful to a dessertspoonful.

3968.

Castorol.

Child's Laxative, "Castoria."

Under the name "Castoria," a laxative and regulator for children has been extensively sold, and it is an excellent preparation. The original is made after the formula of Dr. Samuel Pitcher, which is:

Senna Leaves,	16 ounces.
Pumpkin Seed,	6 ounces.
Anise Seed,	1 ounce.
Worm Seed,	3 ounces.
Rochelle Salts,	4 ounces.
Bicarbonate of Sodium,	2 ounces.
Sugar,	6 ¹ / ₂ pounds.
Essence of Wintergreen,	1/2 fl. ounce.
Essence of Peppermint,	1 fl. drachm
Water, sufficient to make	1 gallon.

Bruise the Senna, Pumpkin Seeds, Anise, and Worm Seed and steep them in 6 pints of Water, with gentle heat, for three hours; pour off the liquid and reserve; put 2 pints more Water on the drugs and steep for one hour more, then pour off the liquid, press lightly, and add the liquid to the portion previously reserved and evaporate it by gentle heat to 5 pints. When cool, strain, add the Essences and dissolve the Sugar, Salts, etc., in the liquid, by agitation. This may also be made by water-bath percolation in the usual manner.

The dose is half a teaspoonful to a tablespoonful, according to age, etc. It is an excellent laxative for children, and, in fact, for adults.

3969.

Cathartic Liver Pills.

Extract Nux Vomica,	10 grains.
Podophyllin,	10 grains.
Capsicum, in fine powder,	20 grains.
Extract Hyoscyamus,	30 grains.
Purified Aloes,	100 grains.

Mix and make 100 pills.

Each pill contains $\frac{1}{10}$ grain each Extract Nux Vomica and Podophyllin, $\frac{1}{5}$ grain of Capsicum, about $\frac{1}{3}$ grain Extract Hyoscyamus, and 1 grain of Purified Aloes.

The dose, as a laxative and liver pill, is 1, before meals, from once to three times a day; as a cathartic, 2 to 4 pills.

This is an excellent tonic and liver pill, particularly valuable for habitual constipation, headache, inactive liver, etc., and cannot fail to give satisfaction.

3970.

Little Giant Liver Pills.

Aloin,	10 grains.
Podophyllin,	20 grains.
Capsicum,	10 grains.
Extract of Nux Vomica,	20 grains.
Hyoscyamine,	2 grains.

Mix, and make 100 pills.

These are generally sold under the title of Little Liver Pills, but are mostly used as a laxative or cathartic, the dose as a cathartic being 3 to 4 pills at night or morning.

Many other formulas for Cathartic Pills will be found under "Pills."

3971.

Fruit Laxative Lozenges.

Under the name *Tamar-Indien Tropical Fruit Laxative, Confectio-Laxative*, etc., Laxative or Cathartic Lozenges have had a good sale. The following formula makes a good preparation of this sort. They are usually put up half a dozen in a tin box for 25 cents, or one dozen for 50 cents.

Tamarind pulp, thick,	2 ounces.
Extract of Senna,	2 ounces.
Alain,	10 grains.
Podophyllum Resin (Podophyllin),	10 grains.
Manna,	1 ounce.

The Tamarind Pulp should be thick and the Extract of Senna of as firm consistence as can be obtained. The substances should then be warmed and well kneaded together, then rolled out and cut into oval lozenges of about 45 grains, covered with tin foil and wrapped in paraffin paper.

The dose, as a laxative, is 1 lozenge at night; as a light cathartic, 2 lozenges may be taken.

Fig Pulp may be used in place of Tamarind Pulp. A very fine lozenge may be made by using a portion of Pistachio paste in the mixture.

Grape Sugar may be used in place of Manna, but is not so good.

3972.

Laxative Tea.

Buckthorn Bark, cut,	4 ounces.
Dandelion Root, cut,	4 ounces.
Senna Leaves, cut,	4 ounces.
Liquorice Root, cut,	1 ounce.
Sweet Flag Root, cut,	1/2 ounce.
Coriander Seed, bruised,	1/2 ounce.
Anise Seed, bruised,	1/2 ounce.

Mix thoroughly, and put up in packages of about two ounces, which will retail for 25 cents.

It is prepared in the same manner as No. 113, and the dose, as a cathartic, is about the same. As a laxative, a package may be steeped in a pint of water, strained and mixed with half a pint of whisky or gin and ^ pound sugar. Dose, a wineglassful.

In the form of powder the Compound Powder of Glycyrrhiza (2764) is a good preparation to put up as a general laxative.

CHOLERA CURES.

The demand for Cholera Cures is limited, of course, to the later summer months, yet there is considerable sale for preparations under this name, as they are used also for dysentery, diarrhoea, etc. Many preparations which may be put up for this purpose have been already given under other headings (see Mixtures, Tinctures, etc.), but the following may be found useful, the first two being original, the others old and popular formulas. Other formulas for similar use will be found under Dysentery Remedies.

3973.

Cholera Cure—Stimulating.

Capsicum,	4 ounces av.
Camphor,	4 ounces av.
Catechu,	4 ounces av.
Opium,	1 ounce av.
Oil of Cajeput,	1 fl. ounce.
Oil of Peppermint,	1 fl. ounce.
Oil of Cinnamon,	2 fl. drachms.
Oil of Cloves,	2 fl. drachms.
Alcohol,	7 ¹ / ₂ pints.
Hot Water,	12 fl. ounces.

Macerate the Catechu and Opium with the hot Water, rubbing them in a mortar until reduced to a pulpy mass, dissolve the Oils and Camphor in the Alcohol, add the Capsicum and the solution of Catechu and Opium, allowing the mixture to macerate a week or longer, shaking every day, then filter.

Dose, as a preventive, 10 to 15 drops in a little water every morning. For cholera, cholera infantum, cholera morbus, colic, cramp, or internal pain, from 15 drops to a teaspoonful in sweetened water every hour, or oftener, if necessary, until relieved. It may also be applied over the pit of the stomach and bowels.

3974. Cholera Remedy—Sedative.

Tincture of Opium,	3 flounces.
Hydrate of Chloral,	1 ounce av.
Spirit (Essence) of Peppermint,	1 fl. ounce.
Ether (Sulphuric),	1 fl. ounce.
Tincture of Catechu,	4 fl. ounces.
Diluted Alcohol,	6 fl. ounces.

Mix the liquids and dissolve the Hydrate of Chloral in the mixture. Dose and directions the same as the preceding.

3975. Asiatic Tincture for Cholera.

Powdered Opium,	1 ounce av.
Camphor,	1 ounce av.
Oil of Cloves,	1 ounce av.
Powdered Capsicum,	1 ounce av.
Hoffman's Anodyne,	1 pint.

Macerate two weeks and filter. Dose, 20 to 60 drops.

3976. Australian Cholera Specific.

Sulphuric Acid,	320 grains.
Nitric Acid,	192 grains.
Sugar,	240 grains.
Gum Arabic,	240 grains.

Water, enough to make a pint.

Mix the Acids with 12 fl. ounces of Water, add the Sugar and Gum, dissolve, and add enough Water to make a pint.

Dose, a tablespoonful, followed by a drink of water, and repeated in half an hour, or frequently until the disease is checked. The remedy is claimed never to have failed to cure if taken in reasonable time.

3977. New-York "Sun" Cholera Mixture.

Tincture Capsicum,	1 part.
Tincture Opium,	1 part.
Tincture Rhubarb,	1 part.
Spirit Peppermint,	1 part.
Spirit Camphor,	1 part.

Mix. Dose, 15 to 30 drops in a wine glass of water.

3978. Russian Cholera Drops.

Oil of Peppermint,	75 minims.
Tincture Opium,	5 fl. drachms.
Wine of Ipecac,	2 fl. ounces.
Tincture Valerian, etherial,	4 fl. ounces.

Mix. Dose, 10 to 20 minims.

3979. Sparkman's Cholera Mixture.

Camphor,	1 drachm.
Kino,	2 ounces.
Catechu,	1/2 ounce.
Powdered Cinnamon,	2 ounces.
Powdered Cloves,	1 ounce.
Powdered Capsicum,	2 ounces.
Brandy, q. s.	

Moisten the powders with Brandy, pack in a percolator, macerate 48 hours and percolate 18 fl. ounces. To this add :

Tincture Opium,	2 ¹ / ₂ fl. ounces.
Chloroform,	1 fl. ounce.

Dose, 60 drops.

3980. Squibb's Cholera Mixture.

Chloroform,	3 parts.
Tincture Opium,	8 parts.
Spirit Camphor,	8 parts.
Tincture Capsicum,	8 parts.
Alcohol,	13 parts.

Mix. Dose, 1 fl. drachm.

3981. Thielemann's Cholera Drops.

Oil of Peppermint,	1 fl. ounce.
Alcohol,	8 fl. ounces.
Tincture Opium and Saffron,	3 fl. ounces.
Tincture Ipecac,	8 fl. ounces.
Tincture Valerian,	13 ¹ / ₂ fl. ounces.

Mix. Dose, i to 2 fl. drachms.

CONDITION POWDERS.

The formulas for Condition Powders are so familiar and common that it seems almost needless to give them here, but they may be found convenient for reference. They are usually made to answer for most of the general ailments of horses and cattle, and are given to increase the appetite, purify the blood, act on the liver, kidneys, etc. The following represent a variety and serve as sample formulas:

3982. Condition Powder—Vegetable.

For the Blood and Appetite.

Bloodroot, in fine powder,	1 ounce.
Sassafras, in fine powder,	3 ounces.
Liquorice Root, in fine powder,	3 ounces.
Gentian, in fine powder,	1 ounce.
Ginger, in fine powder,	2 ounces.
Fenugreek Seed, in fine powder,	4 ounces.
Senna, in fine powder,	2 ounces.

Mix. Dose, a tablespoonful or more in feed. It will be observed that this powder is entirely vegetable and more expensive than many of the others. It may be made cheaper by adding to it an equal bulk of Linseed Meal.

3984. Condition Powder—Diuretic.

Appetizer, Tonic, Diuretic, Etc.

Gentian, in fine powder,	1 ounce.
Ginger, in fine powder,	2 ounces.
Fenugreek Seed, in fine powder,	4 ounces.
Black Antimony, in fine powder,	1 ounce.
Liquorice Root, in fine powder,	3 ounces.
Sal. Nitre, in fine powder,	2 ounces.
Linseed Meal, in fine powder,	3 ounces.

Mix. Dose, a tablespoonful or more in feed.

3985. Condition Powder — General.

Gentian, in powder,	1 ounce.
Fenugreek Seed, in powder,	4 ounces.
Ginger, in powder,	2 ounces.
Liquorice Root, in powder,	3 ounces.
Resin, in powder,	3 ounces.
Sulphur, in powder,	3 ounces.

Mix. Dose, a tablespoonful or more in feed.

3986. Condition Powder—General.

Sal. Nitre, in powder,	1 ounce.
Ginger, in powder,	2 ounces.
Fenugreek, in powder,	3 ounces.
Black Antimony, in powder,	1 ounce.
Liquorice Root, in powder,	1 ounce.
Linseed Meal, in powder,	8 ounces.

Mix. Dose, a tablespoonful or more in feed.

3987. Heave Powder.

For Coughs, Colds, Heaves, Etc.

Lobelia, in fine powder,	2 ounces.
Skunk Cabbage, in fine powder,	4 ounces.
Elecampane, in fine powder,	4 ounces.
Tartrate of Antimony and Potassium,	1 ounce.
Liquorice Root, in fine powder,	5 ounces.

Mix them. The dose is a dessertspoonful to a tablespoonful in feed.

This may be diluted, if desired, with Linseed Meal, powdered Fenugreek, or other powdered drugs.

3988. Hog Cholera Powder.

Remedies for the prevention and cure of Hog Cholera are much used in the West and South. They are of various composition and merits. The following, which is similar to Haas' Hog Remedy, is as popular, as any:

Phosphate of Lime, precipitated,	8 ounces.
Common Chalk, in powder,	6 ounces.
Carbonate of Magnesium, powdered,	2 ounces.

Capsicum, powdered, 1/2 ounce.

Mix them well together.

3989. Hog Cholera Cure.

The following is similar to another popular powder :

Bicarbonate of Sodium,	2 ounces.
Powdered Gentian,	2 ounces.
Powdered Ginger,	3 ounces.
Powdered Nitre,	1 ounce.
Powdered Chalk,	8 ounces.

Mix them thoroughly.

The doses of these powders are, as a preventive, from 1 to 2 teaspoonfuls in feed twice a day; as a cure, a tablespoonful 3 or 4 times a day.

3990. Poultry Powder.

For the diseases incident to poultry a general powder may be prepared as follows :

Bone, ground, or Slaked Lime,	12 ounces.
Gentian, powdered,	1 ounce.
Capsicum, powdered,	1 ounce.
Ginger, powdered,	2 ounces.
Sulphur,	1 ounce.

Mix them well together. Put a teaspoonful in a quart of feed.

3991. Egg Food.

Phosphate of Lime or Ground Bone,	12 ounces.
Capsicum, in powder,	1 ounce.
Ginger, in powder,	2 ounces.

Cantharides, in powder,	1 drachm.
Sulphur,	1 ounce.
Nitrate of Potassium, powdered,	1 ounce.

Mix them well. Put a tablespoonful in a quart of feed.

3992. Worm Powder.

For Worms and Botts in Horses and Cattle.

Cape Aloes, in powder,	5 ounces.
Betel or Areca Nut, in powder,	8 ounces.
Anise, in powder,	1 ounce.
Fenugreek Seed, in powder,	2 ounces.

Mix them well together. Dose, 2 tablespoonfuls in feed, morning and night.

CORN, BUNION, AND CHILBLAIN CURES.

For the past few years Corn Cures have been the rage, and have become almost as plenty, but not quite so painful, as the corns themselves. The most popular remedies have been those in which Collodion has been used as a base, and which form an artificial skin when applied, and thus keep the medicinal agents in place. The same remedies also apply to bunions. Chilblains require other treatment, but are included under this heading.

3993. Corn Killer.

This preparation is similar to a variety of preparations known as German Corn Cures, Corn Eradicators, and by many other names. Extract of Cannabis Indica is used in some, giving the preparation a greenish color.

Gun Cotton (Pyroxylin),	200 grains.
Ether (Sulphuric),	12 ¹ / ₂ flounces.

Alcohol,	3 ¹ / ₂ fl. ounces.
Salicylic Acid, .	2 ounces av.
Chloride of Zinc,	1 ounce av.

Mix the Ether and Alcohol and dissolve the Gun Cotton in the mixture (this will require a day or two), then add the Salicylic Acid and, when it has dissolved, add the Chloride of Zinc. Keep tightly stopped and away from the light or fire.

This is applied once a day for three days in succession, the part is then bathed in warm water and the skin and adhering corn removed. It may also be applied to bunions.

3994. Corn Salve—Caustic.

A number of Corn Salves have been popular proprietary preparations, but are not generally so effective as the foregoing.

Caustic Soda or Potassa,	4 ounces av.
Water,	4 fl. ounces.
Starch, in fine powder,	1 ounce av.
Glycerin,	8 ounces av.

Dissolve the Soda or Potassa in the Water by the aid of heat, mix the Starch with the Glycerin and heat, with constant stirring, until the Starch is entirely gelatinized and the preparation is of a uniform consistence, then mix with it the warm solution of Soda and put up while warm in small, wide-mouth bottles or glass boxes.

To use, spread a little of the salve on the corn or bunion, taking care to cover only the part to be removed, cover with a piece of cloth and allow to remain from two to four hours, then soak the parts in warm water.

This is a caustic application and needs only to be applied once or twice. It is equally efficacious for warts.

3995. Corn Salve—Magic.

Salicylic Acid,	2 drachms.
Arsenic,	1 drachm.
Petrolatum,	1 ounce.

Mix them by rubbing well together to form a salve which may be applied on a piece of linen.

3996. Corn Plaster.

The most familiar Corn Plasters are those made by spreading some adhesive plaster over thick felt and then cutting, leaving a hole in the centre, allowing the corn to stick up and thus relieving the pressure upon it.

A good Corn Plaster, to be spread upon leather or cloth, and thus applied to the corn, may be made with Salicylic Acid 1 part, Burgundy Pitch 1 part, Yellow Wax 1 part, melted together and mixed.

3997. Chilblain Lotion.

Oil of Eucalyptus,	2 fl. ounces.
Camphor,	2 ounces av.
Carbolic Acid,	1 ounce av.
Alcohol, sufficient to make	1 pint.

Mix and dissolve. To be applied night and morning. It reduces the inflammation and is a sure cure for chilblains before they break.

3998. Chilblain Ointment.

Oil of Eucalyptus,	1 fl. ounce.
Camphor,	1 ounce av.
Carbolic Acid,	1/2 ounce av.
Yellow Wax,	2 ounces av.
Petrolatum,	12 ounces av.

Mix the Wax and Petrolatum and, having mixed the other ingredients and dissolved them, add to the melted substances while cooling and mix well. This is a soothing and curative ointment for chilblains and tender feet.

COUGH REMEDIES.

The variety of cough preparations sold as proprietary remedies is greater than any other line of "patent medicines," and their sale altogether is probably as large as any, but being distributed among so many different kinds is not so noticeable as of some other lines of remedies. In the formulas which follow we have selected representatives only of such as are most popular. They are known on the market by names similar to those given, but the formulas do not claim to make exact duplicates of manufacturer's proprietary medicines, only that they are as good as any. As a general cough remedy the first one of the series (No. 3999) is recommended as giving good satisfaction. It is not like any other in the market, but will make a fine preparation.

3999.

Cough Remedy.

Paregoric,	8 fl. ounces.
Fluid Extract Ipecac,	1 fl. ounce.
Fluid Extract Squill,	1 fl. ounce.
Tincture Tolu,	2 fl. ounces.
Tincture Lobelia,	1 fl. ounce.
Tincture Hyoscyamus,	2 fl. ounces.
Powdered Extract of Liquorice,	1/2 ounce av.
Tartar Emetic,	50 grains.
Muriate of Ammonia,	2 ounces av.
Chloroform,	1/2 ounce av.
Carbonate of Magnesium,	1/2 ounce av.
Sugar,	5 pounds av.
Water, sufficient to make a gallon.	

Rub the Tincture of Tolu with the Carbonate of Magnesium in a mortar, mix the Tinctures and Fluid Extracts with half a gallon of Water, dissolve the Extract of Liquorice in the mixture, add it to the Magnesia, etc., in the mortar and filter through paper until clear. Dissolve the

Tartar Emetic in 4 ounces of boiling Water and add the solution and the Muriate of Ammonia to the filtrate and dissolve, put the Sugar in a gallon bottle or jug, add the Chloroform to the dry Sugar and mix them thoroughly, then add the liquid previously prepared and enough Water to make a gallon, and dissolve the Sugar by agitation.

This is an excellent general cough remedy, the dose being $\frac{1}{4}$ to 1 teaspoonful.

4000. Cough Balsam.

Tincture of Tolu,	$\frac{1}{2}$ fl. ounce.
Tincture of Opium,	$\frac{1}{2}$ fl. ounce.
Tincture of Bloodroot,	$\frac{1}{2}$ fl. ounce.
Fluid Extract of Conium,	$\frac{1}{2}$ fl. ounce.
Fluid Extract of Elecampane,	$\frac{1}{4}$ fl. ounce.
Oil of Sassafras,	5 drops.
Tartar Emetic,	8 grains.
Boiling Water,	1 fl. ounce.
New Orleans Molasses,	14 fl. ounces.

Dissolve the Tartar Emetic in the boiling Water and add it to the Molasses, dissolve the Oil of Sassafras in the Tincture of Tolu, mix it with the other tinctures and fluid extracts, and add the Molasses to the mixture, shaking them thoroughly together.

4001. Cough Cordial.

Anise Seed,	$\frac{1}{2}$ ounce av.
Fennel Seed,	20 grains.
Blood Root,	180 grains.
Wild Cherry,	1 ounce av.
Liquorice Root,	$\frac{1}{2}$ ounce av.
Alcohol,	6 fl. ounces.
Water, q. s., or	10 fl. ounces.
Sugar,	6 ounces av.

Grind the drugs to a coarse powder, mix the Alcohol with 8 ounces of Water and, having moistened the drug with 4 ounces of the mixture, allow them to macerate in a covered vessel for 24 hours; then pack moderately in a percolator, pour upon them the remainder of the liquid and percolate, adding Water through the percolator after the liquid has disappeared from the surface, and continuing the percolation until 13 fl. ounces have passed. In this dissolve the Sugar and, after standing a few days, filter.

4002.

Cough Cure.

Syrup of Squill,	3 fl. ounces.
Syrup of Tolu,	6 fl. ounces.
Wine of Ipecac,	3 fl. ounces.
Hydrocyanic Acid, diluted,	2 fl. drachms.
Tincture of Opium, Camphorated,	3 fl. ounces.
Tincture of Sanguinaria,	1/2 fl. ounce.

Mix them. This is an excellent sedative cough cure.

4003.

Cough Honey.

Sulphate of Morphine,	8 grains.
Tartar Emetic,	8 grains.
Muriate of Ammonia,	256 grains.
Boiling Water,	1 fl. ounce.
Tincture of Opium, Camphorated,	1 fl. ounce.
Tincture of Tolu,	1/2 fl. ounce.
Sugar,	14 ounces av.
Water,	7 fl. ounces.

Mix the Tinctures with the Sugar and agitate in a bottle, dissolve the Morphine and Tartar Emetic in the boiling Water, and the Muriate of Ammonia in 6 ounces of cold Water; mix the solutions and add them to the Sugar in the bottle. Dissolve by agitation.

If a clear preparation is desired, the Tolu may be rubbed with

Magnesium Carbonate and Water, and filtered.

4004. Consumption Cure.

Tincture of Tolu,	1/2 fl. ounce.
Fluid Extract of Lobelia,	1/4 fl. ounce.
Fluid Extract of Indian Cannabis,	1/4 fl. ounce.
Sulphate of Morphine,	8 grains.
Tartar Emetic,	8 grains.
Chloroform,	1 fl. drachm.
Essence of Peppermint,	15 drops.
Boiling Water,	1 fl. ounce.
Sugar,	14 ounces av.
Water,	8 fl. ounces.

Mix the Fluid Extracts, Tincture of Tolu, Chloroform, and Essence with the Sugar in a bottle, and agitate them thoroughly; dissolve the Morphine and Tartar Emetic in the boiling Water, and add the solution with the 8 ounces of Water to the Sugar in the bottle; keep tightly stopped and agitate until the Sugar is dissolved. This makes a preparation quite similar to Piso's Cure.

As thus prepared this preparation is not clear, but translucent. A clear syrup may be made by rubbing the tincture of Tolu, Fluid Extract of Lobelia, Fluid Extract of Cannabis Indica and Essence of Peppermint first with 1/2 ounce of Carbonate of Magnesium, then adding in the mortar 8 ounces of water, rubbing them well together, filtering, adding the Tarter Emetic dissolved in the boiling water, mixing the chloroform with the sugar, and then dissolving the sugar and morphine in the liquid.

4005. Cure for Consumption.

Oil of Wintergreen,	5 minims.
Oil of Peppermint,	15 minims.
Oil of Tar,	60 minims.
Tincture of Tolu,	1/2 fl. ounce.

Tincture, of Sanguinaria,	1/2 fl. ounce.
Fluid Extract of Ipecac,	1/4 fl. ounce.
Hydrocyanic Acid,	1/4 fl. ounce.
Chloroform,	40 grains.
Molasses (Porto Rico),	1 pint.

Mix and agitate thoroughly. This is similar to a Western preparation.

4006. Compound Syrup of Tar and Wild Cherry.

" German Syrup."

Oil of Tar,	1 fl. drachm.
Fluid .Extract of Ipecac,	1/2 fl. ounce.
Fluid Extract of Wild Cherry,	1 fl. ounce.
Tincture of Opium,	1/2 fl. ounce.
Sugar,	14 ounces av.
Water,	8 fl. ounces.

Mix the Oil of Tar by Trituration with the Sugar, add the Fluid Extracts and Tincture to the Water and filter, then dissolve the Sugar, by agitation in the nitrate.

This may also be made by adding 1 fl. drachm of Oil of Tar and 1 fl. ounce of Fluid Extract of Wild Cherry to many of the Cough Remedies previously noticed, afterward straining or filtering if necessary.

4007. Compound Syrup of White Pine.

To make this Syrup it is first necessary to prepare a Tincture of White Pine, which is made as follows :

TINCTURE OF WHITE PINE.

White Pine Turpentine (Gum Thus.),	2 ounces av.
Alcohol,	14 fl. ounces.

Cut the gum in small pieces and dissolve it in the Alcohol by the aid of a water-bath, or by macerating for two weeks in a warm place.

COMPOUND SYRUP WHITE PINE.

Sulphate of Morphine,	8 grains.
Fluid Extract of Ipecac,	1/2 fl. ounce.
Chloroform,	1 fl. drachm.
Tincture White Pine,	2 fl. ounces.
Carbonate of Magnesium,	1/2 ounce av.
Water,	8 fl. ounces.
Sugar,	14 ounces av.

Rub the Carbonate of Magnesium with 1 ounce of Sugar to a fine powder in a mortar and add to it the Tincture of White Pine, rubbing them thoroughly together, then add the Fluid Extract, gradually rub the Water with the mixture and filter; mix the Chloroform with the Sugar in a bottle, dissolve the Morphine in the liquid, then mix the liquid with the Sugar in the bottle and dissolve by agitation.

4008. Compound Syrup of Wild Cherry.

Wild Cherry, in coarse powder,	2 ounces av.
Ipecac, in fine powder,	1/2 ounce av.
Bloodroot, in fine powder,	1/2 ounce av.
Tincture of Opium,	1/2 fl. ounce.
Water, q. s., or	12 fl. ounces.
Sugar,	14 ounces av.
Chloroform,	1 fl. drachm.

Mix the drugs, moisten them with 4 ounces of Water, and macerate for 12 hours, then pack moderately in a conical percolator and percolate with Water until 9 fl. ounces are obtained; mix the Chloroform with the Sugar in a bottle, add the percolate and dissolve by agitation.

4009. Cough Mixture.

The following, with various modifications and additions, is a very common and popular prescription for coughs, etc.:

Syrup of Squill,	1 ounce.
Syrup of Tolu,	1 ounce.
Wine of Ipecac,	1 ounce.
Tincture of Opium, Camphorated,	1 ounce.

To this is frequently added :

Tincture of Bloodroot,	1/4 ounce.
Syrup of Wild Cherry,	1 ounce.
Hydrocyanic Acid, diluted,	1/8 ounce.

And various other medicines.

4010. Expectorant.

Fluid Extract of Hyoscyamus,	1/2 fl. ounce.
Fluid Extract of Lobelia,	1/4 fl. ounce.
Fluid Extract of Skunk Cabbage,	1/2 fl. ounce.
Cyanide of Potassium,	8 grains.
Water,	1/2 fl. ounce.
New Orleans Molasses,	14 fl. ounces.

Dissolve the Cyanide of Potassium in the Water and mix with the Syrup, then add the Fluid Extracts and mix thoroughly.

4011. Honey of Hoarhound and Tar.

Powdered Opium,	60 grains.
Hoarhound,	1/2 ounce av.
Wild Cherry,	2 ounces av.
Ipecac,	1/2 ounce av.

Fluid Extract of Conium,	4 fl. ounces.
Extract of Liquorice,	3 ounces av.
Oil of Sassafras,	10 minims.
Alcohol,	1 pint.
Boiling Water,	8 fl. ounces.
Water,	2 pints.
Porto Rico Molasses,	4 pints.

Mix the Fluid Extracts, Tincture of Opium, Oil, Acid, and Extract of Liquorice with the Water and Alcohol; dissolve the Tartar Emetic in the boiling Water and add to the mixture, filter and add the Molasses to the filtrate. The dose is a teaspoonful.

4014. Terebene Cough Mixture.

Terebene, purified,	1 fl. ounce.
Acacia, in powder,	1/2 ounce av.
Sugar,	3 ounces av.
Yolk of Egg,	No. 2.
Anise Water,	2 fl. ounces.
Camphor Water,	1/2 fl. ounce.
Distilled Water, to make	8 fl. ounces.

Rub the Acacia and Sugar with the Terebene in a mortar, beat the Yolk of Egg with the medicated Waters and make an emulsion by rubbing with the contents of the mortar, then add Water enough to make 8 fl. ounces. By using Lemon Juice instead of the distilled Water a more palatable preparation may be made. The dose is a teaspoonful.

4015. Cough Drops or Candy.

There are in the market a great variety of "Cough Drops," which are mainly sold by the ounce and not put up in the general style of proprietary remedies. They are usually made by confectioners and moulded in various shapes, and colored either black, red, or brown. The most popular Black Cough Drops were introduced by Smith Brothers, of Poughkeepsie, N. Y. A similar preparation may be made by adding to 1 pound of Rock Candy and 1 pound of Sugar, mixed and boiled to the

proper consistence for making drops, 2 ounces Tincture of Opium, 20 grains Tartar Emetic, $\frac{1}{4}$ ounce Oil of Anise, $\frac{1}{4}$ ounce Oil of Wintergreen, and coloring black with Negrosine.

Cherry Cough Drops are made by adding to 3 parts of Rock Candy and 1 part of Sugar, mixed and boiled to the proper consistence, a very little morphine, tartar emetic, capsicum, and flavoring with bitter almond, and coloring red.

4016. Cough Lozenges or Troches.

Many kinds of Cough Troches or Lozenges have been popular as proprietary medicines. Brown's Bronchial Troches have been as well received as any, but now the compound troches, tablets, or lozenges for colds are coming more into use.

A good Bronchial Troche, similar to the most popular ones, may be made as follows :

Extract of Liquorice, in powder,	1 pound.
Cubebs, in fine powder,	6 ounces.
Sugar, in fine powder,	1 $\frac{1}{2}$ pound.
Acacia, in fine powder,	4 ounces.
Extract of Conium, powdered,	1 ounce.
Tartar Emetic, in powder,	1 drachm.

Mix them well together and, with Mucilage or Water, make into a mass, which is to be rolled out and cut into Lozenges of about 10 grains.

By adding other substances, as Morphine, Opium, Ipecac, etc., other varieties may be made. Similar ingredients may be made into compressed Lozenges, if desired.

DIARRHOEA AND DYSENTERY REMEDIES.

The milder forms of remedies which are used for summer complaints and looseness of the bowels are known in proprietary medicines as Diarrhoea or Dysentery Remedies. Carminatives, which have been already mentioned, are similar. The stronger preparations are mostly

known as cholera cures, mixtures, drops, or by some other similar title. See Cholera Cures. The following are the most popular:

4017. Blackberry Cordial

Blackberry Juice,	4 pints.
Catechu,	4 ounces av.
Cinnamon,	1 ounce.
Nutmeg,	1 ounce.
Coriander Seed,	1 ounce.
Opium, in powder,	1/4 ounce.
Sugar,	2 pounds av.
Alcohol,	2 1/2 pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a coarse powder and, having mixed the Blackberry Juice with the Alcohol, macerate them for a week or ten days in a warm place, then filter, add the Sugar, dissolve by agitation, and, having passed enough Water through the filter, add it to the mixture to make a gallon of the finished product.

Dose from a teaspoonful to a dessertspoonful every hour or two until diarrhoea is checked.

This makes a finely flavored, pleasant, and efficient cordial for summer complaints, and will give universal satisfaction. It may be made from the juice freshly expressed from the berries, or from well preserved Blackberry Juice put up by reliable houses.

The following formula, although not quite so nicely flavored, - is just as efficient and more convenient to make at all seasons of the year.

4018. Blackberry Cordial.

Made from the Root

Blackberry Root,	24 ounces av.
Nutmeg,	1 ounce av.

Cinnamon,	1 ounce av.
Coriander Seed,	1 ounce av.
Opium, in powder,	1/4 ounce av.
Sugar,	12 ounces av.
Alcohol,	2 1/2 pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a moderately fine powder and, having mixed the Alcohol with 5 pints of Water, moisten them with 2 pints of the mixture and macerate for 24 hours in a covered vessel, then transfer to the water-bath percolator, pack moderately, pour upon them the remainder of the menstruum, heat moderately for one hour, then turn off the heat and begin to percolate, adding Water to the drugs after the liquid has disappeared from the top and continuing the percolation until 7 1/2 pints have been obtained. Lastly, dissolve the Sugar in the percolate and filter.

Many other remedies for diarrhoea, dysentery and summer complaints will be found under other headings.

4019. Diarrhoea Tablets.

Catechu in powder,	200 grains.
Kino in powder,	100 grains.
Opium in powder,	25 grains.
Sugar in powder,	600 grains.
Gum Arabic in powder,	175 grains.
Oil of Cinnamon,	20 drops.

Mucilage Acacia, to make a mass which is to be made into 100 lozenges.
Dose 1 to 4.

DYSPEPSIA CURES.

Among the general remedies for Dyspepsia may be included all the tonic, stomach, iron, and blood bitters, the alterative tonics and stimulants; but besides these are a class of remedies particularly designed for Dyspepsia, which have a large sale. Dyspepsia is the chief

cause of indigestion of amylaceous and nitrogenous food, and it is rational to supply to the stomach the lacking ferments or solvents of those foods, that it may perform its proper functions. Diastase is the proper solvent for amylaceous food and pepsin for nitrogenous. In the animal economy diastase is a constituent of saliva, and in the vegetable it is found in greatest abundance in malted grain, being now most employed in medicine in the form of Malt Extract. Pepsin is the digestive ferment of the stomach, and is abundantly obtained from the stomachs of various animals. Now, while it would seem reasonable to supply to a dyspeptic stomach these elements, the absence of which causes indigestion, yet there are few dyspepsia cures on the market that do so, and, as we must "follow the fashion" and make formulas for remedies like some that are popular, we give a little variety.

4022. Digestive Dyspepsia Remedy.

Malt Extract,	6 fl. ounces.
Pepsin, saccharated,	240 grains.
Tincture of Ginger,	1 fl. ounce.
Fluid Extract of Golden Seal,	1 fl. ounce.
Essence of Peppermint,	1/2 fl. ounce.
Fluid Extract of Senna,	1 fl. ounce.
Whisky,	4 fl. ounces.
Water, enough to make a pint.	

Mix them. "Shake before taking." Dose, teaspoonful or more after meals.

This is not a nice-looking mixture, and would hardly be a popular remedy for the market. It is also too expensive for general sale, but it is a very effective digestive and dyspepsia remedy, and may be found useful by some of our readers.

4023. Dyspepsia Tablets.

Saccharated Pepsin,	1000 grains.
Saccharated Pancreatin,	1000 grains.
Ginger, in fine powder,	50 grains.
Oil of Pimento,	50 minims.
Acacia, in powder,	300 grains.

sold as proprietary most of them are included under other headings, but a few are mentioned here for want of better classification.

4024. Essence or Extract of Jamaica Ginger.

This preparation, more than any other, has been a popular favorite for mild forms of Diarrhoea and Summer Complaint. It is also much used as a quick stimulant for colds, cramp, colic, etc., and for dyspepsia. It is a popular domestic remedy and has a ready sale at all drug stores. The formula is as follows:

Jamaica Ginger Root, unbleached, in moderately fine powder,	3 pounds av.
Alcohol, sufficient to make	1 gallon.

Moisten the powder with 2 pints of Alcohol and pack firmly in the water-bath percolator, pour upon it 2 pints 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 1 gallon is obtained. The Alcohol remaining in the drug may be recovered by distillation.

The process of water-bath percolation is particularly valuable in making this preparation ; no extract can be made by the cold process which equals it in flavor and strength. Consequently, many manufacturers have been in the habit of adding Capsicum, which is very objectionable in such a preparation.

The dose of this preparation is from 10 to 60 drops in sweetened water.

4025. Aromatic Extract of Jamaica Ginger.

As some of the Essences of Ginger on the market contain aromatics combined with the Ginger, this formula is given:

Jamaica Ginger, unbleached, in powder,	3 pounds av.
Calamus, in powder,	1 ounce.
Canada Snake Root, in powder,	1 ounce.
Cinnamon and Mace, each,	1 drachm.

Oil of Lemon, fresh,	2 fl. drachms.
Alcohol, sufficient to make	1 gallon.

Make an extract of the drugs by percolation the same as directed in the preceding formula and add the Oil of Lemon.

This is used for the same purposes and given in the same quantities as the preceding.

4026. Extract Pinus Canadensis.

This is a fluid extract prepared from the inner bark of hemlock trees, by extracting with water and evaporating the liquor until it is reduced to a thick fluid extract, which may be preserved by the addition of 3 fl. ounces of glycerin in a pint.

A "white" or colorless extract is made from this by mixing with freshly precipitated Oxide of Iron and treating as directed for detannating (515).

These Extracts are used for washes, injections, etc., and given internally for chronic diarrhoea and other similar diseases.

4027. Extract of Shaker's Roots.

Sarsaparilla Root,	4 ounces.
Leptandra Root,	2 ounces.
Mandrake Root,	1 ounce.
Valerian Root,	2 ounces.
Calamus Root,	1 ounce.
Hydrangea Root,	4 ounces.
Diluted Alcohol, sufficient to make	1 pint.

Make a pint of Extract by water-bath percolation. This. is a general alterative, given in small doses, for almost everything.

Other Extracts, which are put up as proprietary, are mostly included under other headings. The Buchu Extracts will be found under Kidney and Liver Cures, the Malt Extracts and combinations under Malt

preparations, Witch Hazel Extract under Distilled Extracts, the Sarsaparilla Extracts under various headings, etc.

FEMALE REMEDIES.

For the past few years a very large trade has been built up on proprietary remedies for female complaints. These consist mostly of uterine and nerve tonics combined. The following formulae will make preparations as valuable and reliable as any, and are representative of different kinds.

4035. Female Remedy.

Woman's Health Restorative.

Cramp Bark (<i>Viburnum Opulus</i>),	8 ounces av.
Catnep,	4 ounces av.
False Unicorn Root (<i>Helonias</i>),	8 ounces av.
Senna Leaves,	8 ounces av.
Partridgeberry (<i>Mitchella</i>)	12 ounces av.
Cinnamon "Saigon,"	1/2 ounce.
Nutmeg,	1/2 ounce.
Spirit of Nitrous Ether,	4 fl. ounces.
Sugar,	8 ounces av.
Alcohol,	3 pints.
Water, sufficient to make a gallon.	

Grind the drugs to a coarse powder and, having mixed the Alcohol with 3 pints of Water, moisten the powder with 3 pints of the liquid, pack firmly in the water-bath percolator, pour upon it the remainder of the liquid and set in a warm place for two days, then heat moderately and, after one hour, begin to percolate, adding Water to the drug after the liquid has all disappeared from the surface of the drugs, and continuing the percolation with Water until 7¹/₂ pints have been obtained; to this add the Sugar and Spirit of Nitre; dissolve and filter.

This may be made from the fluid extracts, instead of the drugs, as follows: Fluid Extract Cramp Bark, Fluid Extract False Unicorn, Fluid Extract Senna, each 8 fl. ounces, Fluid Extract Mitchella 12 fl. ounces,

Fluid Extract Catnep 4 fl. ounces, Spirit of Nitrous Ether 4 fl. ounces, Oil of Cassia 20 minims, Oil of Nutmeg 30 minims, Sugar 8 ounces av., Alcohol 2 pints, Water sufficient to make 1 gallon.

Mix the Fluid Extracts and Spirit of Nitre, dissolve the Oils in the Alcohol and add to the solution 2 pints of Water, mix this with the Fluid Extracts, etc., dissolve the Sugar in the mixture and add enough Water to make a gallon.

The dose of this preparation is from 1 to 2 teaspoonfuls four times a day.

4036.

Aletris Cordial.

This is similar to the old eclectic preparation known as "Mothers' Cordial." The following formula will make a satisfactory preparation :

Unicorn Root (Aletris),	8 ounces.
Catnep Herb,	4 ounces.
Cramp Bark,	4 ounces.
Partridgeberry Leaves,	8 ounces.
Blue Cohosh,	2 ounces.
Cinnamon Bark,	1 ounce.
Orange Peel,	1 ounce.
Caraway Seed,	1/2 ounce.
Sugar,	2 ¹ / ₂ pounds av.
Alcohol,	2 ¹ / ₂ pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a coarse powder and macerate 24 hours with the Alcohol mixed with an equal measure of Water, then percolate, adding Water after the liquid has disappeared from the surface of the drugs, and continue the percolation with Water until 6¹/₂ pints of the liquid are obtained; filter, dissolve the Sugar in the filtrate and add enough Water to make a gallon of the finished cordial.

The dose is a teaspoonful to a tablespoonful four times a day.

4037.

Favorite Female Remedy.

Witch Hazel Bark,	8 ounces av.
Unicorn Root,	8 ounces av.
Senna Leaves,	6 ounces av.
Catnep Herb,	4 ounces av.
Life Root Plant (Senecio Aureus),	4 ounces av.
Vervain Herb,	4 ounces av.
Black Haw Bark,	4 ounces av.
Cinnamon Bark,	1/2 ounce av.
Nutmeg,	1/2 ounce av.
Sugar,	8 ounces av.
Spirits of Nitre,	4 fl. ounces.
Alcohol,	3 pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a coarse powder, mix the Alcohol with 3 pints of Water, moisten the drug with 2 pints of the mixture and pack firmly in the water-bath percolator, pour the remainder of the mixture upon the drugs and set in a warm place for two days, then heat moderately and, after one hour, begin to percolate, adding Water to the drugs and continuing the heat and percolation until 7 pints are obtained ; to this add the Spirits of Nitre, dissolve the Sugar in the mixture, add enough Water to make a gallon, allow to stand a few days and filter.

The dose is a teaspoonful to a tablespoonful four times a day.

4038.

Female Pills.

Under this title a great many pills are found in the market, most of them being indirectly advertised to "cure irregularity," and sold at an exorbitant price.

A variety of formulas for Female Pills will be found among the Pills, or the following may be used:

Ergotin,	100 grains.
Extract Hellebore,	50 grains.
Myrrh,	50 grains.

Sulphate of Iron,	50 grains.
Aloin,	20 grains.

Make into 100 pills. The dose is 1 to 3 pills two or three times a day.

HAIR DYES, RESTORATIVES, AND TONICS.

Preparations for the hair, to dye or change its color and promote its growth, are extensively sold as proprietary remedies. The following formulae are the best of the kinds used for their purposes:

HAIR DYES.

4039. "Lightning Dye," Black, for the Hair and Whiskers.

This is similar to the dye used by barbers. It is composed of a mordant and a dye, as follows :

NO. 1. MORDANT.

Pyrogallic Acid,	3 drachms.
Alcohol,	5 fl. ounces.
Water,	11 fl. ounces.

Mix and dissolve.

NO. 2. BLACK DYE.

Nitrate of Silver (Crystals),	2 ounces av.
Aqua Ammonia, q. s., or about	4 fl. ounces.
Distilled Water, q. s., or about	12 fl. ounces.

Dissolve the Nitrate of Silver in 8 fl. ounces of the distilled Water and add 3 fl. ounces of Aqua Ammonia. This will produce a dark brown precipitate. Continue to add Aqua Ammonia in small quantities until the precipitate is entirely redissolved, then add enough distilled Water to make a pint.

In making this preparation for a black dye no more Aqua Ammonia must be used than is necessary to dissolve the precipitate, for a larger

quantity than is necessary lightens the color.

4040. Lightning Dye — Brown.

Nitrate of Silver,	1 ounce av.
Aqua Ammonia, q. s., or about	2 fl. ounces.
Carbonate of Sodium (Sal Soda),	3 drachms.
Water, q. s., or about	10 fl. ounces.

Dissolve the Nitrate of Silver in 8 ounces of Water and add Aqua Ammonia until the precipitate which is formed is dissolved; dissolve the Sal Soda in the solution and add enough Water to make 12 fl. ounces, and, after standing a few days, decant. Use the same mordant for this dye as for the black. To apply these dyes the hair or whiskers are first washed with soda water or soap suds to remove any grease or oil, the mordant is then applied and allowed to dry; the dye is then put on carefully with a tooth-brush or other convenient utensil and dried by fanning; the hair, when dry, is then washed with soapsuds, to remove any superfluous dye, and dried.

Stains on the skin may be removed by rubbing them with the following solution :

Sulphate of Potassium,	1 ounce.
Water,	1 pint.

Dissolve.

4041. Hair Dye—Black. (One Preparation.)

Nitrate of Silver,	2 ounces
Nitrate of Copper,	30 grains.
Water of Ammonia, about	4 fl. ounces.
Distilled Water, enough to make a pint.	

Dissolve the Nitrate of Silver and Copper in 8 ounces of distilled Water and gradually add the Water of Ammonia until the precipitate first formed is redissolved, then add sufficient distilled Water to make a pint.

This dye may be used without a mordant.

4042. Blondine, or Golden Hair Coloring.

What is sold on the market for the purpose of bleaching the hair or producing a blonde color is simply Peroxide of Hydrogen Solution. It cannot readily be prepared except in a chemical laboratory. The hair is first washed in a weak solution of soda to remove any grease or oil, and then dried by ironing it with a warm flat-iron. The solution is then applied and dried in the same manner, several applications often being necessary to produce the desired color.

HAIR RESTORATIVES.

These preparations, which are designed for changing gray hair to its former natural color, have had a very extensive sale in past years, and still sell considerably. They are generally made to serve as invigorator and dressing for the hair as well as to restore the color. They all act by the absorption of lead and sulphur, and their conversion into sulphide of lead in the hair when exposed to light. It is necessary that these preparations be protected from the light. The following formulae make preparations similar to those most popular in the market:

4043. Hair Renewer or Balsam.

Acetate of Lead,	1 ¹ / ₂ ounces av.
Lac Sulphur (Precipitated Sulphur),	2 ounces av.
Tincture of Cantharides,	1 fl. ounce.
Glycerin,	1 pint.
Alcohol,	1/2 pint.
Oil of Citronella,	2 fl. drachms.
Oil of Bergamot,	1 fl. drachm.
Water, sufficient to make a gallon.	

Dissolve the Oils in the Alcohol, add the Glycerin and Tincture of Cantharides and mix with the Water, then add the Sulphur and Acetate of Lead.

4044. Hair Vigor or Vitalizer.

Precipitated (Lac) Sulphur,	2 ounces av.
Nitrate of Lead,	1 ¹ / ₂ ounces av.
Tincture of Cantharides,	2 fl. ounces.
Glycerin,	1 pint.
Alcohol,	1 ¹ / ₂ pint.
Oil of Lavender,	1 ¹ / ₂ fl. ounce.
Essential Oil of Almonds,	30 minims.
Water, enough to make a gallon.	

Mix the Sulphur and the Lead and add to half a gallon of the Water, dissolve the Oils in the Alcohol, add the Tincture of Cantharides and Glycerin and add to the mixture; then add enough Water to make a gallon. The Nitrate of Lead is to be preferred to the Acetate on account of the disagreeable odor of the Acetate. If the odor of rose is preferred to Lavender, 3 pints of Rose Water may be used, the Oil of Lavender being omitted.

4045. Hair Renovator.

Acetate or Nitrate of Lead,	1 ¹ / ₂ ounce av.
Hyposulphite of Sodium,	5 ounces av.
Glycerin,	1 pint.
Alcohol,	1 ¹ / ₂ pint.
Oil of Lemon,	2 fl. drachms.
Essential Oil or Almonds,	1 ¹ / ₂ fl. drachm.
Oil of Cloves,	1 ¹ / ₂ fl. drachm.
Rose Water,	2 pints.
Water, sufficient to make a gallon.	

Dissolve the Lead and Hyposulphite of Sodium, each separately, in 2 pints of hot Water and mix the solutions; dissolve the Oils in the Alcohol, add 2 pints of Water and rub with half ounce Carbonate of Magnesium in a mortar, filter and add the filtrate to the other mixture, then add the Glycerin and enough Water to make a gallon.

This makes a preparation without sediment, which is much cleaner to use than those containing the Precipitated Sulphur. It must be kept from the light.

4046. Hair Restorer. (Two Preparations.)

The following is similar to several preparations that have been put upon the market, containing two bottles. It has no particular advantage over No. 4044, except that the bottles may be exposed to light without causing precipitation.

NO. 1 SOLUTION.

Hyposulphite of Sodium,	2 ounces av.
Rose Water,	1 pint.
Water,	1 pint.
Alcohol,	1/2 pint.

Mix and dissolve.

NO. 2 SOLUTION.

Nitrate of Lead,	1 ounce av.
Glycerin,	4 fl. ounces.
Distilled Water,	3 pints.

Mix and dissolve.

Apply No. 1 solution to the hair and allow to dry, then apply No. 2 solution, rubbing it in thoroughly with a hair brush.

4047. Mrs. Allen's Hair Restorer.

From analyses of this preparation, conducted separately by Wittstein and Musset, it is shown to contain Sulphur, Sugar of Lead, and Glycerin, with aromatic water. The following formula very nearly corresponds with the analysis :

Lac Sulphur,	135 grains.
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Acetate of Lead,	190 grains.
Glycerin,	3 ¹ / ₂ fl. ounces.
Water,	11 fl. ounces.
Cologne or bulk perfume,	1 ounce.

Mix. This is one of the oldest and best known Hair Restorers.

HAIR TONICS.

4048. Katharion Tonic.

Castor Oil,	4 fl. ounces.
Tincture Cantharides (1880),	4 fl. drachms.
Tannic Acid,	30 grains.
Oil Citronella,	30 minims.
Oil Bergamot,	30 minims.
Oil Cloves,	40 minims.
Oil Lavender Flowers,	60 minims;
Oil Rosemary,	60 minims.
Alcohol,	12 fl. ounces.

Mix.

4049. Hair Tonic.

Tincture of Cantharides,	4 fl. drachms.
Water of Ammonia,	1 fl. ounce.
Cologne,	2 fl. ounces.
Glycerin,	4 fl. ounces.
Borax,	2 drachms.
Bay Rum,	4 fl. ounces.
Water,	4 fl. ounces.

Mix. This is an excellent tonic, shampoo, or dressing.

4050. Hair Lotion or Wash.

To prevent the Hair from falling out and promote its growth.

Tincture Cantharides,	2 fl. drachms.
Water of Ammonia,	1 fl. drachm.
Glycerin,	1 fl. ounce.
Bay Rum,	5 fl. ounces.
Rose Water,	10 fl. ounces.

Mix them. This is applied as a lotion for baldness, etc., also as a dressing.

4051. Carboline Hair Grower.

Neutral Paraffin Oil,	1 pint.
Cantharides Tincture,	4 fl. drachms
Euphorbium,	20 grains.
Oil of Rosemary,	4 fl. drachms.
Oil of Cassia,	20 drops.
On of Cloves,	5 drops.

Heat the Euphorbium and Tincture of Cantharides for 2 hours with the Paraffin Oil, then strain and add the other Oils. This is used for promoting the growth of the hair, baldness, etc. It should be rubbed thoroughly on the scalp.

HEART PREPARATIONS.

The sale for proprietary heart medicines has never been large, for the reason that people who have any trouble with this organ, if possible, seek the advice of physicians. A very few preparations for heart troubles are found on the market, all similar in composition.

4052. Heart Corrector or Regulator.

Digitalis, in coarse powder,	1 ounce.
Hyoscyamus, in coarse powder,	1 ounce.
American Hellebore (veratrum-viride)	2 drachms.

Diluted Alcohol, sufficient to make 1 pint.

Percolate the drugs with the Diluted Alcohol until a pint of Tincture is obtained. The dose is from $\frac{1}{4}$ to 1 teaspoonful for palpitation or other disturbances of the heart.

INHALANTS AND INHALERS.

Inhalants are designed to be used, by being vaporized in Inhalers specially designed for that purpose, and are employed for the relief or cure of asthma, catarrh, colds, bronchitis, hay-fever, and other diseases affecting the air passages. A great variety of Inhalers are made, the most convenient and practical being those which admit of the passage of air through tubes of paper, wood, or other absorbing substance or loose fibrous material which is saturated with the Inhalant. The air then being drawn through these saturated tubes or substances carries the vapor of the Inhalant to the diseased part, where it exerts its curative action. Other forms of Inhalers are those by which a current of air is made to pass through a solution of some volatile medicinal substance contained in a bottle.

The following Inhalants may be put up as proprietary.

4054. Excelsior Inhalant.

Carbolic Acid (Crystals),	1 $\frac{1}{4}$ ounce av.
Camphor,	2 ounces av,
Oil of Eucalyptus,	$\frac{1}{4}$ fl. ounce.
Oil of Sassafras,	1 fl. drachm.
Oil of Tar,	1 fl. drachm.
Oil of Hemlock,	1 fl. drachm.

Mix and dissolve.

This is an excellent Inhalant and may be put up by any other name than the one in the title. It is used for catarrh, etc.

4055.

Menthol Inhalant.

Menthol Inhalers are made by enclosing crystallized Menthol or pip-menthol loosely packed in a glass tube which may be opened at both ends. The air being inhaled through the tube is charged with the menthol vapor. They are used chiefly for headache. A solution of Menthol may also be prepared by dissolving 1 ounce of Menthol in 8 ounces of Alcohol. This may be used with any of the ordinary forms of tubular inhalers.

INJECTIONS.

Injections which are sold as proprietary remedies are mostly for private diseases, but in regular pharmacy Hypodermic Injections of Apomorphine, Ergotin and Morphine are official in the Br. P., and many others are prescribed or employed by physicians in their practice. In this department the proprietary injections only will be noticed.

4057.

Rose Injection or Rose Wash.

Sulphate of Zinc,	1 drachm.
Tincture of Catechu,	4 fl. drachms.
Tincture of Opium,	4 fl. drachms.
Glycerin,	1 fl. ounce.
Rose Water,	14 fl. ounces.

Mix them.

4058.

Compound Hydrastis Injection.

Fluid Hydrastis, or Aqueous Fl. Extract	
Hydrastis,	1 fl. ounce.
Sulphate of Zinc,	1 drachm.
Glycerin,	1 fl. ounce.
Tincture of Catechu,	4 fl. drachms.
Rose Water,	14 fl. ounces.

Mix them.

IODIDE ALTERATIVES.

The following preparations have been popular as proprietary medicines with published formulas of composition, and sold mainly by prescription of physicians.

4059. Iodide of Potassium Elixir Compound.

"Iodia" — Alterative Elixir.

Under the name "Iodia," Battle & Co., Chemists, Corporation of St. Louis, have made and sold an alterative preparation, claiming it to contain certain alterative preparations combined with Iodide of Potassium and Phosphate of Iron. A good preparation, of this kind, containing similar ingredients as is claimed for this, may be made as follows :

Stillingia, in coarse powder,	2 ounces av.
Prickly-Ash Bark,	1/4 ounce.
Saxafraga,	1 ounce.
Yellow Parilla,	1 ounce.
Blue Flag,	1/4 ounce.
Iodide of Potassium,	256 grains.
Phosphate of Iron (Scale salt 1880),	128 grains.
Diluted Alcohol,	16 fl. ounces.
Water, sufficient to make	1 pint.

Mix the powdered drugs and percolate with the diluted Alcohol first, and then with Water until 15 fl. ounces are obtained. Dissolve the Iodide of Potassium in the tincture and the Iron Salt in 1 ounce of hot Water, and gradually add the tincture to the Iron solution and after standing filter.

By using tasteless " Tincture of Iron " a better preparation may be made.

4060. Elixir Iodides and Bromides of Calcium Compound.

"Elixir Iodo-Bromide of Calcium Compound."

Under the title "Elixir Iodo-Bromide of Calcium Compound," Tilden & Co. of New Lebanon, have had an extensive sale for an alterative compound, claiming to contain many valuable Alterative Salts and medicines. The following formula is suggested by C. S. Hallberg of Chicago, in a paper read before the Illinois Pharmaceutical Association at Bloomington, 111., October 1, 1884 :

Calcium Bromide,	256 grains.
Sodium Iodide,	256 grains.
Potassium Iodide,	256 grains.
Magnesium Chloride,	256 grains.
Fluid Extract Sarsaparilla Compound,	2 ounces.
Fluid Extract Stillingia Compound,	2 ounces.
Elixir Orange,	4 ounces.
Sugar,	4 ounces.

Water sufficient to make a pint.

Dissolve the Salts in the Water, add the Sugar, and to this syrup add the fluid extracts previously mixed with the Elixir Orange.

After standing two days filter, adding Water to make the measure 16 fl. ounces.

KIDNEY AND LIVER REMEDIES.

Many of the remedies which are designed to act on the Kidneys and Liver are noticed under other headings, and only those which are known in the market by the name of Kidney and Liver Remedies or Cures, or by other similar titles are included in this section.

There has always been a good demand for proprietary remedies for diseases of the kidneys, bladder and urinary organs. In the earlier days, Vaughn's Lithontriptic and Constitution Water were popular. More recently, Helmbold's and other Buchus had a big run; still more lately Diuretic Elixirs of various kinds have had their day, and now a large

family of Liver and Kidney Remedies have swept everything else out of the way, and are having the market all to themselves. So extensively have some of these late remedies been advertised and pushed, that it is now difficult to find a man, woman, or child who has not some serious kidney difficulty.

In making the formulae for those preparations we would have preferred to confine their use to the kidneys, bladder, and urinary organs, but we must follow the fashion and include the liver also.

The formulae which follow make preparations similar to those most popular in the market, and are representative of different kinds of kidney and liver remedies.

4061. Diuretic Cordial, Kidney and Liver Remedy.

Liverwort, herb (Hepatica),	16 ounces av,
Dandelion Root,	8 ounces av.
Digitalis, leaves,	1 ounce av.
Hydrangea Root,	4 ounces av.
Wintergreen, herb,	2 ounces av.
Nitrate of Potassium,	3 ounces av.
Sugar,	12 ounces av.
Alcohol,	1 ¹ / ₂ pints.
Menthol,	5 grains.
Water, sufficient to make a gallon.	

Grind the herbs, etc., to a coarse powder and, having mixed the Alcohol with 4 pints of Water, moisten the powder with 2 pints of the mixture and macerate in a covered vessel for 24 hours; transfer to the water-bath percolator, pack moderately, pour upon it the remainder of the liquid and set in a warm place for one day; then heat very moderately and, after one hour, begin to percolate, adding Water through the percolator after the liquid has disappeared from the surface, and continuing the heat and percolation until 7¹/₂ pints have passed; in this dissolve the Nitrate of Potassium and Sugar, and, after standing a few days, filter.

This may be made by the ordinary method of percolation instead of by

water-bath, but the latter is preferable.

If it is desired to use fluid extracts instead of the drugs, the formula is as follows :

Fluid Extract of Liverwort	16 fl. ounces,
Fluid Extract of Dandelion	8 fl. ounces,
Fluid Extract of Hydrangea	4 fl. ounces,
Fluid Extract of Digitalis	1 fl. ounce,
Essence of Winter-green	1 fl. drachm,
Nitrate of Potassium	3 ounces av.,
Sugar	12 ounces av.,
Alcohol	10 fl. ounces,
Menthol	5 grains,
Water	5 pints.

Mix the Fluid. Extracts, Alcohol, and Water, add the Essence of Wintergreen and Menthol, dissolve the Sugar and Nitre in the liquid, and filter.

This is very similar to, but considerably stronger than, the "Safe" cure. The usual dose is from a dessertspoonful to a tablespoonful, the latter containing about 5 grains of Nitrate of Potassium.

4062. Kidney and Liver Remedy.

Dandelion Root,	12 ounces av.
Buchu Leaves, short,	8 ounces av.
Liverwort, herb,	8 ounces av.
Hydrangea Root,	4 ounces av.
Spirit of Nitrous Ether,	8 fl. ounces.
Sugar,	12 ounces av.
Alcohol,	2 pints.
Water, sufficient to make a gallon.	

Grind the drugs to a coarse powder and, having mixed the Alcohol with 4 pints of Water, moisten the powder with 2 pints of the mixture and macerate in a covered vessel for 24 hours; transfer to the water-bath percolator, pack moderately, pour upon it the remainder of the liquid and set in a warm place for one day, then heat very moderately and,

after one hour, begin to percolate, adding Water to the drugs after the liquid has disappeared, and continuing the heat and percolation until 7 pints have passed; to this add the Spirit of Nitre and the Sugar, and enough Water to make a gallon, and, after standing a few days, strain.

This may be made by the ordinary method of percolation instead of by water-bath. The dose is a dessertspoonful to a tablespoonful.

It may be made from fluid extracts by taking

Fluid Extract of Dandelion	12 fl. ounces,
Fluid Extract of Buchu	8 fl. ounces,
Fluid Extract of Liverwort	8 fl. ounces,
Fluid Extract of Hydrangea	4 fl. ounces,
Spirit of Nitre, sweet,	8 fl. ounces,
Sugar	12 ounces av.,
Alcohol	1 pint,
Water	4 ¹ / ₄ pints.

Mix, dissolve the Sugar, and filter.

4063. Buchu Compound.

Buchu Leaves, short,	12 ounces av.
Juniper Berries,	8 ounces av.
Liverwort, herb,	4 ounces av.
Hydrangea Root,	4 ounces av.
Acetate of Potassium,	4 ounces av.
Spirit of Nitrous Ether,	4 fl. ounces.
Sugar,	12 ounces av.
Alcohol,	2 ¹ / ₂ , pints.

Water, sufficient to make a gallon.

Grind the drugs to a coarse powder and, having mixed the Alcohol with 4 pints of Water, moisten them with 2 pints of the mixture and macerate in a covered vessel for 24 hours; transfer to the water-bath percolator, pack moderately, pour upon them the remainder of the liquid and set in a warm place for one day, then heat very moderately and, after one hour, begin to percolate, adding Water to the drugs after the liquid has disappeared from the surface, and continuing the heat and percolation

until 7¹/₄ pints have passed ; in this dissolve the Sugar and Acetate of Potassium and, after standing a few days, filter.

This is somewhat similar to the Diuretic Elixir, Buchu, Juniper, and Acetate of Potassium, which has been quite popular.

4064. Nephritic Compound.

Buchu Leaves, short,	12 ounces av.
Hydrangea Root,	12 ounces av.
Digitalis Leaves,	3 ounces av.
Juniper Berries,	8 ounces av.
Nitrate of Potassium,	3 ounces av.
Essence of Wintergreen,	1 fl. ounce.
Alcohol,	3 pints.
Water, sufficient to make a gallon.	

Grind the drugs to a coarse powder, moisten them with sufficient Alcohol and Water mixed in equal quantities by measure, and macerate for 24 hours, then transfer to a water-bath percolator, pack firmly, cover with a mixture of equal measures of Alcohol and Water, heat moderately and percolate with the same until the quantity of Alcohol which is directed has been used; then add Water to the drugs, and continue the percolation, until one gallon of the percolate is obtained. Dissolve the Nitrate of Potassium in this and filter.

The dose is a dessertspoonful to a tablespoonful as a remedy for kidney troubles.

4065. Kidney and Liverwort Tea.

Liverwort, herb, cut,	8 ounces.
Dandelion Root, cut,	4 ounces.
Digitalis Leaves, cut,	1/2 ounce.
Hydrangea Root, cut,	2 ounces.
Wintergreen, herb, cut,	1 ounce.
Peppermint, herb, cut,	1 ounce.
Nitrate of Potassium, powder,	3 ounces.

Mix thoroughly, and put up in packages, holding about 2 ounces. Directions for use : Steep the contents of the package in a quart of water, with gentle heat, for two hours, then strain off 1½ pints, and add to it half a pint of alcohol and 2 ounces of sugar. Adult dose of this preparation a wine-glass full (1 fl. ounce), four times a day.

Kidneywort.—A proprietary medicine by this title is put up by Wells, Richardson & Co. of Burlington, Vt., both in a liquid and dry form. The dry Kidneywort is a mixture of drugs, as dandelion, hydrangea, etc., and extracts of other drugs, with roasted beans coarsely ground. The liquid contains the strength of similar medicinal ingredients.

LINIMENTS.

Proprietary preparations that are sold as Liniments may naturally be divided into two classes: A, those intended for internal and external use, and B, those intended for external use only. The former are used the same as the Balms and Pain Killers as general panaceas, and consist mostly of oils of volatile substances dissolved in Alcohol or similar solvents; the latter are usually mixtures of volatile oil and substances with some fixed or mineral oil, and are used externally for pain, swellings, sores, etc.

The following formulae are representatives of popular liniments. Others will be found under other headings throughout this work.

CLASS A. — For External and Internal Use.

4066.

Arnica Liniment.

Arnica Flowers,	16 ounces av.
Smartweed Herb,	18 ounces av.
Marigold Flowers,	4 ounces av.
Oil of Sassafras,	3 fl. ounces.
Oil of Hemlock,	1 fl. ounce.
Oil of Origanum,	½ fl. ounce.
Camphor,	1 ounce av.
Alcohol,	7 pints.
Water, a sufficient quantity to make a gallon.	

Reduce the drugs to a coarse powder and pack firmly in the water-bath percolator. Pour upon them 4 pints of alcohol, and macerate in a warm place for 24 hours, then heat very moderately for one hour, and begin to percolate slowly, adding first the remaining three pints of alcohol, and when it has disappeared from the surface continue the percolation with water until 7¹/₂ pints have passed. To this percolate add the oils and the camphor and dissolve; filter if necessary. This is for external or internal use.

4067. Cocaine Liniment.

Hydrochlorate of Cocaine,	30 grains.
Oil of Hemlock,	1 fl. ounce.
Oil of Sassafras,	1 ounce.
Alcohol,	14 fl. ounces.

Mix and dissolve. The dose is 20 to 30 minims. It is also used externally for pains, etc.

4068. Eclectic Liniment.

Oil of Origanum,	2 fl. ounces.
Oil of Hemlock,	4 fl. ounces.
Oil of Turpentine,	4 fl. ounces.
Oil of Sassafras,	2 fl. ounces.
Oil of Amber,	1/2 fl. ounce.
Camphor,	2 ounces av.
Capsicum in fine powder,	1 ounce av.
Myrrh in fine powder,	1 ounce av.
Water of Ammonia,	4 fl. ounces.
Alcohol, sufficient to make a gallon.	

Mix and macerate for 7 days, then filter.

For external or internal use.

4069.

Indian Liniment.

Oil of Sassafras,	1 ounce.
Oil of Origanum,	1 ounce.
Oil of Pennyroyal,	1 ounce.
Oil of Hemlock,	1 ounce.
Tincture of Capsicum,	2 ounces.
Alcohol,	26 ounces.

Mix them. This is a popular general panacea for pain, colic, etc. Dose 20 to 30 minims or more.

4070.

Menthol Liniment.

Menthol,	1 ounce.
Tincture of Capsicum,	4 ounces.
Sulphate of Morphine,	30 grains.
Alcohol,	27 ounces.

Mix and dissolve. This is used externally for pain, rheumatism, headache, etc., and may be taken in doses of 20 to 30 minims.

4071.

"Ready Relief."

Druggists have no right to use the title "Ready Relief" on their labels and wrappers, as it is claimed as proprietary by Radway & Co. This formula, however, makes a similar preparation.

Camphor,	3 ounces av.
Capsicum,	8 ounces av.
Oil of Turpentine,	2 fl. ounces.
Stronger Waters of Ammonia,	8 fl. ounces.
Alcohol,	1 gallon.

Mix and macerate for a week, shaking daily, then filter.

4072. Thymol-Chloral Liniment.

Thymol,	1 ounce.
Chloral Hydrate,	1 ounce.
Tincture of Capsicum,	4 ounces.
Alcohol,	26 ounces.

Mix, dissolve and filter. For rheumatism, pain, etc. Dose 20 to 30 minims when taken.

4073. Smartweed Compound or Extract.

Smartweed, leaves or herb,	20 ounces.
Alcohol,	6 pints.
Water,	2 pints.
Camphor,	6 drachms.
Oil Hemlock,	1 ounce
Oil Sassafras,	1 ounce

Grind the Smartweed to a coarse powder, and moisten it with 1 pint of the Alcohol; pack tightly in a percolator, and pour upon it the remaining Alcohol; cover closely and allow to stand four days; begin the percolation, and when no more Alcohol remains on top of drug, add the water. When the liquid has ceased to drop, press out what remains in the drug in the percolator, and add to the last portion.

In the 4 pints first obtained by percolation (before the Water is added to the drug in the percolator), dissolve the Camphor and Oils, and when the last portion of the percolate and that from the pressure is obtained, add it gradually to the portion in which the Oils, etc., have been dissolved, and filter, adding Alcohol enough to make i gallon. For external and internal use.

4074. Wizard Liniment.

Oil of Sassafras,	8 fl. ounces.
Oil of Cloves,	2 fl. ounces.
Oil of Turpentine,	4 fl. ounces.
Stronger Water of Ammonia,	1 fl. ounce.

Ether (Sulphuric),	4 fl. ounces.
Chloroform,	1 fl. ounce.
Camphor,	2 ounces av.
Alcohol sufficient to make a gallon.	

Mix and dissolve. For internal or external use.

Under the title Wizard Oil, Wizard Liniment, Wizard Balm, Golden Relief, Golden Oil, and by many other similar names, a class of preparations for internal and external use are largely sold. In the preceding pages many good formulas for such preparations will be found under various titles. They are mostly compounds of aromatic oils with camphor and chloroform or ether, and act as prompt and diffusive remedies to relieve cramp, pain, colic. The profit on these preparations is large, and as they may readily be prepared there is no reason why druggists should not as well secure it to themselves as to pay it to others.

4075- Eclectic Oil.

The following formula has been published as similar to Thomas'.

Camphor,	1/2 ounce.
Oil Gaultheria,	1/2 ounce.
Oil Origanum,	1/2 ounce.
Chloroform,	1 ounce.
Laudanum,	1 ounce.
Oil Sassafras,	1 ounce.
Oil Hemlock,	1 ounce.
Oil Turpentine,	1 ounce.
Balsam Fir,	1 ounce.
Tincture Guaiacum,	1 ounce.
Tincture Catechu,	1 ounce.
Alcohol,	4 pints.

Alkanet, sufficient to color.

Several other formulas are given in this work which make preparations similar to this.

CLASS B.—For External Use only.

4076. Fluid Lightning.

Aconitia,	1 grain.
Essential Oil of Mustard,	1 drachm.
Glycerin,	1 ounce.
Alcohol,	4 ounces.

Mix.

This is a valuable external preparation for headache, neuralgia, rheumatism, and all nervous pains.

4077. "Gargling Oil" Liniment.

Camphor,	8 ounces av.
Oil of Amber,	2 fl. ounces.
Origanum Oil,	1 fl. ounce.
Carbolic Acid,	4 ounces av.
Oil of Turpentine,	3 pints.
Crude Petroleum Oil,	4 pints.
Stronger Water of Ammonia,.	2 fl. ounces.

Mix and dissolve.

This is somewhat like but we think a much better preparation than Gargling Oil.

4078. Iodide of Ammonium Liniment.

Iodine,	1 drachm.
Camphor,	1/2 ounce.
Oil Rosemary,	2 drachms.
Oil Lavender,	2 drachms.
Water of Ammonia, q. s., or	1 ounce.
Alcohol,	1 pint.

Dissolve the Iodine in the Alcohol and add the Camphor and the Oils, then add Water of Ammonia enough to remove the dark color of the

mixture, or change it to a light straw color.

4079. Mexican Liniment.

Olive Oil,	2 pints.
Camphor,	2 ounces.
Oil Origanum,	1 ounce.
Oil Sassafras,	1 ounce.
Water of Ammonia,	8 ounces.

Dissolve the Camphor in the Oils and mix well with the Water of Ammonia.

4080. Nerve and Bone Liniment.

Oil of Origanum,	1 fl. ounce.
Oil of Rosemary,	1 fl. ounce.
Oil of Amber,	1 fl. ounce.
Oil of Hemlock,	1 fl. ounce.
Camphor,	4 ounces av.
Oil of Turpentine,	3 pints.
Linseed Oil,	5 pints.

Mix and dissolve.

4081. Ready Oil Liniment.

Oil Origanum,	1 fl. ounce.
Oil Sassafras,	1 fl. ounce.
Oil Hemlock,	1 fl. ounce.
Oil Peppermint,	2 fl. drachms.
Chloroform,	4 fl. drachms.
Camphor,	1 ounce av.
Neutral Paraffin Oil,	12 fl. ounces.

Mix the Oils and dissolve the Camphor in the mixture. Cotton-Seed Oil or Linseed Oil may be used instead of the Paraffin Oil. This is a good general Oil Liniment.

4082. Rheumatic Liniment.

Oil of Sassafras,	6 fl. ounces.
Oil of Origanum,	4 fl. ounces.
Oil of Cedar,	2 fl. ounces.
Oil of Amber,	1 fl. ounce.
Camphor,	8 ounces av.
Oil of Turpentine sufficient to make a gallon.	

Mix and dissolve.

This is said to be quite similar to the popular preparation known as "St. Jacob's Oil."

4083. "Spavin Cure."

This comes properly under the head of Liniments, but it is chiefly used in veterinary practice. It is, however, an excellent absorbent liniment for man or beast. An excellent application for swellings or lameness of any kind, but it must not be used internally.

Camphor,	4 ounces av.
Oil of Turpentine,	4 fl. ounces.
Tincture of Iodine,	4 fl. ounces.
Bichloride of Mercury,	30 grains.
Oil of Spike,	2 fl. ounces.
Oil of Amber,	2 fl. drachms.

Mix and dissolve.

4084. Veterinary Liniment.

Oil of Amber,	2 fl. ounces.
Camphor,	4 ounces av.
Carbolic Acid,	3 ounces av.
Oil of Tar,	2 fl. ounces.
Oil of Sassafras,	4 fl. ounces.
Oil of Turpentine,	2 pints.

Crude Petroleum,

5 pints.

Mix and dissolve.

NERVINES, HYPNOTICS AND SEDATIVES.

Nervines and Sedatives, as a class, do not have a large sale as proprietary medicines, which is rather strange considering the prevalence of nervous diseases. It is to be inferred that persons thus afflicted either apply to their physician, or purchase some nervine of their druggist with which they have become familiar.

It would seem from these conditions that there is a good opening for a proprietary nervine, which druggists may themselves prepare and put before their patrons.

Many formulas for such preparations are given throughout this work, but the following are calculated, particularly, to put up as proprietary :

4085.

Nervine Tonic.

Scullcap, in coarse powder,	8 ounces av.
Hops, in coarse powder,	8 ounces av.
Hyoscyamus, in coarse powder,	8 ounces av.
Valerian, in coarse powder,	8 ounces av.
Bromide of Ammonium,	4 ounces av.
Ether (Sulphuric),	4 fl. ounces.
Alcohol,	3 pints.
Sugar,	2 pounds av.
Water, sufficient to make	1 gallon.

Mix the powders, and having mixed the Alcohol with 3 pints of Water, pour upon them 2 pints of the liquid and macerate for 24 hours, in a warm place; then transfer to the water-bath percolator, pack firmly, pour upon it the remaining Alcohol and Water, and set in a warm place for one day; then heat very moderately, and after one hour begin to percolate, adding Water to the drugs when the liquid has disappeared from the surface, and continuing the heat and percolation until 7 pints have passed; to this add the Ether and dissolve in the liquid, by

agitation, the Bromide of Ammonium and Sugar. This is an excellent tonic nervine for general nervous depression and irritation, nervous headache, neuralgia, sleeplessness, epilepsy, etc.

The dose is from a teaspoonful to a tablespoonful, as required.

4086. Nervine Elixir.

Bromide of Ammonium,	1 1/4 ounce av.
Valerianate of Ammonium,	1/4 ounce av.
Fluid Extract of Valerian,	1 fl. ounce.
Fluid Extract of Hyoscyamus,	1 fl. ounce.
Fluid Extract of Coca,	1 fl. ounce.
Syrup,	2 fl. ounces.
Elixir Simple, enough to make	1 pint.

Mix the liquids and dissolve the salts in the mixture; after standing 24 hours filter. This is an excellent nervine and Anodyne Elixir, for nervousness, pain, neuralgia, hysteria, and all "nervous" troubles.

Dose, from a teaspoonful to a tablespoonful, as required.

4087. Sedative Nervine Elixir.

Bromide of Potassium,	640 grains.
Sulphate of Morphine,	8 grains.
Valerianate of Ammonium,	256 grains.
Fluid Extract Valerian,	1 fl. ounce.
Fluid Extract Hops,	1/2 fl. ounce.
Water of Ammonia,	1 fl. drachm.
Syrup,	2 fl. ounces.
Elixir, simple, enough to make	1 pint.

Dissolve the salts in the Elixir and Syrup, add the Fluid Extracts and the Water of Ammonia, let stand a day or two and filter.

Dose, a teaspoonful to a dessertspoonful.

4088.

Celery Compound.

Several preparations of Celery compounded with other Nervines have had a good sale as proprietary medicines, under various titles, as "Celerina," Celery Cordial, Celery Compound, etc.

The following formula will make a satisfactory preparation :

Celery Seed,	1 ounce av.
Coca Leaves,	1 ounce av.
Black Haw Bark,	1 ounce av.
Hyoscyamus Leaves,	1/2 ounce av.
Orange Peel,	2 drachms.
Sugar,	4 ounces.
Alcohol,	6 ounces.
Water, q. s., to make	1 pint.

Grind the drugs to a coarse powder, mix the Alcohol with 6 ounces of Water, pour upon the drugs enough of the diluted Alcohol to cover, and macerate for 24 hours; then heat moderately and percolate, adding Water through the percolator until 14 fl. ounces are obtained; in this dissolve the sugar and filter, The dose is a teaspoonful to a dessertspoonful or more as a nerve tonic.

OINTMENTS AND SALVES.

The sales of proprietary salves and ointments are perhaps as frequent as of almost any class of proprietary medicines; and, although but few sell for more than twenty-five cents, the aggregate of sales is large. A great variety of these remedies are on the market; but, with the exception of a very few, the public are not particular as to the preparation they have, provided, only, it is good for the purpose. Druggists can, therefore, put up their own ointments and salves from reliable formulae, and if the preparation is good, and the packages attractive, can secure most of the sales of such articles for their own preparations.

Many formulas are given under other headings. The following are representatives of other popular ointments.

4094. Camphor Ice.

Paraffin,	8 ounces av.
White Petrolatum,	24 ounces av.
Camphor,	6 ounces av.
Oil of Neroli,	5 minims.
Oil of Bitter Almond,	20 minims.
Oil of Cloves,	10 minims.

Melt the Paraffin and Petrolatum together, reduce the Camphor to a coarse powder and dissolve it in the melted mixture, keeping at as low a temperature as it can be without solidifying. When all is dissolved strain while still fluid, add the perfuming oils and run in molds.

4095. Carbolic Salve or Ointment.

Carbolic Acid (crystals),	1 ounce av.
Yellow Wax,	2 ounces av.
Petrolatum,	16 ounces av.

Melt the Wax and the Petrolatum together, and when cooling add the Carbolic Acid, and mix them well together. This is a simple Carbolic Ointment or Salve, useful for all purposes. Other medicinal agents are frequently added, as Canada Balsam, or White Pine Turpentine, say one ounce, to make it more stimulating for old sores, etc. ; but the plain Carbolic Salve, as above prepared, meets the general requirement. This is a very popular preparation, and has only to be put up attractively to sell.

4096. Golden Ointment.

Oil of Origanum,	2 fl. drachms.
Oil of Sassafras,	2 fl. drachms.
Balsam of Fir,	1/2 fl. ounce.
Citrine Ointment,	4 ounces av.
Yellow Wax,	1 ounce av.
Petrolatum,	10 ounces av..

Melt the solid ingredients together, and when cooling add the Oils and Balsam, mixing them well together.

4097- Healing Ointment.

White Pine Turpentine,	1 ounce av.
Oil of Rosemary,	2 fl. drachms.
Oil of Sassafras,	2 fl drachms.
Yellow Wax,	1 ounce av.
Petrolatum,	16 ounces av.

Mix the solid ingredients together, and when cooling add the Oils.

4098. Itch Ointment.

Lac Sulphur,	2 ounces av.
Naphthalin,	60 grains.
Oil Bergamot,	20 minims.
Petrolatum,	6 ounces.

Rub the Lac Sulphur to a fine powder and sift it into the melted Petrolatum, stirring them well together, and when nearly cool add the Naphthalin and Oil of Bergamot, stirring them well together until cold. The same may be made without Naphthalin, if desired.

Red Precipitate Ointment is also much employed for the itch and other parasitic skin diseases. This is usually made with

Red Precipitate	1 ounce,
Venice Turpentine	1 ounce,
Yellow Wax	1 ounce,
Petrolatum	9 ounces.

4099. Menthol Ointment.

Menthol,	1 ounce av.
Yellow Wax,	1 ounce av.
Petrolatum,	6 ounces av.

Melt the Wax and Petrolatum, and when cooling add the Menthol and mix thoroughly.

4100. Pile Ointment.

Powdered Nutgalls,	1 ounce av.
Powdered Opium,	1 drachm.
Powdered Myrrh,	2 drachms.
Goulard's Extract,	4 fl. drachms.
Yellow Wax,	2 ounces.
Petrolatum,	16 ounces.

Melt the Wax and Petrolatum, and while cooling add the other ingredients, with constant stirring until cold.

4101. Salt Rheum Ointment.

Oil of Sassafras,	2 fl. drachms.
Oil of Hemlock,	1 fl. drachm.
Oil of Rosemary,	1 fl. drachm.
Pine Tar,	1/2 ounce av.
Salicylic Acid,	2 drachms.
White Pine Turpentine,	1 ounce.
Solution Subacetate of Lead,	1/2 fl. ounce.
Petrolatum,	16 ounces.

Melt the solid ingredients together and while cooling incorporate the Oils, Tar and Solution of Lead, stirring them well together until cold.

4102. Skin Ointment.

This ointment is designed for any kind of skin eruption or " Eczema " as it is popularly termed. For parasitic diseases, however, the Itch or Tetter Ointment will be more efficacious.

Tincture of Benzoin, Compound,	2 fl. drachms.
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Juniper Tar,	1 fl. ounce.
Salicylic Acid,	2 drachms.
Resin,	1 ounce av.
Oil of Rosemary,	2 fl. drachms..
Carbolic Acid,	1 drachm.
Petrolatum,	16 ounces av.

Melt the solid ingredients, and while cooling add the liquids.

4103. Tetter Ointment.

Carbonate of Lead,	1 ounce av.
Alum, in fine powder,	1 ounce av.
Calomel,	1 ounce av.
White Pine Turpentine,	1 ounce av.
Salicylic Acid,	2 drachms.
Petrolatum,	12 ounces av.

Melt the Petrolatum and Turpentine together, and when cooling-add the other ingredients previously mixed, and stir them together constantly until cold.

4104. Thymol Ointment.

Thymol,	1 ounce av.
Yellow Wax,	2 ounces av.
Petrolatum,	16 ounces av.

Melt the Wax and Petrolatum together, and when cooling add the Thymol, stirring them well together.

4105. Veterinary Ointment.

Citrine Ointment,	2 ounces av. Oil
Sassafras,	1/2 fl. ounce.
Resin,	1 ounce av.
Petrolatum, dark,	16 ounces av.

Melt the Petrolatum and Resin together, and while cooling add the Citrine. Ointment and Oil of Sassafras.

PECTORALS.

Pectorals might very properly be classed under Cough Remedies, but as there are a few preparations known more particularly as Pectorals, they are included under this heading.

4106. Cherry Pectoral.

Acetate of Morphine,	6 grains.
Tincture of Sanguinaria,	4 fl. drachms.
Wine of Ipecac,	6 fl. drachms.
Wine of Antimony,	6 fl. drachms.
Fluid Extract of Wild Cherry,	2 fl. ounces.
Oil Bitter Almond,	5 drops.
Hydrocyanic Acid, U. S. P.,	1 fl. drachm.
Alcohol,	2 fl. ounces.
Syrup, sufficient to make	1 pint.

Mix, and after standing a few days filter clear. This preparation is quite similar to Ayer's. The dose is 15 drops to 1 teaspoonful.

4107. Pectoral Drops. Bateman's.

Tincture of Opium, Camphorated,	10 fl. ounces.
Tincture of Castor,	4 fl. ounces.
Tincture of Opium,	1 fl. ounce.
Tincture of Cochineal,	1/2 fl. ounce.
Oil of Anise,	15 drops.

Mix them. This is supposed to be the original formula. The Philadelphia College of Pharmacy give the following formula as a substitute : Camphor, Catechu, powdered Opium and Red Saunders Wood, each 2 ounces av., Oil of Anise 4 fl. drachms, proof Spirit 4 gallons. Digest 10 days and filter.

4108. Pectoral or Cough Pills.

Ipecac, in powder,	100 grains.
Squill, in powder,	50 grains.
Sulphate of Morphine,	3 grains.
Tartar Emetic,	6 grains.
Extract Hyoscyamus,	100 grains.

Make 100 pills. The dose is one or two pills.

4109. Pectoral Tea or Hamburg Tea.

Brust-Thee.

Althaea Root, cut,	4 ounces.
Liquorice Root, cut,	1 ounce.
Mullein Leaves, cut,	4 ounces.
Senna Leaves, cut,	1 ounce.
American Saffron,	1/4 ounce.
Malva Flowers, cut,	3 ounces.
Blue Flowers (Asters or Bachelor Button),	1/4 ounce.
Fennel Seed, bruised,	1/2 ounce.
Anise Seed, bruised,	1/2 ounce.
Granulated Sugar,	1/2 ounce.

Mix them thoroughly. This is usually put up in packages of about 2 ounces, a tablespoonful being steeped in two or three cups of boiling Water, and the infusion drank freely for influenza and colds.

PILLS, PLASTERS AND POWDERS.

So many formulas for pills have been given under other headings that it will be unnecessary to give any more in this department, druggists will be able to select such as they wish from the formulas already given. The manufacture of spread plasters is seldom attempted except by those who have establishments and machinery specially adapted for the

purpose. There is now but little sale for sticking salves and plasters, and sufficient formulas for them will be found under the heading "Emplastra." The formulas for powders will be found under other headings, the Condition Powders being the most important.

RHEUMATIC REMEDIES.

Proprietary remedies for Rheumatism, which are to be taken, are quite salable preparations, and the market is not so overstocked with them as with some other remedies. The following formulae are representative of the various kinds.

4110. Rheumatic Remedy.

Salicylate of Sodium,	4 ounces av.
Iodide of Potassium,	2 ounces av.
Nitrate of Potassium,	3 ounces av.
Fluid Extract of Black Cohosh,	4 fl. ounces.
Fluid Extract of Colchicum,	4 fl. ounces.
Oil of Wintergreen,	3 fl. drachms.
Sugar,	1 pound av.
Water,	5 pints.
Alcohol,	2 pints.

Mix the Oil of Wintergreen and the Fluid Extract with the Alcohol. Dissolve the Salts and the Sugar in the Water, mix the solution and allow to stand over night, then filter clear. This is an excellent remedy, the dose is i to 2 teaspoonfuls.

4111. Favorite Rheumatic Remedy.

Iodide of Potassium,	1 ounce av.
Fluid Extract of Colchicum,	1 fl. ounce.
Spirit of Nitre,	3 fl. ounces.
Syrup Sarsaparilla, compound,	1 pint.
Gin or Whisky,	12 fl. ounces.

Formulas similar to this are popular, and very good results are usually

obtained from their use. The dose is a teaspoonful to a dessertspoonful.

4112. Salicylica Rheumatic Remedy.

Salicylic Acid,	8 ounces av.
Bicarbonate of Sodium,	5 ¹ / ₂ ounces av.
Nitrate of Potassium,	3 ounces av.
Tincture of Colchicum Seed,	8 fl. ounces.
Oil of Wintergreen,	2 fl. drachms.
Syrup,	2 pints.
Alcohol,	2 pints.
Water, sufficient to make	1 gallon.

Mix the Salicylic Acid with 2 pints of Water in a gallon bottle and gradually add the Bicarbonate of Sodium in small portions, at intervals of a few moments, giving time for the effervescence to subside before adding more. When all has been dissolved (which will require about 2 hours), add the Alcohol in which the Wintergreen Oil has been dissolved, and then the tincture and Syrup, and lastly the Nitrate of Potassium and sufficient Water to make a gallon; after standing filter. Dose, a dessertspoonful.

4113. Salol Rheumatic Remedy,

Salol,	128 grains.
Iodide of Potassium,	256 grains.
Bicarbonate of Potassium,	128 grains.
Elixir,	1 pint.

Mix and dissolve. Dose a dessertspoonful.

4114. Rheumatic Elixir.

Iodide of Potassium,	1 ounce av.
Salicylate of Sodium,	1 ounce av.
Wine of Colchicum Seed,	2 ounces av.
Elixir, sufficient to make	1 pint.

Mix and dissolve. Dose, from a dessertspoonful to a table-spoonful.

4115. Rheumatic Cure.

Acetate of Potassium,	2 ¹ / ₂ ounces av.
Wine of Colchicum,	2 fl. ounces.
Elixir, sufficient to make	1 pint.

Mix and dissolve. Dose from a teaspoonful to a tablespoonful.

4116. Rheumatic Bitters—Powder.

Colchicum Root, in fine powder,	4 ounces.
Black Cohosh Root, in fine powder,	4 ounces.
Prickly-Ash Bark, in fine powder,	1/2 ounce.
Cinnamon Bark, in fine powder,	1/2 ounce.
Iodide of Potassium, in fine powder,	1 ounce.
Nitrate of Potassium, in fine powder,	1 ounce.

Mix thoroughly and put up in packages or boxes of about 1 ounce. The contents of the package to be added to a quart of gin.

4117. Rheumatic Remedy—Tea.

Black Cohosh Root, cut fine,	6 ounces.
Colchicum Root, cut fine,	4 ounces.
Sassafras Bark, cut fine,	2 ounces.
Prickly-Ash Bark, cut fine,	1 ounce.
Juniper Berries, crushed,	1 ounce.
Nitrate of Potassium, in powder,	2 ounces.

Mix thoroughly and put up in packages of about 2 ounces, which is sufficient for a quart of liquid medicine. It may be added to a quart of Gin or Diluted Alcohol.

SARSAPARILLA COMPOUNDS.

Of all proprietary medicines the Sarsaparilla Compounds have the largest sale. They are put up under various names and titles, as alteratives, blood purifiers, blood searchers, blood cleansers, medical discoveries, resolvents, etc., but are best known and most frequently sold under the name of "Sarsaparilla," although this is considered medicinally the least valuable of the drugs composing the preparation. In the preceding pages many good formulas for Sarsaparilla preparations suitable for putting up will be found under other headings.

The following are also given as representative of preparations of this kind found in the market as proprietary medicines.

4118. Sarsaparilla Compound.

With Iodide of Potassium.

This is one of the best and most common Sarsaparilla preparations.

Sarsaparilla, in No. 30 powder,	8 ounces av.
Stillingia, in No. 40 powder,	8 ounces av.
Burdock Root, in No. 30 powder,	3 ounces av.
Blue Flag Root, in No. 20 powder,	1½ ounces av.
Mandrake Root, in No. 50 powder,	1½ ounces av.
Senna Leaves, in No. 20 powder,	1½ ounces av.
Prickly-Ash Bark, in No. 50 powder,	¾ ounce av.
Iodide of Potassium,	1 ounce av.
Sarsaparilla Flavoring,	1 fl. ounce.
Diluted Alcohol,	4 pints.
Sugar,	5 pounds av.
Water, a sufficient quantity to make	1 gallon.

Mix the drugs, moisten them with 2 pints of Diluted Alcohol and macerate for 24 hours; 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 Water to the drugs after the liquid has ceased to drop and continuing the heat and percolation until five pints are

obtained. To this add the Sarsaparilla Flavoring and Iodide of Potassium, and after standing 24 hours filter, adding through the filter enough Water to make 5 pints. In this dissolve the Sugar and add enough Water to make 1 gallon. A larger quantity of Iodide of Potassium may be added if desired.

4119. Concentrated Extract of Sarsaparilla Compound.

This formula makes a preparation similar to the stronger Sarsaparilla compounds that are found in the market, like Ayer's and other similar preparations.

Fluid Extract Sarsaparilla, Honduras,	4 fl. ounces.
Fluid Extract Yellow Dock,	4 fl. ounces.
Fluid Extract Stillingia,	3 fl. drachms.
Fluid Extract Mandrake,	2 fl. drachms.
Sugar,	1 ¹ / ₂ ounce.
Iodide of Potassium,	100 grains.
Iodide of Iron,	10 grains.
Alcohol,	4 fl. ounces.
Water, sufficient to make	1 pint.

Mix, dissolve and filter. The dose is from half to a teaspoonful. The weaker Sarsaparilla compounds may be made from this by diluting it with 3 parts by measure of Syrup.

4120. Sarsaparilla, Stillingia and Red Clover Extract.

Sarsaparilla,	8 ounces av.
Stillingia,	8 ounces av.
Red Clover Tops,	8 ounces av.
Mezereum Bark,	1 ounce av.
Sassafras Bark,	1 ounce av.
Iodide of Potassium,	1 ounce av.
Sarsaparilla Flavoring,	1 fl. ounce.
Diluted Alcohol,	6 pints.
Sugar,	4 pounds.
Water, sufficient to make a gallon.	

Make as directed in the preceding formula.

Dose, a teaspoonful to a dessertspoonful.

Sarsaparilla Resolvent.

A few proprietary preparations found in the market are known as Resolvents. They are mostly compounds of Sarsaparilla with a considerable quantity of Iodide of Potassium or Potassa Alkali, and are known as Cuticura, Resolvent, Ready Resolvent, etc. One sample formula will suffice.

Sarsaparilla, Honduras,	8 ounces av.
Stillingia,	8 ounces av.
Burdock Root,	8 ounces av.
Sassafras Bark,	2 ounces av.
Blue Flag Root,	2 ounces av.
Prickly-Ash Bark,	1/2 ounce av.
Iodide of Potassium,	1 ounce av.
Bicarbonate of Potassium,	1 ounce av.
Sarsaparilla Flavoring,	1/2 ounce av.
Diluted Alcohol,	6 pints.
Sugar,	3 pounds av.
Water, sufficient to make a gallon.	

Grind the drugs to a coarse powder and percolate by water-bath percolation, first with the diluted alcohol, then with enough Water to make 6[^] pints of the percolate, add the flavoring, and the salts, and the sugar, and after standing filter. The dose is a dessertspoonful.

4221. Medical Discovery.

Under this title several Alterative and Sarsaparilla compounds have been extensively sold as blood purifiers, etc. The following will suffice for all.

Sarsaparilla, Mexican,	8 ounces.
Yellow Dock Root,	8 ounces.

Blue Flag Root,	4 ounces.
Yellow Parilla,	2 ounces.
Leptandra Root,	1 ounce.
Sarsaparilla Flavoring,	1/2 ounce.
Iodide of Potassium,	2 ounces.
Sugar,	4 pounds.
Diluted Alcohol,	6 pints.
Water, sufficient to make	1 gallon.

Grind the drugs to a coarse powder and percolate by water-bath percolation, first with the Diluted Alcohol and then with Water until 6 pints are obtained, then add the Sarsaparilla Flavoring and Iodide of Potassium and filter, afterwards dissolving the Sugar in the filtrate, and making up the measure with Water to 1 gallon.

The dose is a teaspoonful to a tablespoonful.

Iodide of Mercury 1/2 ounce may be used instead of Iodide of Potassium.

SOOTHING AND TEETHING SYRUPS.

The sale for proprietary Soothing Syrups and like preparations is quite extensive, and there are but comparatively few makes on the market. The following formulae make preparations similar to those in use and others quite different from any to be found.

4122. Baby-Soother, or Soothing Syrup.

Tincture of Hyoscyamus,	8 fl. ounces.
Fluid Extract of Senna,	2 fl. ounces.
Oil of Anise,	3 fl. drachms.
Chloroform,	30 minims.
Alcohol,	10 fl. ounces.
Water,	4 pints.
Sugar,	6 pounds av.

Dissolve the Oil of Anise and Chloroform in the Alcohol, and mix with the tincture and fluid extract add the Water, filter clear and dissolve the

Sugar in the filtrate by agitation. This is a quieting, slightly laxative Syrup and contains nothing injurious to children. It may be further improved by adding to it 1 pint of Syrup, Lacto-phosphate of Lime, which supplies to the blood the required nutrition during the critical period of dentition. From $\frac{1}{4}$ to a teaspoonful may be given at a dose.

4123. Soothing Syrup.

Rochelle Salts,	1 $\frac{1}{3}$ ounces.
Sulphate of Morphine,	6 grains.
Extract Jamaica Ginger,	$\frac{1}{2}$ ounce.
Essence of Anise (1 part Oil of Anise to 16 parts Alcohol),	1 ounce.
Sugar,	13 ounces.
Water,	8 ounces.
Carbonate Magnesium,	1 drachm.

Mix the Extract Ginger and Essence Anise, and rub them with the Carbonate Magnesium, in a mortar, to a smooth paste; add the Water a little at a time, and rub thoroughly; filter, and dissolve the Morphine first, and then the Rochelle Salts in the filtrate; when dissolved filter, if necessary, and dissolve the Sugar in the liquid by agitation.

Dose, $\frac{1}{2}$ to 1 teaspoonful.

4124. Quieting Syrup.

Lactucarium,	256 grains.
Extract Ginger,	$\frac{1}{2}$ ounce.
Essence Anise,	1 ounce.
Sugar,	13 ounces.
Hot Water,	8 ounces.
Rochelle Salts,	1 $\frac{1}{3}$ ounces.

Rub the Lactucarium with the Hot Water in a mortar, and add the Rochelle Salts, allow to macerate with occasional agitation for twenty-four hours, then add the Ginger and Anise to the Sugar, and shake thoroughly together, and dissolve in the liquid by agitation. When

dissolved, strain.

Dose, 1/2 to 1 teaspoonful.

4125. Rhubarb Soothing Syrup.

Rhubarb,	8 ounces.
Anise Seed,	3 ounces.
Jamaica Ginger,	2 ounces.
Poppy Leaves,	4 ounces.
Bicarbonate Potassium,	2 ounces.
Water, q. s., to make	4 ¹ / ₂ pints.
Sugar (avoirdupois weight),	7 pounds.

Grind the drugs to a coarse powder. Dissolve the Bicarbonate Potassium in the Water and moisten the drugs with it; pack in a percolator, and pour the Water upon the drugs ; macerate for two days, and begin the percolation ; percolate until 4¹/₂ pints are obtained, adding enough Water through the percolator to make that quantity. Dissolve the Sugar in the percolate by agitation or gentle heat, and strain.

Dose, 1/4 to 1 teaspoonful.

This is a harmless Soothing Syrup, well suited to neutralize the acid stomach and to correct the bowel difficulties incident to teething.

SPECIFICS.

A few proprietary medicines are know as Specifics. The name is applied to medicines of various kinds, for asthma, catarrh, dyspepsia, gout, rheumatism, malaria, etc., but is more particularly understood to apply to remedies for Syphilis, and these only will be considered under this heading, as they are not given elsewhere except generally under alteratives, sarsaparillas, etc.

4132.

S. S. Specific.

Fluid Extract of Stillingia,	8 fl. ounces.
Fluid Extract of Blue Flag,	2 fl. ounces.
Fluid Extract of Prickly-Ash,	1 fl. ounce.
Iodide of Potassium,	1 ounce av.
Iodide of Calcium,	1/2 ounce av.
Diluted Alcohol, sufficient to make	1 pint.

Dissolve the Iodides in the Diluted Alcohol and mix the solution with the fluid extracts. The dose is a teaspoonful to a dessertspoonful.

4133.

Rex Magnus Specific.

Iodide of Calcium,	1 ounce av.
Iodide of Potassium,	1 ounce av.
Tincture of Iodine,	1 fl. ounce.
Essence of Wintergreen,	1 fl. drachm.
Alcohol,	4 fl. ounces.
Syrup,	4 fl. ounces.
Water, sufficient to make	1 pint.

Mix and dissolve. The dose is a teaspoonful to a dessertspoonful, which should be taken alternately with the following :

Fluid Extract Stillingia,	6 ounces.
Fluid Extract Sarsaparilla, Honduras,	4 ounces.
Fluid Extract Yellow Dock,	4 ounces.
Fluid Extract Prickly Ash,	1 ounce.
Fluid Extract Blue Flag,	1 ounce.
Fluid Extract Mandrake,	4 drachms.

Mix them. The dose is a teaspoonful to a dessertspoonful, to be taken alternately with the foregoing.

The latter part of this preparation is entirely unlike the proprietary "Rex Magnus," but is believed to be much better as an alterative in connection with the solution of Iodides, etc.

TONICS.

A great many tonic preparations for various uses are included under other headings in the preceding pages, therefore only a few which are more particularly known in the market as tonics will be mentioned here.

4134. Beef and Coca Tonic.

Elixir Beef and Coca.

Liebig's Extract of Meat,	1/2 ounce av.
Fluid Extract of Coca,	1 fl. ounce.
Elixir,	15 fl. ounces.

Rub the Meat Extract with the Elixir, add the Fluid Extract, and after standing filter.

To make *Beef, Coca and Iron Tonic* or Elixir, add to the foregoing 1/2 ounce Solution Phosphate of Iron. If Quinine is desired in the preparation 32 grains may be dissolved in a pint of either the Beef and Coca, or the Beef, Coca and Iron.

The dose of these preparations is a teaspoonful to a table-spoonful.

4135. German Tonic.

Tincture of Cinchona,	2 fl. ounces.
Tincture of Gentian Compound,	1 fl. ounce.
Tincture of Capsicum,	1 fl. drachm.
Fluid Extract of Golden Seal,	2 fl. drachms.
Sugar,	4 ounces av.
Brandy,	6 fl. ounces.
Cinnamon Water,	5 fl. ounces.

Mix. Dissolve the Sugar in the mixture and after standing filter. This is a general tonic; the formula may be varied as desired. Dose, a dessertspoonful to a tablespoonful.

4136. Ginger Tonic.

Jamaica Ginger, in powder,	2 ounces av.
Gentian, in coarse powder,	1/4 ounce av.
Cinnamon, in coarse powder,	1 drachm.
Bitter Orange Peel, in coarse powder,	1/4 ounce.
Golden Seal, in coarse powder,	1/4 ounce.
Carbonate of Magnesium,	1/4 ounce.
Sugar,	2 ounces.
Alcohol,	6 fl. ounces.
Diluted Alcohol, a sufficient quantity.	
Water, sufficient to make	1 pint.

Macerate the powdered drugs first with the Alcohol in a wide mouth bottle for 5 days, then add 6 fl. ounces of Water, and let stand 5 days more with daily agitation, then pour off the fluid portion and percolate the drugs with sufficient diluted Alcohol to make when added to the poured-off liquid 16 fl. ounces, rub this with the Carbonate of Magnesium in a mortar, filter and dissolve the Sugar in the filtrate.

This may also be made by mixing

Soluble Extract of Ginger (943)	4 fl. ounces
Tincture Gentian Compound	2 fl. ounces,
Aqueous Fluid Extract Golden Seal	2 fl. drachms,
Sugar	2 ounces,
Alcohol, Water,	each 5 fl. ounces.

The dose is a teaspoonful to a dessertspoonful.

4137. Iron Tonic.

A great variety of Iron Tonics will be found among the elixirs, bitters, wines, etc., but the following general formula is submitted.

Sulphate of Quinine,	40 grains.
Sulphate of Cinchonidine,	80 grains.
Sulphate of Strychnine,	4 grains.
Fluid Hydrastis (1576),	4 fl. ounces.

Tincture of Gentian, compound,	8 fl. ounces.
Tincture of Iron, tasteless (1923),	4 fl. ounces.
Soluble Elixir Flavoring (510),	4 fl. ounces.
Sugar,	2 pounds.
Alcohol,	2 pints.
Water, sufficient to make	1 gallon.

Dissolve the Salts in the Alcohol, mix the other ingredients with 4 pints of Water, and when the Sugar is dissolved mix the two solutions, and after standing filter. This may be colored brown, or reddish brown, with caramel and red coloring, if desired. The dose is a dessertspoonful or more.

Any of the Iron Bitters or Bitter Wines of Iron or Elixirs of Bark and Iron may be put up under this title. The proprietors of *Brown's Iron Bitters* have endeavored to intimidate the retail druggists by claiming a proprietary right to the title Iron Bitters, or Iron Tonic, and that no other preparations by similar names could be sold =; but this claim cannot, of course, be maintained, and any druggist may put up an Iron Bitters or Iron Tonic.

TOOTH-ACHE REMEDIES.

Perhaps there is nothing in the line of remedies for which there is a more general call than tooth-ache cures or remedies, and it is certainly convenient and profitable to have something put up ready for this trade. As special proprietary preparations of this kind are seldom designated, it is obvious that the druggist may supply any good remedy for the purpose.

The following formulas will give satisfaction. These same remedies may also be used for ear-ache, neuralgia, etc.

4138. Camphor-Chloral Tooth-ache Cure.

Camphor,	1 ounce av.
Chloral Hydrate,	1 ounce av.
Chloroform,	1 fl. ounce.
Ether (Sulphuric),	1 fl. ounce.
Tincture of Opium,	1/2 fl. ounce.

Oil of Thyme (<i>Origanum pure</i>),	1/2 fl. ounce.
Oil of Sassafras,	1/2 fl. ounce.
Alcohol,	16 fl. ounces.

Mix and dissolve, saturate a little cotton and insert it in the cavity, also rub on the gums.

4139. Carbolic Tooth-ache Cure.

Carbolic Acid,	5 ounces av.
Camphor,	8 ounces av.
Oil of Sassafras,	1/2 fl. ounce.
Oil of Cloves,	1/2, fl. ounce.
Chloroform,	1 fl. ounce.

Mix and dissolve, moisten cotton and put in the cavity of the tooth, and rub around the gums if necessary.

This is an efficient and prompt tooth-ache remedy.

4140. Clove Anodyne, Tooth-ache Cure.

Oil of Cloves,	2 fl. ounces,
Carbolic Acid,	1/2 ounce av.
Oil of Peppermint,	2 fl. drachms.
Sulphate of Morphine,	30 grains.
Alcohol,	13 fl. ounces.

4141. Cajuput Tooth-ache Remedy.

Sulphate of Morphine,	30 grains.
Camphor,	1 ounce av.
Chloroform,	1 fl. ounce.
Oil of Peppermint,	2 fl. drachms.
Oil of Cajuput,	4 fl. ounces.
Alcohol,	10 fl. ounces.

4142. Lightning Tooth-ache Remedy.

Essential Oil of Mustard,	1 fl. ounce.
Chloroform,	2 fl. ounces.
Oil of Sassafras,	1 fl. ounce.
Alcohol,	12 flounces.

4143. Cocaine Tooth-ache Cure.

Cocaine Hydrochlorate,	60 grains.
Oil of Wintergreen,	2 fl. drachms.
Oil of Peppermint,	2 fl. drachms.
Alcohol,	15 fl.ounces.

4144. Menthol Tooth-ache Remedy.

Menthol,	1 ounce av.
Chloroform,	1 fl. ounce.
Alcohol,	14 fl. ounces.

4145. Thymol Tooth-ache Remedy.

Thymol,	1 ounce av.
Chloroform,	1 fl. ounce
Alcohol,	14 fl. ounces.

4146. Aseptol Tooth-ache Remedy.

Aseptol,	1 ounce av.
Chloroform,	1 fl. ounce.
Alcohol,	14 fl. ounces.

4147. Salicylic Tooth-ache Cure.

Collodion,	1 pint.
Salicylic Acid,	2 ounces.

Dissolve the Salicylic Acid in the Collodion. This forms a plug in the cavity of the tooth, thus covering the exposed nerve.

WORM MEDICINES.

Worm medicines that are popular in the market are chiefly in the form of syrups or cordials, and confections or lozenges. Worm powders and pills are, however, frequently used, and "Worm Tea" is not an unpopular form of medication.

The following formulae are representative of various forms of Worm medicines which have a popular sale.

4148. Worm Killer.

Santonin in fine powder,	1/4 ounce av.
Fluid Extract of Pink Root,	1/2 fl. ounce. .
Fluid Extract of Senna,	1 fl ounce.
Essence of Peppermint,	20 minims.
Simple Syrup, sufficient to make a pint.	

Mix them well together.

It is not intended that the Santonin shall be dissolved in this preparation, but it must be "shaken before taken." Santonin should never be dissolved when used as a worm medicine, for the reason that in solution it acts as a poison to the patient instead of the worms, because it is much more rapidly absorbed than when given in powder, and, as the medicine is designed to act on the contents of the stomach or bowels instead of through the blood, it is obvious that it should not be in solution.

4149. Tonic Vermifuge.

Male Fern Root, in coarse powder,	4 ounces.
Anise Seed, in coarse powder	1 ounce
Pink Root, in coarse powder	1 ounce
Cape Aloes,	120 grains.
Carbonate Potassium (Sal Tartar),	80 grains.
Culver's Root,	1/4 ounce.
Glycerin,	6 ounces.
Alcohol,	6 ounces.
Water,	6 ounces.

Grind the drugs to a coarse powder and moisten with 3 ounces each of the Alcohol and Glycerin, pack in a percolator and pour upon them the remaining liquids in which the Aloes and Carb. Potassium have previously been dissolved, allow to stand forty-eight hours and percolate, adding enough Water through the percolator to make 1 pint of the percolate.

Dose, teaspoonful to dessertspoonful.

4150. Standard Worm Syrup.

Pink Root,	16 ounces.
Male Fern Root,	8 ounces.
Senna Leaves,	8 ounces.
Worm Seed,	16 ounces.
Essence Anise,	2 ounces
Carbonate of Potassium,	1/4 ounce
Santonin,	1/4 ounces
Sugar,	7 ounces
Water, a sufficient quantity to make a gallon.	

Grind the drugs to a coarse powder and steep them for six hours in nearly boiling water enough to cover them well, then pour off the liquid and reserve; put fresh water on the drugs and steep two hours, pour off this liquid and mix with that before reserved, pressing out all that is possible from the drugs.

Then evaporate the liquid to 5 pints, and while evaporating add the Carb. Potassium and Santonin ; add, while cooling, the Essence Anise and Sugar, dissolve by agitation and strain. Dose, teaspoonful to dessertspoonful.

This is a good general Worm Syrup requiring no laxative after using it. It may be made from the Fluid Extracts instead of the drugs, if preferred.

4151. Worm Syrup.

Fluid Extract of Pink and Senna,	3 fl. ounces.
Oil of Anise,	10 drops.
Syrup, sufficient to make a pint.	

Mix.

This is a simple "Pink or Senna" worm syrup, harmless and efficient; many other medicines may be combined with this, but we do not know that it can be much improved except by adding Santonine as in No. 4148.

4152. Vermifuge.

This vile compound—the terror of childhood—has, thanks to the advance of pharmacy, nearly gone out of use.

The following formulas will be sufficient.

Oil of Wormseed,	1 fl. ounce.
Oil of Peppermint,	1 fl. drachm.
Oil of Turpentine,	1 fl. drachm.
Castor Oil,	6 fl. ounces.

Mix well together.

4153.

Vermifuge.

Oil of Wormseed,	1 fl. ounce.
Fluid Extract Pink and Senna,	1 fl. ounce.
Glycerine,	5 fl. ounces
Essence of Peppermint,	1/2 fl. ounce.

Mix well together, shake before taking. The usual dose of vermifuge is from one-half to a teaspoonful.

4154.

Worm Lozenges.

This is by far the most popular form of administering worm medicines, for children will readily take them. The making of worm lozenges is mostly done by manufacturing houses who have apparatus suitable for such work. Santonin is the chief medicinal ingredient; it is sometimes combined with calomel or other laxative remedies. The following formulae make good worm lozenges, comfits or tablets. They can be made in the same way as other lozenges:

Santonin in fine powder,	50 grains.
Powdered Tragacanth,	150 grains.
Chocolate,	300 grains.
Powdered Sugar,	700 grains.

Rub the Chocolate with a little Water to a stiff paste. Mix the Santonin, Tragacanth and Sugar intimately, and with the addition of Water incorporate them with the Chocolate paste and cut into 100 lozenges.

4155.

Worm Lozenges or Tablets.

Santonin, in fine powder,	50 grains.
Calomel,	5 grains.
Carmine,	10 grains.
Powdered Tragacanth,	150 grains.
Powdered Sugar,	1000 grains.

Mix the Carmine intimately with a portion of the Sugar, add the Santonin and Calomel, then the Tragacanth, and having mixed them

thoroughly together make into a mass with Water and cut into lozenges.

Other combinations may be made in the same manner. As each lozenge contains $\frac{1}{2}$ grain of Santonin, the usual dose for children would be one or two before meals.

4156. Worm Tea-Powder.

This was formerly a very popular form of medicine for worms, but has now been superseded by more convenient preparations.

Wormseed, in powder,	2 ounces.
Pink Root, in powder,	6 ounces.
Senna, in powder,	6 ounces.
Liquorice Root, in powder,	2 ounces.

Mix them thoroughly. The dose is a teaspoonful to a dessertspoonful in half a cup of hot water, sweetened, before meals.

4157. Vermifuge Tea.

Pink Root, in coarse powder,	4 ounces.
Pomegranate Bark, cut,	4 ounces.
Senna Leaves, cut,	4 ounces.
Wormseed,	2 ounces.
Anise Seed, ground,	2 ounces.

Mix thoroughly and put up in packages, of about two ounces. Directions for preparing : Steep the contents of the package in a pint and a half of Water with gentle heat for two hours, then strain off one pint, add to it half a pound of sugar and $\frac{1}{4}$ pint alcohol.

Directions for taking : For children two to three years old a tea-spoonful before meals, three times a day; three to five years old, two teaspoonfuls; five to ten years old, a tablespoonful; ten years and older, a wine-glassful (two tablespoonfuls) before meals.

4158. Tape Worm Remedy.

Pomegranate Bark, ground,	3 ounces av.
Male Fern, ground,	1 ounce av.
Senna Leaves, ground,	1 ounce av.
Kameela,	2 drachms.

Mix them well together.

One-half of this quantity is to be steeped in a pint of water and the infusion to be taken in doses of four ounces twenty minutes apart. If not successful in getting the head of the tape worm, the remainder can be prepared and taken in the same manner a week later.

Fluid Extracts of the ingredients as above may be mixed in the same proportion and given in the same manner, but are not considered so efficient as the infusion.

UNCLASSIFIED PROPRIETARY REMEDIES.

The following preparations were not included in the classes which have been already given. Many more might be included, but the line is already quite extended and is probably sufficient for the uses of the trade.

4159. Phosphorized Cod Liver Oil.

Phosphorol. Phosphorus,	1 grain.
Cod Liver Oil,	24 fl. ounces.

Shave the Phosphorus fine and having mixed it with 4 fl. ounces of the Oil, stop tightly in a bottle and heat by water-bath until the Phosphorus is melted, shake well until the Phosphorus is all dissolved, then add the remainder of the Oil and mix them well together.

A dessertspoonful, the usual dose, contains $\frac{1}{100}$ grain Phosphorus.

4160. Iodized Cod Liver Oil.

Iodine,	16 grains.
Cod Liver Oil,	16 fl. ounces.

Add the Iodine to the Cod Liver Oil contained in a closely stopped bottle, and heat by means of a water-bath until the Iodine is dissolved.

A dessertspoonful, the usual dose, contains $\frac{1}{4}$ grain Iodine.

4161. Iodo-ferrated Cod Liver Oil.

Tasteless Iodide of Iron,	64 grains.
Cod Liver Oil,	16 fl. ounces.

Rub the Tasteless Iodide of Iron to a fine powder and then with the Cod Liver Oil gradually added, until the salt is dissolved as much as it will, then allow to settle and decant the clear portion.

The dose is a dessertspoonful.

4162. Hamburger Drops.

Socotrine Aloes, in powder,	2 ounces.
Myrrh, in powder,	$\frac{1}{2}$ ounce.
Cinnamon Bark, in powder,	$\frac{1}{2}$ ounce.
Cloves, in powder,	1 drachm.
Opium, in powder,	1 drachm.
Saffron, American,	2 drachms.
Alcohol, sufficient to make	1 pint.

Mix the drugs and macerate first with 12 fl. ounces of Alcohol for one week with frequent agitation and pour off the clear liquid and reserve, then pour on the drugs, 6 fl. ounces more of Alcohol, macerate as before and add the product to the reserved liquid.

The dose is 10 to 30 drops or more.

4163. Holloway's Pills.

As these are much called for, the formula is given.

Aloes,	200 parts.
Rhubarb,	40 parts.
Black Pepper,	18 parts.
Saffron,	10 parts.
Sulphate of Sodium, dried,	10 parts.

To be divided into 3¹/₂ grain pills.

4164. Hunn's Life Drops.

Oil of Cajuput,	1 fl. ounce.
Oil of Anise,	1 fl. ounce.
Oil of Cloves,	1 fl. ounce.
Oil of Peppermint,	1 fl. ounce.
Alcohol,	4 fl. ounces.

Dissolve the Oils in the Alcohol. This is used as a quick stimulant for colic, pain, etc. The dose is 10 to 20 drops on sugar.

4165. Liquid Rennet.

The inner lining membrane of one calf's stomach, dissected off and chopped.

Hydrochloric Acid,	6 fl. drachms.
Glycerin,	6 fl. ounces.
Water, sufficient to make	1 pint.

Macerate for two weeks and strain or filter.

This is used for dyspepsia and also in cooking to make curd, with milk.

Pepsin prepared from calf's stomach may be used instead of the fresh stomachs, but pepsin prepared from pig's, or other, stomachs will not make a curd with milk.

The dose is a teaspoonful to a dessertspoonful.

4166. Listerine.

This is a proprietary medicine used as an antiseptic solution, and claimed to contain the essential antiseptic properties of thyme, eucalyptus, baptisia and mentha arvensis, combined with benzole and boric acids.

The following formula will make a good preparation of this kind, but is not claimed to be the exact formulae of the original.

Boric Acid.	128 grains.
Benzoic Acid,	64 grains.
Baptisin,	20 grains.
Thymol,	20 grains.
Eucalyptol,	10 grains.
Menthol,	10 grains.
Oil of Wintergreen,	5 minims.
Glycerin,	1 fl. ounce,
Alcohol,	2 fl. ounces.
Water, sufficient to make	1 pint.

Mix the Boric Acid with the Glycerin and Water, add the other ingredients to the Alcohol, and after standing 24 hours, add the aqueous solution to the alcoholic, and after standing filter.

4168. Soda Mint.

Bicarbonate of Sodium,	1 ounce av.
Peppermint Water,	1 pint.
Aromatic Spirit of Ammonia,	1 fl. drachm.

Mix, dissolve and filter.

This may be sweetened with 2 ounces of Sugar if desired, but for medicinal effect is usually preferred plain.

This is given in doses of a teaspoonful to a tablespoonful, for acid stomach, dyspepsia, etc.

4169. Chlorides Solution.

A solution of Chlorides for disinfecting, bleaching, deodorizing, etc., may be prepared and put up as proprietary.

Formulas have been already given for such preparations under other headings. The following is, however, given :

Chloride of Ammonium,	1/2 ounce.
Chloride of Calcium,	1/2 ounce.
Chlorinated Lime,	2 ounces.
Carbonate of Sodium,	2 1/2 ounces.
Water, sufficient to make	2 pints.

Dissolve the Chlorides and Chlorinated Lime in 1 pint of Water and the Carbonate of Sodium in a pint of boiling Water, and pour upon the solution of Chlorides, etc. in a close vessel, stir the contents, cover tightly, allow to settle and decant the clear liquid.

4170. Colorless Solution Hydrastine.

Hydrastine, White Alkaloid,	20 grains.
Glycerin,	2 ounces.
Diluted Hydrochloric Acid, q. s. to dissolve,	
Water, sufficient to make	1 pint.

Rub the Hydrastine with a portion of the Water and add the Acid drop by drop until it is dissolved, then add the Glycerin and the remainder of the Water.

4171. Stoke's Liniment.

Oil of Turpentine,	3 fl. ounces.
Oil of Lemon,	60 minims.

Acetic Acid,	1/2 fl. ounce.
Yolk of Egg,	No. 1.
Rose Water,	3 fl. ounces.

Shake the Oils with the Yolk of Egg and Acid in a bottle until they are well mixed.

4172. Concentrated Tincture Avena Sativa or Oats.

Common Black Oats,	16 ² / ₃ ounces av.
Alcohol, a sufficient quantity to make	1 pint.

Make a fluid extract or concentrated tincture in the same manner as is directed (1069).

4173. Tongaline or Tonga.

This is a proprietary remedy for neuralgia, etc., and is prepared from Tonga, a mixture of barks obtained from Fiji Islands. It may be made from

Fluid Extract Tonga,	4 fl. ounces.
Diluted Alcohol,	1 pint.

or by percolating 4 ounces of Tonga with Diluted Alcohol until 20 fl. ounces are obtained.

4174. Viburnum Compound.

Black Haw Bark,	12 ounces av.
High Cranberry Bark,	8 ounces av.
Blue Cohosh,	3 ounces av.
Life Root Plant,	3 ounces av.
Sugar,	4 ounces av.
Alcohol,	3 pints.
Water, sufficient to make	1 gallon.

Make a tincture of the drugs by percolating first with the Alcohol mixed

with an equal quantity of Water, and then with Water until one gallon is obtained. In this dissolve the Sugar and filter. The dose is a dessertspoonful.

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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.*

Compiled and written by

B. FENNER,

AUTHOR OF FENNER'S FORMULARY, FENNER'S WORKING FORMULÆ
AND EDITOR OF THE FORMULARY.

Sixth Edition.

WESTFIELD, N. Y.
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1888.

PART V.

TOILET PREPARATIONS

AND PERFUMES.

The formulae for preparations which are used for the Toilet and Perfumes would of themselves fill a large volume. In this work, therefore, a few only of those most important and most likely to be used by druggists and pharmacists can be given, and our readers are referred to the more elaborate works on this subject for further information if desired.

BANDOLINE.

Bandoline is intended to be used as a fixer for the hair and for other similar uses. Several different kinds may be made, as shown in the following formulas.

4175. Rose Bandoline.—Best Flake Tragacanth 1 ounce av., Rose Water 13 fl.ounces, Cologne Spirit 3 fl.ounces. Mix the Rose Water and Cologne Spirit and macerate the Tragacanth in the mixture for several days, stirring frequently, then squeeze through a coarse muslin strainer, let stand two or three days and again squeeze through muslin.

This makes a white translucent preparation; if desired it may be colored pink or red with solution of carmine.

4176. Quince Bandoline.— Quince seed coarsely powdered or bruised $\frac{1}{2}$ ounce. Orange Flower Water 13 fl.ounces, Cologne Spirit 3 fl.ounces. Make in the same manner as the preceding. In either of these formulas. Distilled Water may be used instead of Rose or Orange Flower Water and 1 ounce of any kind of bulk perfume added in place of 1 ounce of the Cologne Spirit directed. By using hot Water the operation may be greatly hastened.

4177. Bandoline Powder.—The best Bandoline Powder is prepared from Quince Seeds, although it is not so light colored, and does not yield so much liquid as that prepared from Tragacanth.

The following formulas may be used: Quince seed, in fine powder, 4 ounces, Bulk Perfume (Upper Ten or other) 2 fl.drachms. Mix them well together. This is put up in packages of about 1 drachm, which will make 3 or 4 ounces of Bandoline when added to Water.

Tragacanth, in fine powder, 4 ounces. Acacia, in fine powder, 1 ounce, Bulk Perfumes 2 fl.drachms. Mix and use as the foregoing.

Powdered perfumed soap also makes a good Bandoline Powder, a few grains only should be mixed with a few drops of Water when wanted for use.

COSMETICS FOR THE COMPLEXION.

In a general sense the term Cosmetic may be applied to preparations which are used to soften, cleanse, purify or beautify the complexion, hair, teeth, etc., but in this connection, the preparations only which are applied to "beautifying" the complexion will be noted. The preparations containing insoluble substances are best made by grinding them through a paint mill, but very good preparations may be made by rubbing them fine in a mortar as directed in the formulae.

Liquid Cosmetics.

These are mostly preparations containing some insoluble ingredients which are intended to beautify the complexion, making the skin white or of a flesh tint, and covering tan, freckles, etc.

4178. Oriental Cream.—Calomel 2 ounces av., Sub-Nitrate of Bismuth 1 ounce av., Carbonate of Barium, or Oxide of Zinc, 1i ounce av.. Water a sufficient quantity. Rub the powders in a mortar with successive portions of Water, allowing the precipitate to settle, and pouring off the Water several times to wash out the impurities and make a smooth preparation; finally, pour the precipitate into a pint bottle and add enough distilled or filtered rain water to make a pint. This preparation is

similar and equal to the celebrated "Oriental Cream." It is only necessary that good material should be used in making it. It may also be made with four ounces of Calomel in 1 pint of water, in the same manner.

4179. Liquid Enamel, or Pearl.—Oxide of Zinc, French, 2 ounces av., Prepared Chalk 2 ounces av., Calomel 1 ounce av., Essence Rose or Almonds 1 fl.ounce. Glycerin 1 fl.ounce, Water, a sufficient quantity. Rub the powders with successive portions of Water to wash out any impurities and reduce them to a smooth and uniform precipitate, and finally pour the precipitate in a pint bottle, add the Essence of Rose or Almond and enough distilled or filtered rain Water to make a pint.

4180. Cream of Roses.— Carbonate of Barium 2 ounces av.. Prepared Chalk 2 ounces av.. Carmine, No. 40, 10 grains. Carbonate of Potassium 5 grains, Glycerin 1 fl.ounce. Rose Water, sufficient to make a pint. Rub the Carmine and Carbonate of Potassium together and add Rose Water gradually until it is dissolved. Mix the Carbonate of Barium and Chalk, and having washed them by rubbing with successive portions of Water, put the precipitate in a pint bottle, add the Glycerin, the dissolved Carmine and enough Rose Water to make a pint.

4181. Cream of Lilies, or Bloom of Youth.— Heavy Magnesia (*Magnesia Ponderosa*) 1¹/₂ ounces av., Oxide of Zinc 2 ounces av., Glycerin 1 fl.ounce, Water, sufficient to make a pint. Rub the Magnesia and the Zinc with successive portions of water to wash them, transfer the precipitate to a pint bottle, and add the Glycerin and enough Water to make a pint. A little perfume may be added if desired.

4182. Liquid Rouge, or Bloom of Roses.—This is used for giving a flesh tint or red coloring to the complexion, also for adding to any of the foregoing white preparations to impart a flesh tint. It is frequently put up in small bottles and furnished in a package with the white Cosmetique. It is made as follows: Carmine, No. 40, 120 grains, Carbonate of Potassium (Salts of Tartar) 60 grains, Glycerin 4 fl.ounces, Aqua Ammonia 1/2 fl.ounce, Orange Flower Water 12 fl.ounces. Rub the Carmine and the Carbonate of Potassium to a fine powder, add the Glycerin, rub them together, then add the Ammonia and Orange Flower Water. A small quantity of this liquid is applied to the cheek with a sponge or soft cloth and thoroughly rubbed in. For making a flesh tint of

the white preparations, add from 1 to 1¹/₂ fl.drachms to a pint.

Vinegar Rouge. True Vinegar Rouge is prepared from pure Rouge, Carthamine (from safflower) by dissolving it in Alcohol and acidulating with Acetic Acid. An imitation may be made by adding Acetic Acid to a solution of Scarlet Aniline.

Creams, etc.

For Softening the Skin, Etc.

These are designed for softening the skin and removing tan, sunburn, freckles, chap, etc. Several different kinds of preparations are put up for such uses, and the following formulas are representative of preparations found in the market:

4183. Camphor Cream.— Quince Seed, in coarse powder, 60 grains, Hot Water 14 fl.ounces, Borax, powdered, 60 grains. Glycerin 2 fl.ounces, Spirit of Camphor 1 fl.ounce. Oil of Bitter Almonds 10 minims. Macerate the Quince Seeds for half a day with the Water and strain. Mix with the Glycerin. Dissolve the Oil of Bitter Almonds in the Spirit of Camphor and gradually add to it the Mucilage of Quince, etc., and mix them thoroughly.

4184. Fragrant Cream.—Quince Seed 120 grains. Borax, in powder, 60 grains, Hot Water 12 fl.ounces, Glycerin 3 fl.ounces, Cologne 2 fl.ounces. Crush the Quince Seed and macerate with the Hot Water for one hour, stirring frequently, then strain through muslin, without pressure, add the Glycerin and Borax, and then add the translucent solution to the Cologne slowly, shaking them well together. One ounce of Bulk Perfume and 1 ounce of Cologne Spirit may be used instead of the Cologne. This is used for softening the skin, chap, etc. By using double the quantity of Quince Seed a preparation similar to "Frostilla " may be made.

4185. Marshmallow Cream.—Tragacanth, in powder ¹/₄ ounce av., Marshmallow Root, cut, ¹/₂ ounce av., Water 12 fl.ounces. Glycerin 3 fl.ounces, Cologne 2 fl.ounces. Mix the Glycerin with the Water, add the Tragacanth and Mallow to the mixture and agitate frequently for several days, then strain through a muslin strainer, add the Cologne,

let stand two or three days and strain again.

4186. Savonia Cream.—White Castile Soap 1 ounce, Tragacanth $\frac{1}{4}$ ounce. Water 8 fl.ounces, Glycerin 6 fl.ounces, Cologne 2 fl.ounces. Make in the same manner as the preceding.

4187. Blandine.—Take of Albumen (white of egg) 6 ounces, Glycerin 10 ounces. Oil Bitter Almonds 10 drops. Mix the Albumen with the Glycerin, and add the flavor; pass several times through a muslin strainer to mix well and remove any "lumps." This is a fine liquid preparation for the skin. As the Glycerin is absorbed, a thin coating of Albumen is left on the surface, which protects it from the air.

4188. Amandine.—This is a preparation intended to whiten and soften the skin and prevent chaping, etc. Honey, strained, 2 ounces, White Soft Soap (2908) 1 ounce, Liquor Potassa, 1 fl.drachm, Oil of Sweet Almonds 28 ounces. Oil of Bergamot $1\frac{1}{2}$ drachm, Oil of Bitter Almonds $1\frac{1}{2}$ drachm, Oil of Cloves 40 minims. Balsam Peru 40 minims. Rub the honey with the Soft Soap in a mortar add the Liquor Potassa, and when thoroughly mixed gradually add the Almond Oil, with which the other oils have been previously mixed, stirring them thoroughly to form an emulsion.

4189. Shaving Cream.—White Wax, Spermaceti, Almond Oil, each $\frac{1}{2}$ ounce. Shaving Soap, William's 2 small cakes. Rose Water 2 ounces. Melt the Soap with the Rose Water in a wide mouth bottle. Melt the Wax Spermaceti and Almond Oil together and add to the warm solution of Soap, beating them all well together into a cream until cool.

Another formula is, William's Soap 8 ounces. Almond Oil, Cologne and Glycerine each 1 ounce, Water 8 ounces, made in the same manner.

4190. Shaving Cream for Metal Tubes.—Lard 16 ounces. Spermaceti 1 ounce. Caustic Potassa 2 ounces. Alcohol $\frac{1}{2}$ ounce. Oil Bitter Almond 20 minims. Water 16 ounces. Melt the Lard and Spermaceti together on a sand-bath. Dissolve the Caustic Potassa in half the Water and gradually add the solution to the melted Lard, etc., with gentle stirring. Dissolve the Oil of Almond in the Alcohol, mix with the Water and while the Soap is cooling mix it thoroughly. This may be

run into metal tubes while warm.

Face and Toilet Powders, etc.

A great variety of Toilet and Face powders are found on the market, some in the form of powder and some in the form of balls or solid blocks or tablets. The following formulas represent the most desirable kinds.

4191. Face Powder—(white).—Oxide of Zinc, English, Hubbuck's 6 ounces. Precipitated Chalk, English 6 ounces, Rice Flour, Bolted 16 ounces, French Chalk, very fine powder, 4 ounces, Orris Root, in very fine powder, 4 ounces. Oil of Santal 60 minims, Oil of Cloves 20 minims. The Orris Root must be reduced to an impalpable powder, and thoroughly mixed with the other powders, the Oils are then to be rubbed with a portion of the powder, and the remaining powder gradually added and thoroughly mixed. The chief trouble usually experienced with Face Powders is to reduce them to the proper fineness. This is especially the case when Orris Root is used, as it is a very refractory substance to reduce to an impalpable powder. To obviate this difficulty, the Extract of Orris (934), such as is used in perfumery, may be used in place of the powdered root. It may be gradually mixed by rubbing it with the powder, and the Alcohol evaporated off by exposing for a few hours in the open air to gentle heat. This should be done before adding the Essential Oils.

Flesh. The Flesh-tinted Powders may be prepared from this or any other white powders, by first rubbing a little Carmine to an impalpable powder, mixing it with a portion of the powder, and then gradually incorporating more of the powder until the desired shade is obtained. It requires considerable care to incorporate the Carmine so that it will not be "streaked," and it may therefore be advisable to add it in the form of a solution, first, with a portion of the powder, and then with enough gradually added to make the desired color.

4192. Swan-Down Face Powder.—Oxide of Zinc, Hubbuck's, 4 ounces, Orris Root, *in very fine powder*, 1½, ounce, French Chalk 4½ ounces. Mix them thoroughly, perfume if desired.

4193. Peerless Face Powder.—French Chalk 2½ ounces. Corn Starch 3 ounces, Oxide of Bismuth ½ ounce, Precipitated Chalk 4 ounces. Mix

them.

4194. Bloom of Ninon Face Powder.—Precipitated Chalk 4 ounces, Sub-Carbonate of Bismuth 1 ounce, Oxide of Zinc, Hubbuck's, $2\frac{1}{2}$ ounces, Corn Starch 4 ounces. Mix them thoroughly and perfume with Essence of Orris and Rose. This is known also as Saunder's Face Powder.

4195. Invisible Face Powder.— French Chalk 4 ounces, Calcined Magnesia 1 ounce, Precipitated Chalk 2 ounces, Subcarbonate of Bismuth 1 ounce, Carmine 30 grains. Mix them.

4196. Complexion Powder.—French Chalk $4\frac{1}{2}$ ounces, Precipitated Chalk 3 ounces, Oxychloride of Bismuth 1 ounce. Mix them.

4197. Lily White Tablet.— The Lily White tablets and solid cakes and balls that are found in the market consist mainly of Prepared or Precipitated Chalk 4 parts, French Chalk 5 parts, ground together in a mill with water sufficient to make a thick paste, and run into the desired form or cut, or formed while still moist into the required shape.

4198. Rose or Violet Toilet Powder.— The ordinary Toilet or Baby Powder which is used as a drier or dusting after washing, and by barbers after shaving, may be made with Wheat Starch or Arrow Root, in fine powder, 1 pound. Oxide of Zinc or Oxide of Bismuth 4 ounces. Orris Root, in very fine powder, $2\frac{1}{2}$ ounces. This may be perfumed with Essence of Rose for Rose Powder, or with Essence of Orris for Violet Powder.

DENTIFRICES.

Dentifrices or cosmetics for the teeth are found in the market in the forms of Tooth Powders, Tablets, Pastes, Washes and liquid saponaceous compounds. They are mostly to be used on a brush, and are put up in various ways to make them attractive and convenient for use. The following formulae represents the different kinds of preparations which are in use :

Tooth Washes and Cosmetics.

4199. Balm of a Thousand Flowers.—This is a liquid dentifrice, also used for softening the skin, shaving, etc. It may be made as follows: White Castile Soap 2 ounces, Honey 4 ounces, Water 12 ounces. Alcohol 4 ounces, Oil of Rose 3 drops, Oil of Wintergreen 10 drops. Oil of Cinnamon 5 drops, Extract of Vanilla $\frac{1}{2}$ ounce. Dissolve the soap in the water by the aid of heat, add the Honey; dissolve the Oils in the Alcohol and mix with the solution of Soap, etc. After standing, filter.

4200. Oriental Tooth Wash.—Soap Bark (Quillaya) 4 ounces, Orris Root 2 ounces. Tannin 30 grains, Cloves 60 grains. Oil Wintergreen 2 drachms, Cologne Spirit enough to make 20 ounces. Grind the drugs to a coarse powder and macerate for seven days in 1 pint of Cologne Spirit; pour off the liquid and put the drugs in a percolator; pour the liquid upon the drugs and percolate, adding Cologne Spirit in the percolator until 20 ounces of percolate are obtained. Dissolve the Oil of Wintergreen in the percolate, and filter, if necessary.

4201. Saponaceous Tooth Wash.—White Castile Soap 1 ounce. Oil Cloves, Oil Cinnamon each 10 minims. Oil Wintergreen 15 minims. Oil Peppermint 20 minims. Hot Water 4 ounces. Alcohol or Cologne Spirit 10 ounces, Glycerin 2 ounces. Cut the Soap in thin shavings, and dissolve in the Hot Water; dissolve the Oils in the Alcohol, add the Solution of Soap and Glycerin, and color with Cochineal or Caramel, or both; filter, add a little Powdered Charcoal in the filter.

4202. Eau Angelique.—Angelica Root, true, $\frac{1}{2}$ ounce. Red Rose Leaves 2 drachms, Cloves 90 grains. Nutmeg, Cinnamon, each, 60 grains, Extract Vanilla $\frac{1}{2}$ ounce, Oil Peppermint 30 minims, Oil Wintergreen 20 minims, Cologne Spirit 14 ounces, Glycerin 2 ounces, Cochineal 8 grains. Grind the drugs to a fine powder and macerate for seven days with the mixed Glycerin and Cologne Spirit; pour off the liquid and put the drugs in a percolator; pour the liquid upon the drugs and percolate, adding enough Cologne Spirit through the percolator to make 1 pint. Dissolve the Oils in 2 drachms of Cologne Spirit and mix with the liquid; then add the Extract Vanilla and filter, adding a little Powdered Charcoal in the filter.

4203. Balsamic Tooth Wash.— Compound Tincture of Benzoin, Tincture Tolu, Tincture Myrrh, each $\frac{1}{2}$ ounce. White Castile Soap 1 ounce, Hot Water 10 ounces, Glycerin 2 ounces, Cologne Spirit 3 ounces, Oil Peppermint 40 minims, Oil Wintergreen 20 minims, Oil Cloves 10 minims. Mix the Tinctures and the Cologne Spirit, and dissolve the Oils in the mixture. Cut the Soap in fine shavings, and dissolve in the Hot Water; add the Glycerin to this solution. Add the saponaceous solution very gradually to the solution of Oils and Balsams, allow to stand twenty-four hours, shaking occasionally, then filter, adding a little Powdered Charcoal to the filter.

The saponaceous solution can be best added to the balsamic solution by putting a cork in a funnel so that it will be added drop by drop.

The solution of soap must always be added to the balsamic solution.

4204. Almond Tooth Cream.—Tincture Myrrh, Tincture Tolu, each $\frac{1}{2}$ ounce, Oil Bitter Almonds 20 minims, Borax, powdered, $\frac{1}{2}$ ounce, Glycerin 2 ounces. Hot Water 13 ounces. Mix the Tinctures, and dissolve in the mixture the Oil of Bitter Almonds, dissolve the Borax in the Hot Water and add the Glycerin, add the solution of Borax very gradually (by dropping as directed in the previous formulas) to the Tinctures, etc.

4205. Carbolated Tooth Wash.—Carbolic Acid 20 grains, Alcohol 1 drachm, Eau Angélique 1 pint, dissolve the Carbolic Acid in the Alcohol and add the Eau Angélique. Carbolic Acid may be added to any of the other Tooth Washes, in the same proportion as above. It makes a valuable addition in many cases, as it destroys the odor of decayed teeth and offensive breath.

4206. Arnica Tooth Wash.— Arnica Flowers 1 ounce, Gum Myrrh $\frac{1}{4}$ ounce, Cloves 60 grains. Cinnamon 60 grains. Oil Peppermint 40 minims, Cologne Spirit enough to make 1 pint, grind the drugs to a fine powder and percolate with the Cologne Spirit until 1 pint is obtained, and add the Oil of Peppermint, filter if necessary.

4207. "Sozodont."— This is a proprietary Dentifrice, a similar preparation may be made with White Castile Soap $1\frac{1}{2}$ ounce av., Glycerin 4 fl.ounces, Cologne Spirit 6 fl.ounces. Water 6 fl.ounces. Oil Peppermint 20 minims, Oil Wintergreen 30 minims. Oil Cloves, 10

minims, Extract Vanilla $\frac{1}{2}$ ounce, cut the Soap in fine shavings and dissolve it in the water by the aid of heat, then add the Glycerin and Extract Vanilla, dissolve the Oils in the Alcohol and add, and after standing filter.

Tooth Pastes.

Tooth pastes are favorite dentifrices, made up in the form of a soft mass and usually put up in flat earthen jars.

4208. Cherry Tooth Paste.—Precipitated Chalk 8 ounces, Powdered Orris Root 8 ounces, Powdered Areca Nut 2 ounces, Powdered Cuttle Bone 2 ounces. Powdered Quillaya Bark 1 ounce. Borax, in powder, 1 ounce, Carmine, in fine powder, or solution of Carmine, a sufficient quantity, Oil of Cloves, Oil of Nutmeg, each 40 minims, Oil of Bitter Almond 30 minims, Oil of Rose 10 minims, Glycerin, Honey and Mucilage Acacia, equal quantities, each a sufficient quantity to make into a mass, mix the powders first and color with the Carmine or Carmine solution, then make into a mass.

4209. Saponaceous Tooth Paste.—Precipitated Chalk 4 ounces, Powdered Orris Root 4 ounces, White Castile Soap 1 ounce, Powdered Borax 1 ounce. Powdered Myrrh $\frac{1}{2}$ ounce, Honey and Glycerin, equal parts, sufficient to make a paste. This may be perfumed with Wintergreen, Cassia or other flavors, and colored with Carmine or Rose Pink, if desired.

4210. Odontine Paste.— French Chalk 8 ounces. Soap, in powder, 4 ounces, Sugar 4 ounces. Gum Arabic, in powder, $\frac{1}{2}$ ounce, Peppermint Oil, Wintergreen Oil, each 1 drachm, Glycerin and Honey, sufficient to make a mass. This may be colored if desired.

4211. Charcoal Tooth Paste.—A Charcoal Tooth Paste may be made by using 4 ounces of Charcoal, in fine powder, instead of the Soap, in the foregoing formula.

4212. Tooth Paste for Metal Tubes.—A Tooth Paste for putting up in metal tubes may be made from any of the foregoing formulas by making them much thinner with the Glycerin and Honey than when they are to be put up in jars or pots.

Tooth Powders.

Tooth Powders are the most frequently sold of any of the dentifrices, probably because they are better known and are furnished at a less price; a great variety are found in the market. The following formulae make preparations similar to a few of the best.

4213. Tooth Powder.—*General formula.*—Precipitated Chalk 8 ounces, Powdered Cuttle Bone 4 ounces, Orris Root, in powder, 3 ounces, Powdered Borax 1 ounce, Oil of Cloves 10 minims, Oil of Wintergreen 2 fl.drachms. Carmine solution a sufficient quantity, mix the powders and with a small portion incorporate the Oils and sufficient of the Carmine solution to color the batch, making a moist powder, to this gradually add the remainder of the powder, rubbing the mixture well together until they are thoroughly mixed and of uniform color and flavor. This may be flavored with other flavoring oils in place of those mentioned, as desired, giving it an entirely different flavor. Various substances may be added to this powder, changing it in appearance, flavor, etc., but it is essentially the basis of all the other powders and may be kept in stock for mixing other substances, as Powdered Pumice Stone or Marble Dust may be used instead of Powdered Cuttle Bone, but the latter is generally preferable,

4214. Carbolic Tooth Powder.—Mix $\frac{1}{2}$ ounce of Carbolic Acid with 20 ounces of the foregoing, by rubbing it first with a small portion of the powder and then incorporating with the remainder.

4215. Cinchona Tooth Powder.—Add 2 ounces of powdered Cinchona Bark and 1 ounce of powdered Myrrh to 20 ounces of the general Tooth Powder (4213).

4216. Camphorated Tooth Powder.—Mix Camphor in fine powder 1 ounce with 20 ounces of the general Tooth Powder (4213), and when thoroughly mixed pass through a fine sieve.

4217. Quinine Tooth Powder.— Mix Sulphate of Quinine $\frac{1}{4}$ ounce with 20 ounces of the general Tooth Powder (4213).

4218. Rose Tooth Powder.—Precipitated Chalk 8 ounces, Powdered

Orris Root 4 ounces, Powdered Cuttle Bone 4 ounces, Carmine in fine powder 2 drachms, or sufficient to color, Oil of Rose 30 minims, Oil of Santal Wood 5 minims, Oil Cassia 5 minims, mix them well together as directed in the general formula.

4219. Saponaceous Tooth Powder.— Precipitated Chalk 8 ounces, Powdered Cuttle Bone 4 ounces, Powdered White Soap 4 ounces, Oil of Winter-green 2 drachms, Oil of Calamus 10 minims, mix them well together.

It is needless to give further formulas for tooth powders, as an infinite variety may be made in the same general manner as has been described in the foregoing, it being only necessary to change the flavor, or color, and add such other antiseptic or other ingredients as may be desired.

4220. Tooth Tablets.— These are simply tooth powders put up in the form of cakes or squares, and may be made as follows: Powdered Cuttle Bone or Pumice Stone 4 ounces. Orris Root, in powder, 4 ounces, Carbonate of Magnesium 4 ounces. White Castile Soap 4 ounces, Gum Arabic, in fine powder, 1 ounce, Water 6 ounces, Essence of Wintergreen 2 ounces. Beat the Castile Soap and the Gum Arabic with the water and Essence of Winter-green, and having mixed the other powders, gradually incorporate them with the mixture by working in a mortar the same as a pill or lozenge mass. Then roll out and cut out or mark as desired into squares, and dry them with gentle heat.

Mouth Waters.

In this connection it is proper to give a few formulas for Mouth Waters, which are used for rinsing the mouth and teeth, preventing bad breath, etc.

4221. Eau de Botot or Mouth Water.—Anise Seed 10 ounces, Ceylon Cinnamon $2\frac{1}{4}$ ounces, Cloves 75 grains, Cochineal $\frac{1}{2}$ ounce, Oil of Peppermint $\frac{1}{2}$ ounce, Alcohol sufficient to make 20 fl.ounces, grind the drugs and macerate with the alcohol, then percolate until 20 ounces have passed and dissolve the Oil of Peppermint in the percolate. This may be more readily made with Oil of Anise $\frac{1}{2}$ ounce. Oil of Cinnamon 1 drachm. Oil Peppermint $\frac{1}{2}$ ounce, Oil Cloves, 10 minims, dissolved in Alcohol 19 fl.ounces. A teaspoonful of this is poured into half a glass of

Warm Water for rinsing the mouth and teeth. It may be applied to the teeth also with a brush, simply to clean them.

4222. Salicylic Mouth Water.—Salicylic Acid 20 grains, Oil of Peppermint 10 drops, Oil of Wintergreen 20 drops. Alcohol 2 fl.ounces, Orange Flower Water, Distilled Water, each, 2¹/₂ fl.ounces, mix the Oils and Acid with the Alcohol and add the Waters. This is to be diluted with 2 to 4 parts of Water when used.

4223. Violet Mouth Water.—Extract of Orris Root (934) 8 ounces, Essence of Rose (920) 8 ounces, Oil Bitter Almonds 5 drops, Alcohol 8 ounces, mix them. Use 1 teaspoonful in half a glass of water for rinsing the mouth, etc.

HAIR PREPARATIONS.

Preparations for the Hair are put up by most all druggists, and a great variety of Dyes, Restoratives, Tonics, Pomades, Cosmetics, Oils, etc., are found in the market. The formula for Dyes, Restoratives and Tonics have already been given in the Standard Remedies Department, and the formulas which follow will be more especially devoted to such as are classed with Toilet Preparations.

Depilatories.

Depilatories are preparations designed to remove superfluous hair, by killing its roots. They are but little used.

4224. Depilatory Paste.— Freshly-slacked Lime 1 ounce, Starch in fine powder 2 drachms. Glycerin 2 ounces, Water ¹/₂ ounce; heat the Starch with the Glycerin on a sand-bath until it is gelatinized; then mix the Lime with the Water and stir with the paste until thoroughly mixed. The hair is to be shaved off close, this is then to be applied and left on for only a few moments (3 to 5 minutes), then removed and the part dressed with cream or soft ointment.

4225. Depilatory Powder.—Arsenic 1 part, Quick Lime 8 parts, well mixed together; when used this is to be mixed with Glycerite of Starch, or Soft Soap; it should be freshly made when wanted. As this is quite

poisonous as well as caustic it should be handled with caution.

4226. Depilatory Liquid.— Quicklime, in powder, 1 ounce, Carbonate of Potassium 1 ounce, Sugar 2 ounces, Water 4 ounces, boil them together and after standing decant. The Caustic Liquid may be applied as it is or mixed with starch paste.

Hair Dyes.

Formulas for Hair Dyes will be found in Part IV; but two more are appended here.

4227. Bismuth Hair Dye.— Trisnitrate of Bismuth 1 ounce av.. Glycerine 3¹/₂ fl.ounces, dissolve the Bismuth in the Glycerine. When desired to use mix the Dye with an equal quantity of Water and apply as usual.

4228. Vanadium Hair Dye.— This is applied with two preparations in the same manner as the Nitrate of Silver Dye 4039, using the same mordant, and then apply the Vanadium solution in the same manner as the Silver Dye. The Vanadium Solution is made with Vanadate of Ammonium 10 grains, dissolved in Water 4 ounces.

Hair Oils, Etc.

These are liquid preparations intended as a dressing for the hair to keep it soft and glossy, clean the scalp, etc. A great variety of such preparations may be made, but a few formulas only will be necessary; for, with a good base, the perfumes may be varied to suit the taste. The following bases may be used :

4229. Castor Oil Base for Hair Oil.—Castor Oil 12 fl.ounces, Alcohol 5 fl.ounces. Mix them. As Castor Oil mixes in all preparations with Alcohol this may be made thinner if desired by using a larger proportion of Alcohol.

4230. Other Hair Oil Bases.— *Oil of Benne, Oil of Almond, Mustard Seed Oil, Oil of Cotton Seed, refined. Lard Oil, Salad Oil, Hickory Nut Oil and White Neutral Paraffin Oil*, are all good bases for Hair Oils; they may be perfumed with any combination of perfuming Oils desired, and colored if desired as directed for coloring.

4231. Coloring for Hair Oils.— Hair Oils are best colored Red by infusing them with Alkanet contained in a thin cotton bag, occasionally squeezing out the coloring matter. No other substance gives so fine a red color to Oils as this. The Oils may be heated or macerated cold, but it requires longer if prepared cold. Other colors for Hair Oils are seldom required, but they can be colored orange or yellow with Anatto, or green with fresh lawn grass.

4232. Walnut Hair Oil.— As a sample of Hair Oils that may be made by macerating substances of various kinds in oils the following is given: Crush 2 ounces of fresh green Walnut shells with $\frac{1}{4}$ ounce of powdered Alum to a smooth paste; digest with 10 ounces of White Neutral Paraffin Oil or any bland Vegetable Oil, as Cotton Seed or other oil, until all vapor has been driven off, then strain and perfume as desired. Fresh Violet Flowers, Rose or Orris or other odorous substances, may be macerated with Oil in a similar manner.

Perfumes for Hair Oils.

Hair Oils may be perfumed as desired with perfuming Oils or mixtures of Oils. The following mixtures for general use are recommended:

4233. Rose Oil Perfume, cheap.— Oil of Bergamot 4 ounces, Oil of Citronella 1 ounce, Oil of Cassia or Cinnamon 3 drachms. Oil of Cloves $\frac{1}{2}$ drachm. Mix them. Of this, from 3 to 6 drachms or more may be used for each pint of Oil. If finer perfumes are desired without regard to expense, from 1 to 3 ounces of Bulk Perfume of any odor may be used in place of an equal quantity of Alcohol in the Castor Oil Base, or the following combinations of Fatty Perfuming Oils, etc., may be used to mix with any of the other Hair Oil bases. The fatty Oils mentioned in the formulas are made by macerating the fresh flowers in Almond or Olive Oil. They are imported and may be obtained of New-York jobbing houses. These perfumes can also be used for fine pomades or stick cosmetics.

4234. Fine Rose Oil Perfume.— Oil or Otto of Rose 2 parts. Oil of Rose Geranium 4 parts, Oil of Patchouli 1 part. Oil of Jasmine, fatty, 10 parts, Oil of Tuberose, fatty, 10 parts, Oil of Violet, fatty, 5 parts. Mix them. This may be used as is necessary to perfume the Oil, from 2

drachms to 1 ounce being used to each pint of Oil.

4235. Fine Orange Flower Perfume.—Oil of Neroli, Bigarade, 1 part, Oil of Neroli, Petit Grain, Oil of Jasmine, fatty, 10 parts. Mix them. This may be used the same as the foregoing.

4236. Ilang Ilang Perfume.— Oil of Ilang Ilang 1 part, Oil of Tuberose, fatty, 10 parts, Oil of Violet, fatty, 5 parts. Mix them. This may be used the same as the foregoing. Other combinations may be made in the same manner.

Hair Growers.

For promoting the growth of the hair many preparations of an oily nature are used. Several such preparations are noticed under Hair Tonics; the following are added in this department. These are particularly used for thin or falling hair, baldness, etc.

4237. Hair Grower.— Neutral Paraffin Oil or Cotton Seed Oil 1 pint, Cantharides, in coarse powder, 60 grains, Alkanet Root, in coarse powder, $\frac{1}{2}$ ounce, Oil of Cinnamon 5 minims, Oil of Lemon 30 minims, Oil of Citronella 10 minims, Oil of Bergamot 60 minims. Enclose the Cantharides and Alkanet in a coarse muslin bag and digest in the Oil by the aid of a water-bath at a moderate heat for 12 hours, occasionally squeezing the bag, and then, when cool, add the perfuming oils.

4238. Bay Hair Grower.—Castor Oil 10 ounces av.. Tincture of Cantharides (1880) 1 fl.ounce, Cologne Spirit 5 fl.ounces. Oil of Bay Leaves 20 minims, Oil of Pimento 5 minims. Oil of Bergamot 30 minims. Mix them. This may be colored red if desired with Tincture of Alkanet.

4239. Cocoaine or Cocoa Cream.— Coconut Oil 1 ounce. Castor Oil 8 ounces, Cologne Spirit 7 ounces, Oil of Bergamot 1 drachm, Oil of Lemon $\frac{1}{2}$ drachm. Melt the Coconut Oil by gentle heat and add it to the Castor Oil previously warmed, add the Cologne Spirit and, when cool, the flavoring Oils.

4240. Tricophorus.— Castor Oil 8 ounces, Alcohol 8 ounces. Oil Bergamot $1\frac{1}{2}$ drachms, Tincture Cantharides (1880) 2 drachms. Tincture Alkanet, sufficient to color a light red. Mix.

4241. Hair Grower Pomade.—Petrolatum 1 pound, Tincture of Cantharides 1½ ounce, Oil of Cinnamon 10 minims, Oil of Bergamot 60 minims, Oil of Citronella 20 minims, Oil of Cloves 5 minims. Melt the Petrolatum, add the tincture, and while cooling add the oils.

Hair Lotions.

Hair Lotions differ from Hair Oils in containing but little or no oil. They are applied more freely to the hair and intended to promote its growth, and give it a gloss or luster, also to clean the scalp and remove dandruff, eruptions, etc.

4242. Almond Hair Lotion.— Cologne 4 ounces, Glycerin 1 ounce, Water of Ammonia ½ ounce. Bitter Almond or Cherry Laurel Water 4 ounces. Mix them.

4243. Bay Hair Lotion.— Make the same as the foregoing, only use Bay Rum instead of Cologne.

4244. Rose Hair Lotion.— Make the same as the first mentioned, but use Rose Water instead of Almond Water. Many others may be made in the same manner.

4245. Stimulating Hair Lotion.— For thin hair, baldness, etc.. Tincture of Cantharides (1880) 2 drachms. Acetic Ether 2 drachms, Glycerin 2 ounces, Bay Rum 6 ounces. Mix them. Cologne diluted with an equal quantity of Water may be used instead of Bay Rum.

4246. Bay Rum.— A great many formulas for Bay Rum have been published, but we have seen no reason to change the formula which we published many years ago, which quite closely imitates the imported distilled Bay Rum, and gives excellent satisfaction. It was as follows: Oil of Bay Leaves 2 fl.drachms, Oil of Bergamot 30 minims, Oil of Pimenta 15 minims, Acetic Ether 15 minims. Caustic Soda, or concentrated Lye, 2 drachms, Cologne Spirit 3½ pints, Water 4½ pints. Grass-green coloring, sufficient. Mix the oils and dissolve them in the Cologne Spirit, dissolve the Caustic Soda in the Water and gradually add the solution to the Alcoholic solution of the oils, then add the Acetic Ether and enough of the green coloring to give the desired color, and after

standing a few days filter through a glass funnel without using a filter rack or any metallic substance.

4247. Shampoo Liquids.— Two kinds of Shampoo Liquids are used, the "wet" and the "dry," the former being intended to be used with a quantity of Water to wash the head and the other to be applied in small quantities and the hair rubbed until nearly dry. Of the former the two formulas are given.

4248. Barbers' Shampoo.— Carbonate of Potassium (Salts of Tartar) 90 grains, Water of Ammonia 3 fl.ounces, Cologne 2 fl.ounces, Water, sufficient to make 2 pints. Mix and dissolve.

4249. Clifford's Shampoo Compound.— Borax 12 ounces. Salts of Tartar 4 ounces. Mix and dissolve 1 ounce of the mixture in 1 pint of Water when wanted for use.

4250. Dry Shampoo.— Cologne 1 ounce. Alcohol 2 ounces, Water of Ammonia 3 ounces, Water 12 ounces. Mix them. This is applied and the hair rubbed until the lather first formed has dried.

4251. Sea Foam.—Bay Rum 3 fl.ounces, Water of Ammonia 3 fl.ounces, Water 10 fl.ounces. Mix them.

4252. Quillaya Sea Foam.— Tincture of Quillaya 2 ounces, Cologne or Bay Rum 2 ounces, Water 12 ounces. Mix them. This does away with the odor of Ammonia, which is disagreeable to many.

Pomades.

Pomades for the hair are fatty preparations of the consistence of ointments. They were formerly made of beef marrow, suet, washed lard, or a mixture of fats, generally perfumed and colored, but were quite liable to spoil or become rancid by standing. Since the introduction of Petrolatum it has, in this country, taken the place of other fats as a basis for pomades, as it is of about the right consistence, and never becomes rancid nor deteriorates. It is therefore directed in the following formulas, but if preferred, the purified suet directed for making stick pomades (4256) may be used as a base.

4253. Barbers' Pomade.—Petrolatum 16 ounces. Oil of Bergamot 60

minims, Oil of Citronella 20 minims, Oil of Cassia 10 minims, Oil of Cloves 5 minims. Melt the petrolatum and while cooling, but still liquid, add the oils and mix thoroughly. If finer perfume is desired without regard to expense the fine perfumes given under Hair Oils may be used.

4254. Fine Pomades.— By mixing equal parts of Petrolatum with various Flower Pomades No. 24, and, if necessary, adding additional perfume, a great variety of Fine Pomades may be made, as Acacia or Cassia Pomade, Rose Pomade, Orange Flower Pomade, Violet Pomade, etc. They may also be made by mixing Petrolatum with Purified Suet (4256), equal parts, and scenting with fine perfuming Oils as directed for Stick Pomades. It is unnecessary to give detailed formulas.

4255.— Pomade Hongroise or Moustache Wax.—White Wax 1 ounce, Powdered Castile Soap $\frac{1}{2}$ ounce. Gum Arabic, powdered, $\frac{1}{2}$ ounce, Rose Water 1 ounce, Oil of Bergamot 30 minims, Oil of Thyme 3 drops. Melt the Gum Arabic and the Soap in the Rose Water by gentle heat, then, having previously melted the Wax, add it gradually to the mixture, stirring them constantly ; while cooling, add the perfume.

It is usually put up in jars or pots.

Stick Pomades or Cosmetics.

These are pomades of much firmer consistence than the foregoing, containing considerable wax, and run in sticks. They are used for the moustache and whiskers, and for making the hair lay where it is wanted.

4256. Stick Cosmetic Base.—Take 10 pounds of fresh Beef Suet, cut it in small pieces, pound it in a mortar and wash it thoroughly several times in pure cold Water. Then put over the fire and slowly "try it out," not allowing it to come to a boil (as that develops the disagreeable animal odor), add to it when melted $2\frac{1}{2}$ drachms powdered Alum and about the same amount of Salt, then let it come to a simmer, remove the scum that rises, and strain through a fine wire or muslin strainer, into a deep dish partly filled with hot Water. Allow it to stand 2 or 3 hours, that all impure matter may settle, then remove from the dish, melt and mix 1 ounce powdered Gum Benzoin, and $\frac{1}{2}$ pint Rose Water, bring to a boil and simmer for a few minutes, skimming off all that rises to the

top, add to it $\frac{1}{2}$ gallon boiling water, agitate and stir thoroughly and at last pour off into a shallow pan to cool. This makes the same kind of purified grease that is used in making perfumed Pomades. It will keep for any length of time sweet and pure, without becoming rancid, and is suited well for making any of the harder kinds of Pomades, Cosmetiques, etc.

To make the Stick Pomade, take of the Purified Suet thus prepared $10\frac{1}{2}$ ounces, White Wax or Paraffin $1\frac{1}{2}$ ounce. Perfume as desired. This is sufficient to make 1 dozen 1 ounce sticks of Pomade, which may be made by running in suitable moulds.

The base may be perfumed with the mixtures of perfuming oils as given under hair oils, or as follows: The quantity of perfuming oils stated being for 12 ounces of the base. This may be variously perfumed with other ingredients, or colored brown with umber, black with ivory black, etc.

4257. Almond Cosmetic.— 30 minims Essential Oil of Almonds.

4258. Bay Cosmetic.— 30 minims Oil of Bay.

4259. Cassia Cosmetic.— 30 minims Oil of Cassia.

4260. Orange Flower Cosmetic.— 20 minims Oil of Neroli.

4261. Rose Geranium Cosmetic.— 30 minims Oil Rose Geranium.

4262. Santalina Cosmetic.—30 minims Santal Wood Oil, 5 drops Oil Rose.

4263. Verbena Cosmetic.— 20 minims Oil Lemon Grass.

4264. White Rose Cosmetic.—10 minims Oil Rose, 3 minims Oil Patchouly.

4265. Ylang Ylang Cosmetic.—10 minims Oil Ylang Ylang, 3 minims Oil Rose.

Hair Powders.

For powdering the hair white ordinary powdered starch scented with some kind of bulk perfume is generally used. The perfume may be rubbed with a small quantity of the powder first and then with the remainder gradually added.

Silver powder is made from mica, coarsely ground, and *gold* powder from gold colored mica or Tinsel ground or finely cut.

COSMETIC ICES AND JELLIES.

The most familiar preparation of this kind is Camphor Ice, which is considerably used for sun-burn, tan, chap, chafe, etc. Cold cream is a softer preparation much used for the same purpose. Formulas for both of these have been given under other headings (3709), (4094), and a few only will be given here.

4266. Camphor Ice with Glycerin.— Paraffin or White Wax 4 ounces, White Petrolatum or Washed Lard 12 ounces, Camphor 3 ounces, Glycerin 3 ounces. Oil of Bitter Almond 20 minims, Oil of Rose 5 minims, Oil of Cloves 5 minims. Melt the Paraffin and Petrolatum together and remove from the fire, add the Camphor in powder and keep warm until the Camphor is dissolved, then strain, and while cooling add the Glycerin and Perfuming Oils, beating them well together until it is cool enough to set, when run into cold moulds or a flat pan on ice. It may then be cut up as desired.

4267. Carbolated Camphor Ice.— This may be made by adding 2 ounces of Carbolic Acid to the ingredients of the formula 4094.

4268. Carbolated Camphor Ice with Glycerin.—This may be made by adding 1 ounce of Carbolic Acid to the ingredients of the formula for Camphor Ice with Glycerin (4266).

4269. Glycerin, Honey or Jelly.— *Solidified Glycerin.*— Transparent Soap 4 ounces, Water 6 ounces, Glycerin 12 ounces. Oil Bergamot 20 minims, Oil Cloves 10 minims, Oil Bitter Almonds 5 minims. Cut the Soap in thin shavings and dissolve in an evaporating dish with the Water, when dissolved add the Glycerin and boil for one hour or until

the vapor of Water no longer rises, and the liquid measures only 1 pint, when nearly cool stir in the essential oils and pour into a shallow pan or boxes designed for the preparation; the perfume may be varied to suit, by using other combinations. This makes transparent Jelly.

4270. Glycerin Jelly.— Another method of making this is as follows: White Castile Soap, in powder, 140 parts. Pure Glycerin 210 parts. Oil of Almonds, expressed, 1260 parts for winter use, or 1680 parts for summer use, Oil of Bergamot 8 parts, Oil of Rose 2 parts, Oil of Lavender 4 parts, mix the powdered Soap and the Glycerin in a Mortar, then add the Oil of Almonds and incorporate it by triturating rapidly and add the perfume. This Jelly is not transparent.

4271. Camphorated Glycerin Honey or Jelly.—This may be made by adding $\frac{1}{2}$ ounce of Powdered Camphor to the Glycerin Honey while warm.

4272. Carbolated Glycerin Honey.—This may be prepared by adding Carbolic Acid $\frac{1}{4}$ ounce to the Glycerin Honey while warm, the same may also be added to the Camphorated Glycerin Honey if desired.

4273. Glycerine Ice.—Gelatin 2 ounces, Water 6 ounces, Glycerin 14 ounces, perfuming Oils to suit. Dissolve the Gelatin in the Water by the heat of a water-bath, add the Glycerin previously heated, boil until only 1 pint remains and strain, while cooling incorporate the perfumes, and pour into shallow tins, this may be colored red or other color if desired. It resembles Ice. To apply it the skin should first: be moistened with Water and the cake rubbed over it.

4274. Glycerine Jelly.— Gelatin 1 ounce, Glycerin 1 pint, Boric Acid, in fine powder, 2 drachms, Water 1 pint, Bulk Perfume 1 or 2 ounces. Soak the Gelatin in the Water until soft, then heat until dissolved, add the Glycerin and Boric Acid and strain while cooling, add the perfume and mix thoroughly, this is a thin or soft Jelly and should be put up in pots or jars. It is an excellent preparation for chap, chafe and roughness of the skin.

4275. Arnica Jelly.— This may be made by adding 4 fl.ounces of Tincture of Arnica to the Solution of Gelatin, and boiling the solution until only 1 pint remains, then adding the Glycerin, etc., as before. The firm Arnica Jelly may be made by adding Tincture Arnica 2 ounces, to

each pint of any of the former preparations before adding the Glycerin, etc., other substances may be combined with the Jellies in the same manner.

LOTIONS.

Lotions are intended to whiten and soften the skin, remove pimples, tan, freckles, sunburn, etc. The milks are also included under this heading, as they are employed for similar purposes.

4276. Moth and Freckle Lotion.—Bichloride of Mercury 60 grains, Chloride of Ammonium 240 grains, Alcohol 3 flounces, Rose or Orange Flower Water 3 flounces, Water 10 fl.ounces. Rub the corrosive sublimate to a fine powder and dissolve it in the Alcohol, dissolve the Chloride of Ammonium in the Water, add the Rose or Orange Flower Water and mix with the Alcoholic solution, after standing a day or two, filter. This may be applied once or twice a day with a soft sponge or linen cloth and will quickly remove moth or freckles, tan, etc.

4277. Anti-Freckle Lotion.—Bichloride of Mercury 12 grains. Hydrochloric Acid 3 fl.drachms. Bitter Almonds 1½ ounces, Glycerin 1 ounce, Tincture Benzoin 2 drachms. Orange Flower Water sufficient to make 1 pint. Dissolve the Bichloride of Mercury in 3 ounces of the Orange Flower Water, add the Hydrochloric Acid and set aside. Blanch the Almonds and bruise them to a paste in a mortar with the Glycerin and add sufficient Orange Flower Water to make about 12 ounces of Cream or Milk of Almonds, add to this the Tincture of Benzoin, drop by drop, rubbing them well together, then add the solution of Bichloride of Mercury, and enough Orange Flower Water to make a pint and strain the whole forcibly through a cheese cloth strainer to remove the coarser particles of Almond.

4278. Freckle Lotion.—Sulpho-Carbolate of Zinc ¼ ounce av., Glycerin 3 ounces av.. Alcohol 2 fl.ounces, Orange Flower Water 3 fl.ounces, Rose Water sufficient to make a pint. Mix, dissolve and filter.

4279. Face Lotion.—Bitter Almonds, Sweet Almonds, each, 1 ounce, Oil of Almonds 1 ounce, Spermaceti ½ ounce. Borax, in powder, ¼ ounce, Glycerin 4 ounces. Rose or Orange Flower Water sufficient to

make a pint. Blanch the Almonds and reduce them to a uniform paste, by beating in a mortar and then rubbing with the Glycerin. Rub the Spermaceti in another mortar previously warmed with the Oil of Almonds, and beat until dissolved. Dissolve the Borax in half a pint of the perfumed Water, and having gradually added the warm Oil solution to the emulsion of Almonds in the mortar, rubbing them constantly, then add the solution of Borax and shake them well together, then add enough of the perfumed Water to make a pint and strain the mixture through coarse cheese cloth to remove larger particles of Almond.

4280. Pimple Lotion.—Carbolic Acid 1 drachm, Borax 4 drachms, Glycerin 2 fl.ounces, Tannin 2 drachms, Alcohol 3 fl.ounces, Rose Water 10 fl.ounces, mix and dissolve. Apply night and morning.

4281. Milk of Almonds.—Bitter Almond, Sweet Almond, each 1 ounce, Alcohol, Glycerin, each, 3 ounces. Oil of Bitter Almonds 30 minims. Water sufficient to make a pint. Blanch the Almonds, beat to a paste, add the Glycerin, dissolve the Oil of Almonds in the Alcohol and add, then add enough Water to make a pint and strain through cheese cloth to remove the coarser particles of Almond. This may also be made by mixing 1½ ounce Expressed Oil of Almond with 8 ounces of Water, in which ½ ounce of Borax has been dissolved and adding to the mixture 3 ounces of Glycerin, and 3 ounces of Alcohol in which 10 drops of Essential Oil of Almond is dissolved, and Water enough to make 1 pint. This is used as a bland application for sunburn, tan, etc., also as a vehicle for other medicinal substances.

4282. Milk of Roses.— This may be made in the same manner as Milk of Almond, except that Oil of Rose 15 drops, instead of Essential Oil of Bitter Almond, and Rose Water instead of Water, are to be used with the other ingredients. Another formula is Sweet Almonds, blanched, 4 ounces, Rose Water 1 pint, Alcohol 2 ounces, Oil of Rose 20 minims. White Wax, Spermaceti, Castile Soap, each, 2 drachms. The Almonds are blanched and beat with the Rose Water; the Wax Soap and Spermaceti are melted together by water-bath and the Almond Emulsion is gradually mixed by rubbing in a warm mortar with the melted ingredients. The Alcohol in which the Oil of Rose is dissolved is then added to the mixture. By using Pistachio Nuts instead of Almonds, a finer preparation may be made.

4283. Lait Virginal.— Tincture of Benzoin $\frac{1}{2}$ ounce, Cologne 2 ounces, Glycerin 2 ounces, Rose Water or other Perfumed Water 12 ounces; mix the Tincture of Benzoin with the Cologne, and having mixed the Water and Glycerin arrange a funnel in such a manner that the latter mixture will fall drop by drop into the former, by which process little or no precipitation of the resinous matter is formed, but a fine, smooth, milky preparation is produced. This is much used as a wash for the complexion. Tincture of Myrrh, or Tincture of Tolu, may be used instead of Tincture of Benzoin in this preparation.

4284. Glycerin Lotions.—Quite a variety of preparations are sold as Glycerin Lotions, the most common being *Rose Water and Glycerin*, equal parts of each, mixed; or two parts of Rose Water to one of Glycerin. *Lime Juice and Glycerin*, usually made with equal parts of Lime Juice, Glycerin Rose Water, is also a favorite application for tan and freckles, and is sometimes applied to the hair. Other Waters may be used instead of Rose Water; Cherry Laurel or Orange Flower Water, making fine preparations.

4285. Hair Gloss.—Glycerin 12 ounces, Cologne 4 ounces. Mix them. Hair Gloss may also be made with Glycerin and Rose Water, or Orange Flower Water, mixed equal parts by measure.

LIP SALVES AND COSMETICS.

Lip Salves are used for softening the lips, preventing them from cracking, curing sores, etc., and are sometimes employed to impart a color to them. The following formulas will suffice. Lip Salves are usually put up in small metal, glass or porcelain boxes.

4286. Lip Salve.—Oil of Sweet Almond 4 ounces, White Wax, Spermoceti, each, 1 ounce, Essential Oil of Almonds, Oil of Bay Leaves, each, 15 drops. Melt the Wax and Spermoceti together, add the Almond Oil and while cooling the Perfuming Oils, and stir constantly until cold.

4287 Lip Salve.—The foregoing preparation is liable to deteriorate by age, this one will keep indefinitely and is to be preferred. Petrolatum 8 ounces. White Wax or Paraffin $1\frac{1}{2}$ ounce, Tannin 1 drachm, Oil of Lavender, Oil of Bergamot, each, 1 drachm, Oil of Rose Geranium 2

drachms. Melt the Petrolatum and wax together and add the Tannin; while cooling, add the oils and stir until cold.

4288. Coral Lip Salve.—This may be made by adding to either of the foregoing formulas, 10 grains of Carmine for each ounce of the lip salve. It is best reduced to a fine powder in a mortar and then rubbed with a small portion of the salve, to a smooth mass, the remainder being gradually mixed with it.

NAIL COSMETICS.

Powder and ointment for the nails is sometimes called for as toilet preparations, and may readily be made by druggists.

4289. Nail or Manicure Powder.— This is for polishing, smoothing and cleaning the nails. Pumice Stone, in powder, 8 ounces. Powdered French Chalk 2 ounces, Carmine No. 40, in powder, 1 drachm, Bulk Perfume, Rose or Violet $\frac{1}{2}$ ounce.

4290. Nail or Manicure Salve.—This is for softening the nails, curing hang nails, etc. Petrolatum 1 ounce, Castile Soap, in powder, 1 drachm. Oil of Bergamot 10 drops, or other more expensive perfuming Oils if desired. Mix them thoroughly. This is to be applied at night and the fingers covered with gloves.

PERFUMES FOR THE HANDKERCHIEF.

Handkerchief Extracts, or "Perfumes" as they are popularly called, are kept by nearly all druggists and constitute quite an important part of their trade. It will be inexpedient in this volume to give anything but a brief outline of the manner of making them, and a very few formulas for the more popular odors. They are made by but few druggists, — not because they are difficult to make, but because it is difficult and expensive to obtain the material requisite to manufacture them. The following are the extracts, essences, etc., necessary to be made and kept on hand for the manufacture of perfumes. The processes are adapted to the conveniences always at hand. Perfume Laboratories are supplied with machinery for the purpose.

CLASS A.

Extracts of Flowers from Pomades.

The Pomades used for making these Extracts are prepared by *Enfleurage* (see Part III), and may be obtained of perfumers and New-York jobbers. They cost from \$2.00 to \$2.50 per pound, some of them, as Violet, costing much more.

4291. To make Triple Extracts from Pomades.—*First.* Take equal parts, by weight, of the required Pomade and the strongest Cologne Spirit (Deodorized Alcohol). Divide the Pomade into three equal parts, and put one part (one-third) of the Pomade and all of the Cologne Spirit in a glass or copper jar that will hold double the quantity, and can be stopped air-tight. (An ordinary glass fruit jar is just the thing for small quantities.)

Put the jar in a water-bath, and keep at only a moderate heat (just sufficient to keep the Pomade melted) for three or four days, agitating frequently, then remove from the water-bath, cool, and pour the liquid extract from the Pomade. This product may be termed the Single Extract.

Second. Take another part (one-third) of the fresh Pomade, and macerate it in the same manner as before, with the Extract which has been obtained from the first maceration. This product may be termed the Double Extract.

Third. Take the remaining third of the fresh Pomade, and macerate it in the same manner as before, with the product of the previous macerations.

When this maceration is completed, surround the jar containing the Pomade and Extract with ice, that all particles of fatty matter may be congealed. When thoroughly cold, pour off the Extract, straining through a little cotton wool into bottles, and keep closely stopped.

This constitutes the Triple Extract, and is the finest and strongest Extract that can be obtained.

The Pomade that remains after the Extract has been poured off may be

again treated in a similar manner with Fresh Cologne Spirit, and the product will be a very fine Extract, but not as strong as the first. It will, perhaps, about correspond to the Single Extract, which may be used for another batch, or for making Colognes or cheap Perfumes.

After the Pomade has been thus successively treated, it is called Washed Pomade, and is very good for making Cosmetics and Pomades for the hair.

The following list embraces the Extracts made in the manner described, from Pomades readily obtainable in the market.

4292. Triple Extract Cassie or Acacia.—From Cassie Pomade.

4293. Triple Extract Jasmine.— From Jasmine Pomade.

4294. Triple Extract Orange Flowers.—From Orange Flower Pomade.

4295. Triple Extract Rose.— From Rose Pomade.

4296. Triple Extract Tuberose.—From Tuberose Pomade.

4297. Triple Extract Violet.— From Violet Pomade.

Others may be made in the same manner.

The Extracts as thus prepared, are used only for combinations. They require something to give them permanence before putting up for sale, and Handkerchief Extracts of the same name contain such additions.

CLASS B.

Essences from Essential Oils.

These are simply solutions of the best quality of Ottos or Essential Oils, in the strongest Cologne Spirit (deodorized Alcohol).

They are chiefly used in combining with other perfumes, and they should be kept on hand, prepared in small quantities ready for use.

4298. Essence Almond.—	Oil of Bitter Almonds, Cologne Spirit,	1 part, 9 parts.
4299. Essence Bergamot.-	Oil of Bergamot, Cologne Spirit,	1 part, 9 parts.
4300. Essence Cassia.—	Oil of Cassia, Cologne Spirit,	1 part, 9 parts.
4301. Essence Cloves.—	Oil of Cloves, Cologne Spirit,	1 part, 15 pans.
4302. Essence Lavender.—	Oil of Lavender, English, Cologne Spirit,	1 part, 9 parts.
4303. Essence Lemon.—	Oil of Lemon, Cologne Spirit,	1 part, 9 pans.
4304. Essence Lemon-grass or Verbena.—	Oil of Lemon-grass, Cologne Spirit,	1 part, 15 parts.
4305. Essence Neroli.—	Oil of Neroli (Bigarade), Cologne Spirit,	1 part, 15 parts.
4306. Essence Orange.—	Oil of Orange Peel, Cologne Spirit,	1 part, 9 parts.
4307. Essence Patchouly.—	Oil of Patchouly, Cologne Spirit,	1 part, 20 parts.
4308. Essence Rose.—	Oil of Rose (best Kissanlik) Cologne Spirit,	1 part, 60 parts.
4309. Essence Rose Geranium.—	Oil Rose Geranium, Cologne Spirit,	1 part, 20 parts.
4310. Essence Rosemary.—	Oil of Rosemary, Cologne Spirit,	1 part, 9 parts.

4311. Essence Santal.— Oil Santalwood (true), 1 part,
Cologne Spirit, 20 parts.

4312. Essence Ylang Ylang.— Oil Ylang Ylang, 1 part,
Cologne Spirit, 60 parts.

CLASS C.

Extracts or Tinctures from Odorous Substances.

These are Extracts or Tinctures of Odorous Substances that are used in Perfumes, chiefly to give permanence to the more volatile odors. They should be kept on hand ready to combine as desired. Most of them require long maceration to extract their odorous principle.

4313. Extract Ambergris.— Ambergris, 1 part,
Cologne Spirit, 60 parts.

Rub the Ambergris fine and macerate for thirty days in warm place, in a tightly stopped bottle.

4314. Extract Angelica.— Angelica Root (true), 1 part,
Cologne Spirit, 4 parts.

Reduce the Angelica Root to coarse powder, and macerate for thirty days with the Cologne Spirit. Press out and filter.

4315. Extract Civet.— Civet, 1 part,
Cologne Spirit, 60 parts.

Macerate for thirty days in a tightly stopped bottle in a warm place.

4316. Extract Musk.- Fine Grain Musk 2 parts,
Carbonate of Potassium, 1 part,
Cologne Spirit, 120 parts.

Macerate for thirty days in a warm place in a tightly stopped bottle.

4317. Extract Musk Root or Sumbul.—
Sumbul Root, 1 part,
Cologne Spirit, 4 parts..

Reduce the Musk Root to a coarse powder, and macerate for thirty days..
Express and filter.

4318. Extract Musk Seed or Ambrette.—
Musk Seed, 1 part,
Cologne Spirit, 4 parts.
Macerate for thirty days. Express and filter.

4319. Extract Orris or Violet.—Orris Root, 3 parts,
Cologne Spirit enough
to make 4 parts.

Reduce the Orris Root to a coarse powder, and macerate for thirty days with four parts of Cologne Spirit, then transfer to a percolator and percolate, adding fresh Spirit through the percolator until four parts are obtained. This is much used as a substitute for Violet.

4320. Extract Tonqua.— Tonqua Beans, 1 part,
Cologne Spirit, 9 parts.
Cut the beans fine, crush, and macerate for thirty days.

4321. Extract Vanilla.— Vanilla, 1 part,
Cologne Spirit, 9 parts.
Cut the Vanilla in fine pieces and rub with White Sand to a coarse powder, add the Cologne Spirit and macerate for thirty days in a warm place.

4322. Extract Wild Ginger.— Wild Ginger (Canada Snake
Root), 1 part,
Cologne Spirit, 4 parts.
Reduce the drug to a coarse powder, and macerate for thirty days in the Cologne Spirit. Express and filter.

Balsam Peru, Tolu, Benzoin, Styrax, and some other odoriferous bodies are also used in perfumes, but no special extract need be prepared of them, 1 part to 9 of Cologne Spirit being used to make an extract or tincture.

The druggist will, of course, make up these preparations in such quantities only as his trade demands, but it is best to have some of each kind on hand.

The Citrine Oils, Bergamot, Lemon and Orange, change quickly if not dissolved in spirit, and it will be found advantageous to dissolve these,

while fresh, in Cologne Spirit, and keep them in this way.

ODORS OF FLOWERS,

Or Handkerchief Extracts.

Having now prepared the elements, as they may be termed, of Perfumery (Classes A, B and C), the druggist may prepare any combination that may be desired. The formulas which follow are for those which have the most sale on the market, and which time has demonstrated to be good and salable perfumes. There may be of course as many combinations of odors as there are stars in the heavens: but it is not best to encourage a multiplicity of odors, but rather a familiarity with a few good ones, which will soon come to be favorites with the customers of the druggist.

Since the introduction of bulk perfumes, many old and favorite odors have gone out of use, and many new ones come in. No standard has yet been established for many of the newly-named perfumes, and they are put up as the fancy of the fabricant and the harmony of odors may direct.

The formulae which follow make only the best grade or quality of perfumes. If the druggist desires to make cheaper goods, any of these may be diluted with Cologne Spirit to meet the desired cost. And in fact this is much better than to try to make them cheaper by using inferior material, because, although they may be weak, they will preserve their purity and delicacy of odor.

For other combinations our readers are referred to more elaborate works on the subject, and to the published formulas from reliable sources.

The essences, extracts, etc., which are directed to be used in the formulas are those which are given in the foregoing classes.

4323. Essence Bouquet—*Esprit de Bouquet*.—Essence Rose 8 parts, Essence Lemon 1 part, Essence Bergamot, Extract Orris, each, 4 parts. Extract Ambergris, Essence Santal, each, 1 part. Mix.

4324. Extract Frangipanni.—Essence Neroli, Essence Rose, each, 2

parts. Essence Santal, Essence Cassia, Essence Rose Geranium, each, 1 part, Extract Musk, Extract Ambergris, Extract Civet, each, 1 part, Triple Extract Tuberose, Triple Extract Orange Flowers, each, 2 parts, Cologne Spirit 5 parts. Mix.

4325. Extract Jockey Club.— Triple Extract Rose, Triple Extract Tuberose, each, 4 parts. Triple Extract Cassie, Triple Extract Jasmine, each, 2 parts. Extract Orris 3 parts, Extract Ambergris, Extract Civet, each, 1 part, Essence Rose 2 parts, Cologne Spirit 5 parts. Mix.

4326. Extract Lily of the Valley.— Triple Extract Tuberose 8 parts, Triple Extract Jasmine 1 part. Triple Extract Orange Flower, Triple Extract Cassie 2 parts, Triple Extract Rose 4 parts. Essence Ylang Ylang 1 part, Essence Almonds $\frac{1}{4}$ part, Extract Vanilla 3 parts, Cologne Spirit 5 parts. Mix.

4327. Extract Musk.—Extract Musk 10 parts, Extract Civet, Extract Ambergris, Extract Musk Seed, each, 4 parts, Essence Rose 3 parts, Extract Wild Ginger 1 part, Cologne Spirit 5 to 20 parts, according to strength desired. Mix.

4328. Extract Night Blooming Cereus.— Triple Extract Rose 8 parts, Triple Extract Orange Flower 2 parts. Essence Neroli 2 parts. Extract Vanilla 2 parts, Extract Orris 3 parts. Extract Musk, Extract Civet, each, 1 part. Essence Almond $\frac{1}{10}$ part, Tincture Benzoin $\frac{1}{20}$ part. Mix.

4329. Extract Mary Stewart.—Triple Extract Rose 3 parts. Triple Extract Cassie 1 part, Triple Extract Tuberose 2 parts, Essence Rose 3 parts, Essence Ylang Ylang 2 parts, Essence Rose Geranium 2 parts, Essence Orange $\frac{1}{4}$ part, Extract Orris 2 parts, Extract Musk 1 part, Extract Ambergris 1 part. Tincture Benzoin, Extract Tonqua, each, $\frac{1}{4}$ part, Cologne Spirit 5 parts. Mix.

4330. Extract Ilang-Ilang, or Ylang- Ylang.— Essence Ylang-Ylang 8 parts, Essence Rose 2 parts, Extract Orris 2 parts. Triple Extract Jasmine, Extract Musk, Essence Orange, each 1 part. Mix.

4331. Extract Ocean Spray, or Sea Breeze.—Triple Extract Jasmine, Triple Extract Cassia, each, 4 parts, Triple Extract Rose 6

parts. Essence Bergamot, Essence Lavender, each, 3 parts, Essence Santal 1 part. Extract Ambergris, Extract Civet, each, 1 part, Cologne Spirit 5 parts. Mix.

4332. Extract Patchouly.—Essence Patchouly 8 parts. Essence Rose, Essence Rose Geranium, each, 2 parts, Cologne Spirit 4 parts. Mix.

4333. Extract Wild Olive.—Triple Extract Rose 8 parts. Triple Extract Jasmine, Triple Extract Violet, each, 4 parts. Triple Extract Cassie 2 parts, Essence Rose 4 parts, Essence Ylang Ylang 2 parts. Extract Musk, Essence Ambergris, each, $\frac{1}{2}$ part, Cologne Spirit 5 parts. Mix.

4334. Extract White Rose.—Triple Extract Rose, Triple Extract Violet (or Extract Orris), Essence Rose, each, 4 parts, Triple Extract Jasmine 2 parts. Essence Patchouly 1 part. Mix. This may be diluted with 4 parts of Cologne Spirit if desired.

4335. Extract Stephanotis.—Triple Extract Cassie, Triple Extract Tuberoses, each, 4 parts, Triple Extract Jasmine 2 parts. Essence Rose 3 parts. Extract Musk, Extract Tonqua, Essence Neroli, each, 2 parts, Extract Orris 8 parts, Extract Wild Ginger 1 part. Tincture Benzoin 1 part, Cologne Spirit 5 parts. Mix.

4336. Extract Upper Ten.—Triple Extract Rose, Triple Extract Jasmine, Triple Extract Violet (or Extract Orris), each, 6 parts. Extract Musk 4 parts, Cologne Spirit 6 parts. Mix.

4337. Extract Violet—Finest.—Triple Extract of Violet (from pomade) 16 parts, Triple Extract Cassie 3 parts. Extract Orris 4 parts. Tincture Tolu 1 part. Tincture Vanilla 1 part, Cologne Spirit 6 parts. Mix.

4338. Extract Violet—Good.—A good Extract of Violet, such as is ordinarily sold, may be made with Triple Extract Cassie 2 parts, Triple Extract Rose, Triple Extract Tuberoses, each, 1 part, Extract Orris 6 parts, Essence Almonds $\frac{1}{20}$ part. Tincture Tolu 1 part, Cologne Spirit 3 parts. Mix.

The formulas given for handkerchief extracts are merely sample formulas representative of combinations that are popular on the market. A great variety of other odors by various names are found, and may be

made by druggists by combining various extracts, essences, etc.

COLOGNES AND TOILET WATERS.

Colognes are fragrant compounds of much less strength and permanence of odor than the foregoing Extracts.

In addition to their legitimate use as toilet waters, they now take the place, to a large extent, of the cheaper grades of perfume that were formerly sold.

As with the Handkerchief Extracts, the combinations that may be made are almost infinite, though but few have ever met with great public favor.

The formulae which follow represent those most widely known and esteemed as Colognes; but, as any of the Handkerchief Extracts may be made into Colognes, by following the "General Cologne Formula," the druggist may choose such as suits his fancy, and have as large a variety as he pleases.

Colognes prepared from the Handkerchief Extracts may also be put up as cheap perfumes; the grades that the druggist wishes to prepare may be regulated by the amount of Cologne Spirit added.

For second grade perfumes, taking Handkerchief Extract 1 part, Cologne Spirit 1 part.

For third grade perfumes, taking Handkerchief Extract 1 part, Cologne Spirit 2 parts, and for Colognes, the following *General Cologne Formula*: Handkerchief Extract 1 part, Cologne Spirit 3 parts, Water (distilled)¹ q. s.

Mix the Extract with two and a half parts of the Cologne Spirit, and add Water gradually until, when shaken up, it remains, after standing a short time, just a trifle cloudy or milky, then add the balance of the Cologne Spirit, and set away for a month or more before using.

¹ If Rose Water or Orange Flower Water is added instead of Distilled Water, the product will be finer. Rose Water may be used with all Extracts, but Orange Flower Water is preferable in those compounds which contain Triple Extract Orange Flowers or Essence Neroli.

These Colognes may be named from the Extracts of which they are made, as White Rose Cologne, Marie Stewart Cologne, Upper Ten Cologne, etc., and the druggist may have no lack of cheaper grades of perfumes and Colognes by following these directions.

4339. Farina Cologne.— Essence Bergamot 10 parts, Essence Neroli 1 part, Essence Lavender 2 parts, Essence Lemon 2 parts. Essence Orange 2 parts, Essence Cloves 1 part, Essence Cassia 1 part, Essence Rose 2 parts, Essence Rose Geranium 1 part, Triple Extract Jasmine 6 parts, Extract Angelica 1 part. Extract Orris 3 parts. Extract Musk Seed 2 parts. Essence Nutmeg 1 part. Essence Spearmint 2 parts. Essence Cedrat, 2 parts, Essence Thyme $\frac{1}{2}$ part. Essence Cajeput $\frac{1}{2}$ part, Cologne Spirit 400 parts. Distilled Water 60 parts. Mix the Essences, etc., with the Cologne Spirit, and gradually add the Water. If it should remain milky after the addition of the Water, add enough Cologne Spirit to clear.

4340. Floral Cologne.— Essence Bergamot 10 parts, Essence Cassia 4 parts, Essence Orange 6 parts, Essence Lavender 2 parts, Essence Lemon 6 parts, Essence Santal 2 parts, Essence Neroli 2 parts. Essence Rose Geranium 4 parts, Extract Orris 4 parts, Extract Tonqua 2 parts. Extract Ambergris 2 parts, Cologne Spirit 300 parts, Rose Water 50 parts. Mix the Essences, etc., with the Cologne Spirit, and gradually add the Rose Water. If milky after standing, add enough Cologne Spirit to make clear.

4341. German Cologne, 1st.—Essence Rose Geranium 8 parts, Essence Orange 10 parts, Essence Cassia 6 parts, Essence Bergamot 10 parts, Essence Cloves 1 part. Essence Neroli 2 parts. Essence Lavender 4 parts, Essence Rose 4 parts. Essence Verbena 2 parts. Essence Santal 4 parts. Extract Ambergris 1 part, Extract Musk i part. Tincture Cardamom 1 part, Cologne Spirit 300 parts, Rose Water 50 parts. Mix the Essences, etc., with the Cologne Spirit, add the Rose Water gradually, and then if milky, enough more Cologne Spirit to make clear.

4342. German Cologne, 2d.—Essence Bergamot 10 parts, Essence Lemon 6 parts, Essence Orange 6 parts, Essence Rosemary 6 parts, Essence Cassia 4 parts. Extract Orris 4 parts. Extract Tonqua 2 parts, Extract Musk Seed 4 parts. Extract Angelica 1 part. Extract Wild Ginger 2 parts, Tincture Benzoin 1 part, Cologne Spirit 400 parts, Rose Water

60 parts. Mix the Essences, etc., with the Cologne Spirit, add the Rose Water gradually, and if milky, enough more Cologne Spirit to make clear.

4343. Lavender Cologne, or Water.— Essence Lavender 3 parts. Essence Lemon 2 parts. Essence Cassia 1 part, Essence Cloves 1 part, Essence Santal 1 part, Cologne Spirit 60 parts. Water 10 parts. Mix the Essences with the Cologne Spirit, add the Water gradually, and then enough Cologne Spirit to clear, if milky.

4344. Musk Cologne.— Essence Bergamot 2 parts, Essence Lavender 2 parts. Essence Lemon 4 parts, Essence Neroli, 1 part, Extract Musk 4 parts. Cologne Spirit 60 parts. Rose Water 10 parts. Mix the Essences, etc., with the Cologne Spirit, add the Rose Water gradually, and then enough Cologne Spirit to make clear, if milky.

4345. White Rose Cologne.— Oil Neroli Bigarade 1 drachm, Oil Neroli, Petit grain, $\frac{1}{2}$ drachm, Oil Bergamot 2 drachms, Oil Patchouly 1 drachm. Oil Rose 3 drachms, Extract Musk 2 ounces, Tincture Tolu 2 ounces, Cologne Spirit 7 pints. Rose Water 1 pint. Dissolve the Oils in the Spirit, and add the Rose Water, let stand 30 days, and filter.

4346. Hoyt's German Cologne.— The following formula has been published as similar to Hoyt's German Cologne: Oil Bergamot 1 ounce. Oil Lemon 1 ounce. Oil Neroli $\frac{1}{4}$ ounce, Oil Santal Wood $\frac{1}{2}$ ounce, Camphor 20 grains, Cologne Spirit 7 pints, Rose Water 1 pint. Mix and let stand a month, then filter.

4347. Florida Water.— Oil of Lavender Flowers, English, 6 fl.drachms, Oil of Bergamot 2 fl.drachms, Oil of Lemon $1\frac{1}{2}$ fl.drachm, Oil of Cloves 20 minims, Oil of Cassia 10 minims, Oil of Orange 30 minims, Essence Rose 60 minims, Essence Neroli 10 minims, Cologne Spirit 15 fl.ounces. Mix them.

4348. Violet Water.— This may be made by diluting Extract of Violet with 4 parts of Cologne Spirit. Other Toilet Waters may be made in the same general manner.

4349. Other Colognes and Toilet Waters may be made by the general formula. They may be made as the fancy of the maker may

select, and may be made stronger or weaker as may be desired, to correspond with the trade for which they are made.

SACHET POWDERS.

A great variety of Sachet Powders may be made by adding to an Aromatic Base, composed of Ground Roots, Barks, Woods, Flowers, Leaves, etc., Bulk Perfumes or Essential Oils. A few formulas for the best selling powders are given here, and others may be made in the same general way.

4350. General Base for Sachet Powder.—Orris Root, in coarse powder, 1 pound, Santal Wood, ground, 4 ounces. Vanilla Beans, ground or cut fine, 1 ounce. Rose Leaves, (flowers,) ground, 6 ounces. Extract Musk, $\frac{1}{2}$ ounce. Extract Civet, $\frac{1}{2}$ ounce. Mix them well together. To make any variety of Sachet Powder, add to 8 ounces of this 1 ounce of the Bulk Perfume, of the kind desired and mix them thoroughly.

The following are formulas for those most popular:

4351. Frangipani Sachet.—Powdered Orris 3 pounds. Ground Vitivert $\frac{1}{4}$ lb., Ground Santal $\frac{1}{4}$ pound, Ground Vanilla Beans $\frac{1}{4}$ pound, Ground Tonquin Beans 2 ounces. Oil Neroli 60 minims, Oil Santal 40 minims. Oil Bergamot 60 minims, Oil French Geranium 60 minims. Otto Rose 30 minims, Extract Musk 1 ounce, Extract Civet $\frac{1}{2}$ ounce. Mix well.

4352. Heliotrope Sachet.—Powdered Orris $\frac{1}{2}$ pounds. Ground Rose Leaves 1 pound, Ground Vanilla Beans 6 ounces, Ground Tonquin Beans 4 ounces. Extract Musk $1\frac{1}{2}$ ounces, Extract Civet $\frac{1}{2}$ ounce. Essential Oil of Almonds 7 minims. Mix.

4353. Rose Sachet.—Powdered Orris $\frac{1}{2}$ pound. Ground Rose Leaves $1\frac{1}{2}$ lbs., Ground Santal Wood 4 ounces. Ground Patchouly 2 ounces, Extract Civet $\frac{1}{2}$ ounce. Oil French Geranium 30 minims, Otto Rose 20 minims. Mix.

4354. Jockey Club Sachet.— Powdered Orris 3 pounds. Ground Santal Wood $\frac{1}{2}$ pound, Oil Bergamot 1 ounce, Otto Rose 30 minims, Extract Musk 2 ounces. Extract Civet 1 ounce.

4355. Essence Bouquet Sachet.—Powdered Orris 4 pounds, Ground Cassie Leaves (Flowers) 1 pound, Ground Rose Leaves (Flowers) 1 pound, Ground Vanilla Beans 3 ounces, Essence Bergamot 1 ounce, Essence Lemon 1 ounce. Oil French Geranium 60 minims. Extract Musk 2 ounces, Extract Ambergris $\frac{1}{2}$ ounce.

4356. Ylang-Ylang Sachet.—Ground Rose Leaves 1 pound. Ground Cassie Leaves 1 pound, Ground Pimento $\frac{1}{4}$ pound, Ground Tonquin Beans 2 ounces. Ground Vanilla Beans 2 ounces. Powdered Orris 3 pounds, Oil Pimento 60 minims. Oil Bergamot 120 minims. Oil French Geranium 60 minims. Oil Ylang-Ylang 120 minims. Otto Rose 20 minims. Extract Musk 1 ounce, Extract Civet $\frac{1}{2}$ ounce. Gum Benzoin (Ground) 1 ounce. Mix.

4357. Violet Sachet.—Powdered Orris 3 pounds. Essence Bergamot 30 minims. Essential Oil of Almonds 20 minims. Otto Rose 20 minims. Extract Musk 1 ounce. Mix.

4358. Pot Pouri for Rose Jars.—Mixtures of Rose Leaves, etc., for filling Rose Jars are now considerably used. A favorite mixture for this purpose is as follows : Rose Leaves (Flowers) whole, 1 pound, Patchouly Leaves 4 ounces. Violet Flowers 4 ounces. Vanilla, cut fine, $\frac{1}{2}$ ounce, Cinnamon, in coarse powder, $\frac{1}{2}$ ounce, Orris Root, in coarse powder, 4 ounces. Allspice, in coarse powder, $\frac{1}{2}$ ounce. Cloves, in coarse powder, $\frac{1}{2}$ ounce, Oil Bergamot $\frac{1}{2}$ ounce, Musk Extract 1 ounce. Mix the Oil and Musk Extract thoroughly with the powdered drugs, and then with the Leaves, etc. By grinding the Leaves, etc., to a coarse powder, this may be used as a Sachet Powder; other combinations may be made in the same manner, by using other flowers, etc., in combination, as Lavender, Vitivert, etc.

SMELLING SALTS OR PUNGENTS.

The sale of Smelling Salts, or "Pungents," which, for a time was quite limited, has again revived. The following formulas make satisfactory preparations:

4359. Pungent Smelling Salts.—If something fine is desired without regard to cost this is recommended: Carbonate of Ammonium, crushed into a coarse powder, 6 ounces, Sal Ammoniac, granulated, 1 ounce, Pure Potash (Caustic Potash), crushed fine, 2 ounces, Orris Root, in coarse powder, 4 ounces. Lemon Peel, in coarse powder, Rosmary Leaves, in coarse powder, Lavender Flowers, in coarse powder, each, 1 ounce, Cloves, Cinnamon, Calamus, each, in powder, $\frac{1}{2}$ ounce, Oil of Bergamot $\frac{1}{2}$ ounce. Oil of Lemon 2 drachms, Extract of Musk or Civet $\frac{1}{2}$ ounce. Stronger Water of Ammonia $\frac{1}{2}$ ounce. Mix them well together.

4360. Smelling Salts.— A more common article may be made as follows: Carbonate of Ammonium, crushed to a coarse powder, 12 ounces. Powdered Orris 4 ounces, Powdered Cloves, Powdered Cassia, Powdered Calamus, each, 1 ounce. Stronger Water of Ammonia 1 ounce, Oil of Bergamot $\frac{1}{2}$ ounce, Oil of Lavender $\frac{1}{4}$ ounce. Mix them.

4361. Preston's Salts.—Carbonate of Ammonium, crushed, 4 ounces, stronger Water of Ammonia $\frac{1}{4}$ ounce, Oil of Cloves, Oil of Lavender, Oil of Bergamot, each 10 drops. Mix them well together.

4362. Smelling Salts.—*Extemporaneous.*—By crushing Carbonate of Ammonium, and adding to each ounce 30 drops of Stronger Water of Ammonia, and 30 drops of Bulk Perfume.

4363. Vinegarettes.— These are employed like smelling bottles and for similar purposes. Any inert Aromatic substance, as Orris or a mixture of Aromatic powdered drugs, may be saturated with Glacial Acetic Acid with which one-fourth the quantity of Bulk Perfume is mixed. The Toilet Vinegars mentioned further on, may also be employed for the same purpose.

TOILET SOAPS.

Toilet Soaps are seldom made except by experienced soap makers. The bases of Toilet Soaps are the common hard soaps referred to under the article on soaps, Part III. For making the finer grades of Toilet Soaps these are shaved, "milled" or ground, and mixed as may best be suited for the required product, and the perfuming Oils and ingredients worked into them. The mass is then slightly moistened if necessary and made up into the required quantity for cakes, and pressed in a dye into the shape desired by means of a strong press.

The cheaper Toilet Soaps are made in the same manner as is directed for making Hard Soaps in the article referred to, but are more or less perfumed with essential Oils or odorous substances

An infinite variety of Toilet Soaps are supplied by soap makers, and druggists may themselves make them by securing the proper appliances. The perfumes for the soaps depend upon the price at which they are to sell, and may be selected from the formulas already given for bouquets of different kinds, and from the essential Oils suitable for the purpose. Glycerin in small quantities is frequently added to Toilet Soaps, and they are variously colored with harmless ingredients to suit the taste or caprice of the manufacturer.

As so great a variety of Toilet Soaps are required, and so few make them, it would be inexpedient to give formulas for them here.

TOILET VINEGARS.

A class of preparations for the toilet called Aromatic Vinegars have a limited sale. They are chiefly used after bathing and washing the hands and face to impart a freshness to the skin, and for their agreeable odor. The following formulae will suffice

4364. Aromatic Vinegar.—Glacial Acetic Acid 8 ounces, Cologne Spirit 4 ounces. Camphor, in small pieces, 1 ounce, Oil of Cloves 45 minims. Oil of Rosmary 30 minims, Oil of Bergamot, Oil of Cinnamon, Oil of Lavender, Oil of Pimento, Oil of Neroli, each, 15 minims. Mix, let stand until the ingredients are dissolved, and filter.

4365. Aromatic Vinegar.— This may also be made by mixing any kind of Bulk Perfume with the other ingredients instead of the essential Oils, as Glacial Acetic Acid 8 ounces, Cologne Spirit 2 ounces. Camphor 1 ounce, Bulk Perfume or Cologne (as desired), 2 ounces. Mix, dissolve and filter.

To use these Vinegars a small quantity is added to a bowl of Water, and usually applied with a soft sponge.

TOILET WATERS.

Toilet Waters as they are known in the market are not as their name would indicate, Waters, but solution of essential Oils or odorous principles in Alcohol or a partly Alcoholic liquid, prepared either by solution or distillation. These are known as Eau de Cologne, Eau de Lavande, Eau de Violette, etc., and have been noticed under Perfumes and other headings. The name is also applied in a general way to perfumed Waters and spirits made by distilling herbs and odorous substances, with Water or a diluted Alcoholic liquid; but as these have been already noticed under other headings, as Aquas, Spiritus, etc., further formulas will be unnecessary.

The foregoing formulas comprise most of the Toilet Preparations and Perfumes that are popular or on the market, and all that it is expedient or desirable for druggists to prepare. If it is intended to engage extensively in the manufacture of perfumes and like articles, many other formulas would be required, for which the reader is referred to comprehensive works on perfumery, soap making, etc.

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PART VI.

MISCELLANEOUS FORMULA

The formulae which follow for miscellaneous preparations, often required in the druggist's business, are, as far as possible, arranged in classes according to their uses. Only a limited number of such formulas can be given in the space which is devoted to this subject, and we have endeavored to select such as are best suited for the purpose.

ADHESIVE PREPARATIONS.

Cements.

These are generally to be applied to the edges of the articles to be mended, previously warmed, and they are then to be held or bound together with twine or otherwise until the cement hardens. The cements have to be warmed also.

4366. Diamond Cement.— Gelatin 1 ounce, Water 5 ounces. Gum Mastic 1 $\frac{1}{2}$ drachms, Gum Ammoniac $\frac{1}{2}$ drachm, Alcohol 2 $\frac{1}{2}$ ounces. Dissolve the Gelatin in the Water and continue the heat until the solution has evaporated to about 3 fl.ounces; have the gums previously dissolved in the Alcohol, and to this solution, heated to nearly boiling, add the hot solution of Gelatin, and mix them thoroughly. Put up in small bottles tightly stopped.

This cement may be used for china or glass ware, and for attaching wood, ivory, jewels, metallic substances, etc.

4367. Glutina Cement — *For glass, china, wood, leather, etc.*— Gelatin, Cooper's or Cox's, 3 ounces. Acetic Acid 2 ounces, Carbolic Acid 5 grains, Oil of Cloves 5 minims, Water, enough to make 1 pint. Soak

the Gelatin in half a pint of Water for 4 hours, then heat by water-bath in a glass or porcelain vessel, add the Acids, dissolve, add the Oil of Cloves and sufficient hot Water to make a pint, and strain.

4368. Insoluble or Chrome Cement — *For glass and china.* — This cement, which is impervious to hot Water, should be freshly made when wanted for use. Gelatin, in small pieces, 1 drachm, Hot Water $\frac{1}{2}$ ounce, Bichromate of Potassium 15 grains. Dissolve the Gelatin in the Water contained in a small bottle by means of a water-bath, and while hot add the Bichromate of Potassium and apply as soon as possible, binding the pieces firmly together and setting in the sunlight. The Gelatin and Chrome Salt form an insoluble compound.

4369. Transparent Cement—*For china, glass, etc.*—Mix in a well-stopped bottle 20 parts of Chloroform and 25 parts of native India Rubber, or Caoutchouc, cut in small pieces; when dissolved add 5 parts of Mastic and let the whole macerate for 8 or 10 days, shaking daily, then strain quickly through very thin cotton cloth. This makes a very firm Transparent Cement for china and glass, and may be used for other purposes.

4370. India Rubber Cement or Glue — *For rubber, etc.* — Dissolve Gutta Percha chips or sheet in Bisulphide of Carbon until the solution has the consistence of thick syrup, and strain the mixture with pressure quickly, through a thin cotton cloth. To use this on rubber shave down the edges to be cemented thin, apply the cement freely and warm the parts for, a moment, join together and press, clamp or hammer down to hold them firmly until dry.

4371. Aquarium Cement.—Water Lime or Portland Cement, Marble Dust or White Sand, Litharge, each, 4 ounces. Powdered Resin $\frac{1}{2}$ ounce. Mix the powders and make into a putty with boiled Linseed Oil just before using.

4372. Cement for Lamps.— Plaster of Paris wet up with glue Water is generally used, but a more permanent Cement may be made by dissolving 1 ounce of concentrated Lye in 5 ounces of Water, adding 3 ounces of powdered Resin, and boiling them together 5 to 10 minutes. Then to make the Cement, just before using mix Plaster of Paris up with this solution to the proper consistence and apply.

4373. Amber Cement.— To cement or join amber, paint the edges to be united with boiled Linseed Oil, press firmly together and warm for some time at a degree of heat not high enough to melt the amber.

4374. To join Glass to Metal.—To cement glass, porcelain, earthenware or other hard substances to metal, melt a little shellac and join the substances with it while it is melted.

4375. Metal Cement.— An excellent cement for metallic substances may be made by dissolving shellac to saturation in Water glass, by the aid of heat.

4376. Rubber Tire Cement.— A cement for Rubber Tire bicycles and other similar uses may be made by dissolving India Rubber 1 part in sufficient Naphtha, by the aid of gentle heat of water-bath, and when melted adding 2 parts of Shellac, and melting them together, by water-bath, the naphtha is evaporated. Pour the melted mass on metal plates or run in sticks. When used the parts are to be well warmed and the cement heated and applied like sealing wax.

Glues.

Glues are prepared from glue, gelatin, etc., and are used for joining substances like wood, ivory, leather, etc., together, and for many other purposes. Some are prepared in solid form, requiring to be melted before using, and others are made to remain liquid by the addition of various substances. See also Gelatin, and Liquid Glue, and Tungstic Glue, Part III.

4377. Glue, Ordinary.— This is prepared by melting Glue in Water by the means of a glue pot or water-bath. It is made of different consistence for various purposes, more or less Water being used as required. It must be applied hot and the surfaces to be joined well bound together until dry.

4378. Liquid Glue.— Glue may be first made liquid by melting in Water as above, and then adding Alcohol 1 ounce to about 3 ounces of Glue, used while still liquid, but most Liquid Glue is prepared with Acid, either Acetic or Nitric as directed, Part III. It may be made of any

desired consistence, by using more or less Glue. A little Oil of Sassafras or Cloves is generally used to prevent moulding.

A good Liquid Glue for bottling may be made with good Glue 1 pound, dissolved by means of a water-bath in Water 1 pint in a porcelain vessel, and when dissolved gradually adding 5 ounces Nitric Acid, with constant stirring, or good Glue 5¹/₂ ounces. Acetic Acid 5¹/₂ ounces, Oil Sassafras 15 drops, Water, enough to make a pint, made in the same manner.

4379. Water-Proof Glue — Marine Glue. — This is prepared by dissolving separately in a sufficient quantity of pure Ether, 3 parts of Shellac and 1 part of India Rubber, and, when dissolved, mixing the solutions and keeping in tightly stopped bottles. This is insoluble either in hot or cold Water, Acids, etc.

Another kind of Glue which will resist moisture, etc., may be made by adding a solution of Sandarach, Mastic and Turpentine Gum, each equal parts in Alcohol 16 parts, to Ordinary Glue or Gelatin melted in Water. The quantity to be used depends upon the purpose for which it is required, about 1 ounce to 2 ounces of Glue in a pint being the proportion for ordinary uses.

4380. Elastic or Mouth Glue.—This is prepared by dissolving good Glue in an equal quantity of Water, and adding to it one half as much Glycerin, and one fourth as much sugar as was used of the Glue. This is run into small pieces and may be moistened and applied to paper or other light substances.

4381. Pad Glue.— This is now extensively used for the backs of pads of paper to fasten the leaves together, and for other similar purposes. Glue 1¹/₂ pound. Water 1¹/₂ pint, Acetic Acid 1 ounce, Glycerin 2 ounces. Aniline red, green, blue, or other color as desired, 1 drachm, or sufficient to color. Make the Glue in the usual manner by melting in the Water in a glue pot or water-bath, and add the Glycerin and coloring matter. This may be made more or less brittle or elastic by varying the quantity of Glycerin.

Mucilages.

Adhesive Mucilages for sticking labels to bottles, tinware, etc., papers together, and for gumming the backs of paper used for stamps, labels, etc., are much used. The following are the various kinds employed for different purposes.

4382. Casein Mucilage.— Heat sour milk with a little Tartaric Acid, which causes the Casein to separate. Collect and press the mass and while still warm add enough of a solution of Borax 1 ounce in 1 pint of Water to nearly dissolve the Casein. This may be used for the back of label paper and other adhesive purposes.

4383. Label Mucilage.— Soak 6 ounces of Glue in 20 ounces of warm Water, and then dissolve by heat; while warm dissolve in it 3 ounces of granulated Gum Arabic and 8 ounces of Rock Candy. This is for gumming the backs of sheets, for labels, etc., and must be applied, while warm, with a brush.

4384. Stamp Mucilage.— The following is said to be the same as is used for gumming U. S. stamps: Dextrine 2 ounces, Gum Arabic 1 ounce, Acetic Acid $\frac{1}{2}$ ounce, Sugar 1 ounce, Oil of Sassafras 10 drops, Water 6 ounces. Mix and dissolve by heat of water-bath, and apply with a brush while warm.

4385. Good Cheap Mucilage.— This may be made by soaking 1 part White Glue or Gelatin and 2 parts of Gum Arabic in 10 parts of Water, adding $\frac{1}{4}$ part of Sugar, dissolving by gentle heat, straining and adding a few drops of Oil of Cloves to keep.

4386. Dextrine Mucilage.— Dextrine 3 parts. Water 5 parts, dissolve by heat of water-bath.

4387. Mucilage for Tin and Metal.— Most mucilages will not stick on tin or bright surfaced metals, and a mucilage must be specially prepared for this purpose. The following is A1: Starch 1 pound, Water $1\frac{1}{2}$ pint, Muriate of Tin Solution 4 fl.ounces, Glycerin 1 ounce, Oil of Sassafras 30 drops. Mix the Muriate of Tin solution with the Water and Glycerin, and add to the Starch, boil them together until a clear mucilage is formed, and while cooling add the Oil of Sassafras.

Mucilage of Acacia and *Mucilage of Tragacanth*, which are much used for adhesive purposes, are noticed in Part III.

Pastes.

Pastes for adhesive purposes are made from flour or starch, and are much cheaper than most mucilages for pasting labels, wrappers, etc. When druggists are once accustomed to their use they prefer them to mucilage for that purpose, as they dry quicker, keep in place better, and do not wet the paper like mucilage. The following formulas will be sufficient:

4388. Good Flour Paste.—Wheat Flour 4 ounces. Alum, in powder, 90 grains, Oil of Cloves 5 minims, Carbolic Acid 10 grains, Water 1 pint. Mix the flour with enough Water to make a thin mixture, heat the remainder of the Water to boiling, add the Alum to it and then add it quickly to the mixture of flour and Water, stirring them well together, and heating if necessary to make a good smooth paste; while cooling add the Oil of Cloves and Acid.

4389. Good Starch Paste.—This maybe made in the same manner as the foregoing, only using starch in place of flour; 1 ounce of Glycerin added is advantageous.

4390. Paste for Tin. —To either of the foregoing formulas, add 1 ounce of Glycerin, $\frac{1}{4}$ ounce of Acetate of Lead, in powder, and $\frac{1}{4}$ ounce solution, Muriate of Tin, to the boiling Water, which is added to the flour or starch.

BAKING POWDER.

In making Baking Powders it is necessary in the first place to choose good and appropriate material, and in the second place to have the articles which enter into the composition dry and very finely powdered. They must then be combined in such proportions that the Acid will exactly unite with the Alkaline base, setting free the Carbonic Acid gas which is united with it, which causes, by its escape through the dough, the lightness of the pastry.

In choosing material to combine in Baking Powders it is necessary to select such substances as will not react upon each other when mixed dry, but which will combine to liberate the Carbonic Acid gas under the influence of moisture and heat. Cream of Tartar, because of its insolubility is the most serviceable of the Acids for this purpose, and Bicarbonate of Sodium, which contains a large quantity of Carbonic Acid gas, readily liberated, when acted upon by an acid, is the best of the Alkaline base.

Owing to the uncertain composition and strength of the material used for making Baking Powders, it is difficult to give definite formulas that will work every time to the entire satisfaction of the operator, for the test of the powder in baking is the only general way by which it may be known if the articles used are balanced so as to be neither alkaline nor acid.

It is also very important that the material used be very finely powdered, thoroughly dry, and perfectly mixed. Baking Powders cannot be thoroughly mixed by hand or in a mortar, because small particles of the bicarbonate of sodium will adhere together, and when used will make small yellow spots or points in the pastry; some kind of a mixer is therefore required that will thoroughly crush these particles and mix all together intimately. Several kinds of mills and mixers are furnished for this purpose. The following formulas will, if properly combined from good material, make excellent Baking Powders, but it should be understood, as previously explained, that the operator should test the powder by baking before sending it out, and if it needs more acid or more alkali, add it until it is properly proportioned to make the best.

4391. Baking Powder, No. 2.—Pure Cream Tartar, 3 pounds. Pure Bicarbonate Soda, 22 $\frac{1}{2}$ ounces, Best Roller Flour, 1 pound. Corn Starch $\frac{1}{2}$ pound. If preferred, $\frac{1}{2}$ pound Corn Starch and $\frac{1}{2}$ pound Flour may be used in place of 1 pound Flour, in which case the Starch must be finely powdered. Use 1 $\frac{1}{2}$. teaspoonfuls to 1 quart Flour. This is the best formula.

4392. Baking Powder, No. 2.— Pure Cream Tartar 1 $\frac{1}{2}$ pounds. Pure Bicarbonate Soda 13 ounces, Tartaric Acid 1 ounce. Best Roller Flour 1

pound. Corn Starch $\frac{1}{2}$ pound. Use 2 teaspoonfuls to 1 quart Flour.

4393. Baking Flour, No. 3.—Pure Cream Tartar 2 pounds, Pure Bicarbonate Soda 1 pound. Roller Flour $1\frac{1}{2}$ pounds, Tartaric Acid 1 ounce, Corn Starch $1\frac{1}{2}$ pounds. Use 2 teaspoonfuls to 1 quart Flour.

4394. Baking Powder, No. 4.—Pure Cream Tartar 1 pound. Pure Bicarbonate Soda 1 pound, Tartaric Acid 3 ounces. Roller Flour 2 pounds, Corn Starch $\frac{1}{2}$ pound. Use 2 teaspoonfuls to 1 quart Flour. This is a good, cheap powder. Keep well covered.

CLOTH CLEANING COMPOUNDS, ETC.

For cleaning cloth, gloves, lace and delicate fabrics that cannot well be washed in the ordinary way many preparations are put up and sold. Most of them are simply, Gasoline or Deodorized Benzine, perfumed with some fragrant oil, but other compounds are also used. Washing compounds are also included under this heading. The following are representative of the various preparations:

4395. Fragrant Benzine or Gasoline.— Gasoline 1 gallon, Oil of Bergamot $\frac{1}{4}$ ounce. Mix them. Any other volatile oil, as Cloves, Cassia, Lavender, Lemon, etc., may be used instead of Bergamot. This may be put up by any fancy name, and recommended to clean cloth, silks, gloves, etc., and remove grease spots.

4396. Cloth and Glove Cleaner.— Gasoline, or Deodorized Benzine 1 quart, Alcohol, Chloroform, Ether, each, $\frac{1}{2}$ fl.ounce. Mix them. This may be put up and sold at a fancy price for cleaning silks, gloves, etc. It may be perfumed with lavender or cologne if desired.

4397. Clothes Cleaning Compound—*For removing paint, grease, dirt, etc.*— Water of Ammonia 1 pint, Alcohol 9 fl.ounces, Soap Liniment 6 fl.ounces, Borax, in powder, 4 ounces av., Castile Soap, cut or shaved, 4 ounces av., Boiling Water 6 quarts. Dissolve the Soap and Borax in the boiling Water, and when cool add the other ingredients. This is to be applied by rubbing into the grease spot, and then washed out with clear warm water.

4398. Cleaning Cream. — Ivory, or other White Soap 8 ounces, Sal Tartar $\frac{1}{2}$ ounce. Borax 2 ounces, Oil of Sassafras 1 drachm. Water $1\frac{1}{2}$ pint. Cut the soap in small pieces and dissolve in the Water by heat of water-bath, add the Borax and Sal Tartar, and while cooling add the Oil of Sassafras, mixing them well together. This removes grease, paint and dirt by rubbing in and washing out with warm water.

4399. Benzin Jelly.—White Soap 12 ounces. Hot Water 18 ounces, Ammonia Water 3 ounces. Dissolve the Soap in the Hot Water, pour in a bottle, and add the Water of Ammonia. Then add to the mixture 2 pints of Gasoline or deodorized Benzin, and shake thoroughly until the mixture is cold and solidified. This is applied by rubbing on the grease spots, and afterwards washing out with warm water.

4400. Erasive Soap.— White Soap 8 ounces, Borax 1 ounce, Sal Tartar 1 drachm, Oil of Sassafras 1 drachm, Water 8 ounces. Cut the soap in shavings and dissolve in the Water by heat of a water-bath, add the Borax and Sal Tartar and boil until reduced to 1 pound, then while cooling add the Oil of Sassafras, and make into cakes of about 2 ounces.

4401. Washing Fluid.—Concentrated Lye, or Caustic Soda, 1 pound, Oil of Turpentine 2 ounces. Borax 2 ounces, Camphor $\frac{1}{2}$ ounce, Soap Bark, ground, $\frac{1}{2}$ pound, Water of Ammonia $\frac{1}{2}$ pint, Water sufficient. Steep the Soap Bark for two hours in $\frac{1}{2}$ gallon of Water, strain and press. Dissolve the Concentrated Lye and Borax in $\frac{1}{2}$ gallon of Water, and add to the decoction of Soap Bark. Dissolve the Camphor in the Oil of Turpentine and add to the solution, then add the Water of Ammonia, and after standing pour off or strain, add a tablespoonful of this to each gallon of Water used for soaking the cloths before washing, and a little in the washing Water.

4402. Washing Fluid.— Sal Soda 4 pounds, Borax 2 ounces, Sal Tartar 1 ounce, Water of Ammonia $\frac{1}{2}$ pint, Spirit of Camphor 2 ounces, Oil of Turpentine 1 ounce, Hot Water 6 pints. Dissolve the Salts in the hot Water and add the liquids. This may be used the same as the foregoing.

4403. Washing Crystal or Powder is prepared by mixing coarsely powdered Borax 8 ounces, with Carbonate of Potash (Sal Tartar) 4 ounces, or Crude Potash 3 ounces. The "1776" and other similar compounds are made by adding excess of Alkali to Soap while making and evaporating to a mass or granular powder. It requires special machinery, and cannot be made except in large factories.

EXTERMINATORS, DESTROYERS AND POISONS.

For exterminating or poisoning rats, mice, bugs, flies and vermin generally, a great many different kinds of preparations are put up and sold. The following represent some of the best for the purpose :

4404. Bed Bug Poison or Exterminator.— Corrosive Sublimate, in powder, 2 ounces av., Alcohol 1 pint. Dissolve the powder in the Alcohol and apply to the bedsteads where the vermin hide.

Another poison for the same purpose may be made with Cyanide of Potassium 2 ounces av., Water 1 pint. Dissolve and apply. These may be used for any kind of bugs, ants or vermin to which it can be applied.

4405. Bug and Ant Poison.—As a poison for cockroaches, other bugs and ants, to eat, the following will give satisfaction. Tartar emetic 1 ounce, powdered Sugar 7 ounces. Mix them intimately together and place the powder where the vermin will find it.

4406. Fly Paper.— Formulas for fly papers, both poison and sticky, will be found in Part III. The following additional formula for *Sticky Fly Paper* is given: Common Resin 1 pound, Castor Oil about 5 ounces. Melt the Resin and add sufficient Castor Oil to make it properly adhesive when applied to the paper. As the resins vary, a little less or more than 5 ounces may be needed. Prepare manilla paper or other firm paper by brushing over each sheet with a size made of glue $\frac{1}{4}$ pound, melted in hot Water, 1 gallon. This is applied hot, with a brush, to the paper, and the sheets dried by hanging on lines. The Resin compound is then applied warm, with a brush, to the sized sheets, which are then folded together.

4407. Anti-moth Paper.—Carbolic Acid Camphor, Oil of Cedar, each, 1 part, Benzin 8 parts. Dissolve and dip sheets of heavy porous paper in

the liquid and hang on lines until the Benzin evaporates. The paper should then be cut up and kept in tin boxes. These sheets are put away in drawers or with firs, etc., to prevent moths.

4408. Rat Poison.— A great variety of poisons for Rats and vermin are put up under various names, and in various forms. They consist mainly of Arsenic, with the addition of some coloring matter or other substances.

Rough on Rats is an example of proprietary Rat Poisons. It consists of Arsenic colored a little with ivory black or some other black substance. It is mixed with lard and sugar and spread upon bread.

4409. Rat Paste Poison.—This maybe made by mixing Arsenic with brown sugar, equal parts, and making into an ointment or paste with lard, the same quantity as is taken of the Arsenic.

Tartar Emetic may be used instead of Arsenic.

4410. Luminous Paste for Rats, Roaches, etc.—This was formerly quite a favorite rat poison, as it shines in the night attracting the attention of the rats, and at the same time acts as a poison. It is best made by melting Phosphorus 1 ounce in Petrolatum or Lard 1 pound, by means of a water-bath, and while melted and well mixed by agitation in a closely stopped wide-mouth bottle, allow to cool and solidify. This may then be mixed with Sugar 1 pound, and Flour 1 pound, or sufficient to make a stiff mass.

A better Luminous paste is made with Arsenic, Luminous paint (made without Turpentine) and Sugar, each, one part, well mixed together.

4411. Mosquito or Black Fly Preventive.—Hunters and fishers who go in the woods during the summer are much annoyed by flies and mosquitoes. The following preparation is for rubbing on the hands and face to keep them off. Petrolatum 3 ounces, Paraffin $\frac{1}{2}$ ounce, Oil Tar 2 ounces, Oil Pennyroyal 1 ounce, Carbolic Acid 2 drachms. Melt the solid ingredients together and when nearly cold enough to begin to solidify incorporate the other ingredients.

4412. To Prevent Flies from lighting on marble or glass.— Put a few drops of Oil of Wintergreen or Pennyroyal on a damp sponge and

rub over the surface ; they will not light where this is done, but it must be repeated every 4 hours or so.

4413. Other Poisons.—For potato bugs *Paris Green* or *London Purple* seem to be the most successful. The same are also used for coddling moths, and curculio on trees and shrubbery. For lice on plants *Insect Powder* is good, but washing with a spray of *Whale Oil Soap* suds seems to be the most effective. For squash and cucumber bugs, *Calomel* is used.

FOODS.

A few preparations are known as foods for various purposes, as Baby Food, Infant Food, Plant Food, Egg Food, etc. The following are some of the principal popular preparations.

4414. Infants and Invalids Food.—These foods are prepared from various grains in various ways; the object being to secure in them the most valuable constituents of the food, and to present them in the form most readily digested. To this end the grains are variously treated, by malting, removing some of the less valuable constituents, concentrating, etc. As these processes require expensive machinery and experience, they are not adapted to the uses of druggists, and are, therefore, not given here.

4415. Plant Food.—For making plants grow and blossom, the following are used:

Sulphate of Ammonium 4 ounces, Sal Nitre 2 ounces. Sugar 1 ounce, Hot Water 1 pint. Mix, dissolve and keep in a well-stopped bottle. A little is added to the Water used for plants. Another formula is Nitrate of Potassium 2 parts, Carbonate of Calcium (Precipitated chalk). Chlorate of Sodium, Phosphate of Calcium, each, 1 part, Silicate of Iron 3 parts, Water 20 parts. Mix.

INKS, BLUINGS AND BLACKINGS.

A great variety of Inks, Bluings and Blackings are found on the market. The following formulae make good preparations of this kind. It must be remembered, however, that there are many qualities of Anilines and

other substances used in making inks, etc., which have the same name, but are of different degrees of excellence. The best should always be chosen.

In the limited space only a few formulas can be given, but they will be sufficient.

Inks.

4416. Fine Black Ink Aniline.—Negrosine (Black Aniline crystals), $\frac{3}{4}$ ounce. Dextrin $\frac{1}{2}$ ounce, Corrosive Sublimate 2 grains. Water 2 pints. Dissolve the Negrosine in a pint of hot Water. Dissolve the Dextrin and Corrosive Sublimate in the remaining pint of Water and mix the solutions. This ink flows freely, is always black and does not mold. By using a less quantity of Aniline a very good ink may be made, but is not so black.

4417. Fine Red Ink Aniline.—Eosine Aniline 180 grains, Water 2 pints. Dissolve the Eosine in the Water. This is a bright, brilliant, fiery Red Ink. It is put up and sold as "Carmines Ink," but is much better and cheaper than it.

4418. Fine Violet Ink.—Aniline—Violet Aniline 120 grains, Alcohol $\frac{1}{2}$ ounce. Dextrin $\frac{1}{2}$ ounce. Hot Water 2 pints. Put the Aniline in a bottle with the Alcohol and add the hot Water in which the Dextrin has been dissolved. Different shades of Violet, ranging from reddish to blue, may be obtained and various shades of ink may be made. The letters B and R signify the proportions of Blue and Red used; the "blue shades" are preferred.

Perfumed Violet Ink was formerly just the thing but has now gone out of fashion. It may be made by adding $\frac{1}{2}$ to 1 drachm of Bulk Perfume to a quart. Other perfumed inks may be made in the same way.

Other Aniline Inks may be prepared in the same manner as the foregoing.

4419. Brown Ink.— $\frac{1}{2}$ ounce Brown Aniline, $\frac{1}{2}$ ounce Dextrin, 1 Quart Hot Water.

4420. Blue Ink.—Water Blue Aniline 1½ drachm, Dextrin ¼ ounce, Hot Water 2 pints.

4421. Green Ink.—Green Aniline 2 drachms, Dextrin ¼ ounce, Hot Water 2 pints.

4422. Maroon Ink.— Mix equal quantities of Red, Blue and Black Inks.

4423. Purple Ink.— This is made like Violet Ink. It is in fact the same as the bluish violet.

4424. Red Aniline Ink.—This may be made from Red Aniline (Fuch-sine) ½ ounce, Alcohol 2 ounces, Dextrin ½ ounce, Hot Water 2 pints. It is not so good as the Eosine Red Ink. Scarlet Aniline Ink may also be made from Scarlet Aniline.

4425. Yellow Ink.—Picric (Carbazotic) Acid 2 drachms, Hot Water 2 pints.

4426. Black Ink, Logwood—School Ink.— Extract of Logwood 3 ounces, Bichromate of Potassium 3 drachms. Hydrochloric Acid 4 fl.drachms, Water 1 gallon. Boil the extract with the Water and Bichromate of Potassium in 1 quart of Water until dissolved, add the Hydrochloric Acid to the balance of the Water, and mix the solutions while warm.

This ink flows nicely and has a good color.

4427. Blue Ink.— Soluble Prussian Blue (Laundry Blue) ½ ounce, Dextrin ¼ ounce. Hot Water 1 pint. Mix and dissolve.

4428. Carmine Ink— True.—No. 40 Carmine ½ ounce, Water of Ammonia 1 ounce. Dextrin ½ ounce, Water 1 pint. Rub the Carmine to a powder, then with the Water of Ammonia, then with the Water gradually added, and dissolve the Dextrin in the solution. Red Ink made from Eosine Aniline is much better.

4429. Japan Ink.— This may be made by boiling Borax 3 drachms, Shellac 1 drachm, Sugar 2 drachms, for one hour, in a pint of Water, then straining the solution and dissolving in it $\frac{1}{2}$ ounce Negrosine or Black Aniline. This does not flow as freely as other inks, but is very black and glossy.

Black Gloss Ink may be made from any good Black Ink by adding to it Gum Arabic and Sugar or a strong solution of Shellac and Borax as above. The very finest Japan Ink may be made by dissolving fine India Ink, by rubbing it with the solution of Shellac as above, made until it is of the proper consistence and color.

Other colored inks may be made gloss inks in the same manner as is here described.

4430. Liquid India Ink.—This is prepared from Stick India Ink by rubbing it down with Water on a plate or other glazed surface until an ink of the proper shade and consistence is obtained. The finest Stick India Ink is prepared from the finest lampblack made into a paste with an infusion of certain native albuminous seeds of China or Japan, and then moulded in sticks. The more common kinds are made up with glue gelatine, etc.

4431. Violet Black Ink— *Violet passing to black.*—Extract of Logwood 3 ounces. Bichromate of Potassium 3 drachms. Alum 2 ounces. Lime Water 1 pint. Water of Ammonia 8 ounces. Commercial Hydrochloric Acid, by weight, 1 pound. Iron filings or old scraps of nails 1 pound. Gum Arabic 3 ounces, Water 1 gallon. Boil the Logwood Extract and the Bichromate of Potassium in one quart of Water until dissolved, add the Alum previously dissolved in 1 quart of hot Water, then add the Lime Water; then the Water of Ammonia; stir thoroughly and gradually add the Hydrochloric Acid with constant stirring, then add the remainder of the Water in which the Gum Arabic is dissolved, and pour the mixture upon the scraps of Iron in an open vessel or crock. Let stand several days and decant.

4432. Writing Fluid.— *Blue-Black.*—Apello Nutgalls, coarsely ground, 1 pound, Sulphate of Iron, copperas, 5 ounces. Gum Arabic 4 ounces. Boric Acid $\frac{1}{2}$ ounce. Extract of Indigo 1 ounce, Picric Acid 1 drachm. Water sufficient to make a gallon. Macerate the Nutgalls in one gallon

of Water for 12 hours, then boil in a kettle for one hour and pour off the decoction, add half a gallon of fresh Water to the drugs, and boil again for half an hour and pour off the liquid, press the residue and mix the product with the previous decoction. This will make about 1 gallon of the liquid; to this, while still warm, add the remaining ingredients and dissolve; add Water if necessary to make 1 gallon, and after standing 12 hours or more strain through a coarse muslin strainer. This is a good writing fluid, similar to those most popular in the market.

Many other similar formulas might be given but this will be sufficient. The color may be varied by using more or less Indigo Extract or Picric Acid.

4433. Copying Ink, Black — *For moist sheets.*— By adding a little Gum Arabic and Sugar to most any of the foregoing inks, fair copying inks may be made, but the best copying ink may be made from the writing fluid last given (4432), by adding to each pint 1 ounce of Sugar and $\frac{1}{2}$ ounce Gum Arabic.

An excellent Copying Ink may also be made from the Violet-Black Ink (4431), by adding to each pint $\frac{3}{4}$ ounce each of Sugar and Gum Arabic. This is similar to the popular *French Copying Ink*.

4434. Colored Copying Inks.— Most of the high-colored Aniline Inks make good copies without the addition of other ingredients. If anything is required, however, $\frac{1}{2}$ ounce of Gum Arabic in a pint is usually sufficient, care must be taken not to make the sheets too wet for copying colored inks, as they are apt to blur.

4435. Copying Inks—*For dry paper.*— Inks are sometimes wanted for "Dry Copying" as it is termed. This depends upon the ink altogether, which may be made by adding to any of the regular black or colored writing Inks, from 3 to 4 fl.ounces of Glycerin in each pint, or by making the same inks and using 3 ounces of Glycerin instead of the same quantity of Water in a pint.

The writing is to be quickly done, without blotting and without shading, and the copy taken at once.

4436. Chromograph or Hektograph Inks.— These inks are designed to be used on the Hektograph or copying pad, by which a hundred or more copies or duplicates may be made from one writing.

Black, Blue, Red and Violet may be made in the same manner, but the Violet is most used, because a much larger number of clear copies may be made from it. The formula is as follows: Violet (or other) Aniline $\frac{1}{2}$ ounce av., Alcohol $\frac{1}{2}$ fl.ounce, White Sugar $\frac{1}{4}$ ounce av., Glycerin 1 ounce av., Water 6 fl.ounces. Mix the Aniline with the Alcohol, add the Glycerin. Dissolve the Sugar in the Water and add. Of Black Aniline or Negrosine, double the quantity is required.

4437. Indelible or Marking Ink—*For marking Linen.*—Nitrate of Silver $3\frac{1}{4}$ ounces, Bicarbonate of Sodium $4\frac{1}{2}$ ounces, Stronger Water of Ammonia $3\frac{1}{2}$ ounces, Tartaric Acid $1\frac{1}{8}$ ounce, Archil 1 ounce. Powdered Acacia $2\frac{1}{2}$ ounces, Soluble Sap Gum (or Dextrin) 1 ounce, Sugar $1\frac{1}{2}$ ounces, Water, sufficient to make 20 fl.ounces. Dissolve the Silver and Soda salts, each separately, in two pints of boiling Water and mix the solutions. Allow the precipitate to settle; decant the fluid, and collect the precipitate on a paper filter, wash it with a pint of Water, and, when drained, transfer it to a mortar, add the Acid and mix. When effervescence has ceased add the Stronger Water of Ammonia, and transfer the whole to a bottle containing the Sugar. Now dissolve the Sap Gum or Dextrin in 4 ounces of Water, and the Archil by the aid of heat. Add the Acacia to the mixture, stir until dissolved, and strain. Add the Ammoniacal solution to this, and make up to 20 ounces with Water.

4438. Indelible Laundry Ink.— Carbonate of Sodium (Sal Soda) 1 ounce av., Nitrate of Silver $\frac{1}{2}$ ounce av., Acacia, powdered, $\frac{3}{4}$ ounce av., Water of Ammonia 1 fl.ounce, Distilled Water 4 fl.ounces. Dissolve the Carbonate of Sodium in the Distilled Water and rub with the powdered Acacia in a mortar. Dissolve the Nitrate of Silver in the Water of Ammonia and mix with the mucilage. Transfer to a flask of double the capacity of the liquid, stop closely, and heat by means of a water-bath to boiling, leaving the stopper loose during the latter part of the operation.

4439. Indelible Ink for Stamp or Stencil.— Negrosine 1 ounce,

Tannin 2 drachms, Glycerin 4 ounces, Vanadinate of Ammonium 10 grains. Mix and dissolve. Other colors may be made from other Anilines.

4440. Another.— Asphaltum 1 ounce, Oil of Turpentine 4 ounces, Black Printing Ink 4 ounces. Chloride of Iron $\frac{1}{2}$ ounce. Mix, dissolve and rub them well together.

4441. Marking Ink for Packages and Boxes.—Extract Logwood 1 pound. Bichromate of Potash $1\frac{1}{4}$ ounce, Hydrochloric Acid $1\frac{1}{2}$ ounce. Dextrin 8 ounces. Water 1 gallon. Boil the extract with the Water, add the Bichromate of Potash and the Acid, and lastly the Dextrin. Allow to stand and decant.

4442. Marking Ink for Cotton Bales, etc.— Logwood Extract 1 pound, Copperas 10 ounces, Bichromate of Potash $1\frac{1}{2}$ ounce, Hydrochloric Acid 2 ounces, Brown Sugar 1 pound, Water 1 gallon. Boil the extract with the Water, add the Bichromate of Potash, then the Iron and Acid, and lastly the Sugar. After standing decant.

4443. Marking Inks in Cakes — *For brush or stencil.* — These are made by rubbing some pigment with Dextrin or Gum Arabic in solution and running the solution into boxes or molds. They are the same as water-color paints, and are to be used by wetting their surface with Water and the brush rubbed over them. Make a thick mucilage of Dextrin or Gum Arabic and stir in the pigment to a stiff paste. For Black, use drop black or ivory black; for Blue, soluble Prussian blue or ultra-marine blue; for Green, chrome green; for Fine Red, rose pink, scarlet lake, or carmine ; for Cheap Red, Venetian red, red lead, etc.

4444. Stamping Inks for Rubber Stamps.— These are prepared from the Anilines by mixing them with Glycerin, $\frac{1}{4}$ ounce of Aniline to 1 ounce of Glycerin. *Black, blue, green, red, and violet* are the anilines usually used for this purpose. The same inks made in this manner may be used for marking pens. Cheaper inks for rubber stamps may be made with drop black, Prussian blue, chrome green, rose pink, etc., but they are not in general favor.

4445. Ink Powders.— These are prepared for quickly making Inks by the addition of hot Water. They are usually put up in packages sufficient to make a pint of ink, which requires from a teaspoonful to a

tablespoonful of the powder. The following are the colors usually desired:

Black, Negrosine in Crystals 1 part, Dextrin 3 parts.

Blue, Water Blue Aniline 1 part, Dextrin 5 parts. This may also be made with soluble Prussian Blue 1 part, Dextrin 2 parts.

Green, Green Aniline 1 part, Dextrin 4 parts.

Red, Eosine Aniline 1 part. Dextrin 1 part.

4446. Ribbon Inks.— Ribbon Inks for type writers, dating stamps, etc., are prepared by saturating thin silk with a solution of some Aniline color in Glycerin or other vehicle. The colors generally used are *Black*, *Dark Green* and *Violet* or *Purple*. The solution may be made by dissolving $\frac{1}{4}$ ounce of the Aniline in a mixture of Alcohol 2 fl.ounces. Water 2 fl.ounces, and Glycerin 4 fl.ounces. The ribbon is saturated with this solution and dried.

4447. Sympathetic Inks.— Sympathetic Inks are those that, when written with, show no writing until something is applied to develop them. They are of no particular use; but the method of making and using is given below.

Black Sympathetic Ink. Write with Tincture of Iron diluted with 10 parts of Water, and develop with a blotter moistened with a solution of Tannin or decoction of Nutgalls, or strong Tea.

This may be reversed by writing with a decoction of Nutgalls and developing with the blotter moistened with Tincture of Iron.

Blue Sympathetic Ink. Write with a solution of Ferrocyanide of Potassium, in 20 parts of hot Water. Develop with a blotter moistened with a solution of Iron.

The operation may also be reversed.

Sympathetic Ink Developed by Heat. Sulphate of Copper and Muriate of Ammonia, equal parts, dissolved in Water.

The writing turns yellow when exposed to heat.

Lemon juice or the mineral acids diluted, solution of Salt, Saltpetre and

many other substances, when the writing is exposed to heat, turn yellow or brown.

A weak solution of Chloride of Nickel, mixed with Chloride of Cobalt, turns a beautiful green when exposed to heat.

A weak solution of Cobalt, in Nitro-muriatic Acid, becomes green when the writing is heated, and when cooled again, entirely disappears.

Copper, dissolved in Muriatic Acid and diluted, becomes yellow when the writing is heated, and disappears when cold.

A solution of Acetate of Cobalt, to which a little Nitrate of Cobalt is added, becomes rose color when the writing is heated, and disappears when cold.

4448. Gold and Silver Inks.— Take equal parts of Gold Leaf (or Silver Leaf) and Honey. Triturate them in a mortar until perfectly fine, then add about 30 parts hot Water, and triturate. Allow to settle and pour off the Water. Triturate again with fresh hot Water. Allow to settle and pour off as before. Repeat the washing several times until the Honey is all washed out, then dry the powdered Gold Leaf and mix it with Water and Gum Arabic. It must be shaken occasionally while writing.

Very fine Bronze may be made into Ink by adding Water and Gum Arabic and shaking occasionally while writing.

4449. White Ink.— For writing on black cards and some other purposes, White Ink is sometimes desired. It may be made by rubbing Flake White 6 drachms with Acacia, Mucilage 3 drachms, and enough Water to make 1 fl.ounce. It must be shaken up before using.

4450. Horticultural Inks—*For writing on Metal.*—This ink is prepared for writing on metal tags for labeling plants, trees, etc. Blue Vitriol 1 ounce, Salamoniac $\frac{1}{2}$ ounce, both in powder, dissolve in $\frac{1}{2}$ pint of strong vinegar. This may be used on Zinc or Iron strips or steel; a quill should be used for writing.

4451. Liquid Slating for Blackboards.—Shellac 8 ounces, Lampblack $1\frac{1}{2}$ ounce. Ultramarine Blue $1\frac{1}{2}$ ounces, powdered

Rottonstone 4 ounces, powdered Pumice Stone 6 ounces, Alcohol 4 pints. Dissolve the Shellac in the Alcohol, add the other ingredients and mix them well together, apply quickly with a flat varnish brush.

Ink Erasing Fluid.

Fluids for Erasing Ink are somewhat in demand and may readily be made by druggists.

4452. Ink Eraser—One Preparation.—Solution of Chlorinated Soda (Labarraque's Solution) 2 parts, Water 1 part. Mix them. This is to be applied, and as soon as the ink disappears the moisture absorbed with clean blotting paper.

Ink Eraser. Two Preparations. No. 1. Hydrochloric Acid 1 ounce, Water 1 gallon. Mix them.

No. 2. Solution of Chlorinated Soda 2 parts. Water 1 part. Mix them. To erase the ink apply No. 1 with the end of the penholder, and then directly apply No. 2, and when the ink has disappeared absorb the moisture with clean blotting paper.

Bluings.

These are made both dry and liquid. The dry Bluings aside from indigo, consist of soluble Prussian Blue, and the liquids are solutions of the same in Water. They may be prepared as follows :

4453. Dry Bluing.—Prussian Blue 4 parts, Oxalic Acid 1 part. Powder the Oxalic Acid and mix them well together. If soluble Prussian Blue is used no acid is necessary. This is put up in various ways for the market.

4454. Liquid Bluing.— Soluble Prussian Blue 1 ounce. Oxalic Acid $\frac{1}{4}$ ounce, Boiling Water i quart. Dissolve the salts in the water.

Blackings and Shoe Dressings, etc.

A great variety of Blackings and Shoe Dressings are found in the market good, poor and bad. We have space only to give two or three good formulas.

4455. Shoe Blacking—*French Blacking*.—The paste Shoe Blackings of the market are all made in the same general way, by combining some elastic substances with oils, driers, black pigments, etc. The difference in them consists mainly in the quality of the materials used and the skill with which they are compounded. The following will make a good blacking. Dissolve India Rubber, cut fine, 2 ounces, in Cotton Seed Oil 1 pound, by the aid of heat, and add to the solution Ivory Black, in very fine powder, 7 pounds. Molasses 5 pounds, Gum Arabic, in powder, 2 ounces, Strong Vinegar 22 fl.ounces. Mix them thoroughly and grind the mixture through a paint mill, then add the Sulphuric Acid $1\frac{1}{3}$ pound, and stir daily for a week or more, or heat gently and incorporate the acid while warm. The use of Sulphuric acid in this blacking is not objectionable as it is neutralized by the lime salts contained in the Ivory or bone black used.

4456. Liquid Paste Blacking.—A liquid Blacking may be made by melting the above and mixing it with good vinegar, say three gallons for the above quantity. This is not like the popular Shoe Dressings on the market.

4457. Shoe Dressing.—Shellac, dark colored, $1\frac{1}{2}$ pound av., Sal Soda, crystals, $6\frac{1}{2}$ ounces av., Gum Arabic 4 ounces av., Negrosine (Black Aniline) $\frac{1}{4}$ ounce av., Water sufficient to make 1 gallon. Put the Sal Soda in half a gallon of Water and heat to boiling, add the Shellac to the boiling solution and continue the heat for 10 or 15 minutes until all the Shellac has dissolved that will (there will be a small portion undissolved), then add the Negrosine and a pint of Water in which the Gum Arabic has previously been dissolved. When cool, strain and add enough Water to make i gallon.

This is similar to most of the "patent" Shoe Dressings on the market. It may be made to dry more quickly by adding a little Alcohol.

4458. Bronze Shoe Dressing.— Add to the foregoing $\frac{1}{2}$ to $\frac{3}{4}$ ounce of Red Aniline in a gallon, and dissolve by gentle heat. Some other colored anilines will also make a bronze finish.

4459. Patent Leather Dressing.— This is designed to give a finish like patent leather, and is waterproof. It may also be used as a *Belt*

Polish, and for all similar purposes. India Rubber $\frac{1}{4}$ ounce, Shellac 4 ounces. Camphor $\frac{1}{2}$ ounce, Negrosine $\frac{1}{2}$ ounce, Wood Alcohol 12 fl.ounces. Dissolve the rubber by heat of water-bath in the Wood Alcohol, then add the other ingredients and dissolve.

4460. Bronzing Liquid.— Red Aniline 1 ounce, Violet or Purple Aniline $\frac{1}{2}$. ounce. Alcohol 10 ounces, Benzoic Acid $\frac{1}{2}$ ounce. Dissolve the Anilines in the Alcohol by aid of water-bath, then add the Benzoic Acid and boil 5 or 10 minutes, or until the greenish color of the preparation is changed to a light colored bronze. Apply with a brush or sponge.

This may be added to the shoe dressing.

4461. Government Harness Dressing.—Neatsfoot Oil 1 gallon, Bay berry Tallow 2 pounds, Beeswax 2 pounds, Beef Tallow 2 pounds, Castor Oil $\frac{1}{2}$ gallon, Lampblack 1 ounce. Melt together the Wax and Tallow, and add the Oils and Lampblack. When thoroughly mixed, strain through muslin.

4462. Waterproof Blacking. — For greasing boots, making them Waterproof, etc. Neatsfoot Oil 1 gallon. Beeswax 2 pounds. Shellac $\frac{1}{2}$ pound, Beef Tallow 8 pounds, Castor Oil 1 quart, Lampblack $\frac{1}{4}$ pound. Melt and mix them as the preceding.

4463. Harness Polish.—Glue 4 ounces, Vinegar $1\frac{1}{2}$ pint, Gum Arabic 2 ounces, Black Logwood Ink $\frac{1}{2}$ pint. Dissolve the Glue in the Vinegar by heat of water-bath, dissolve the Gum Arabic in the Ink. Mix the solutions while warm. This makes a jelly which should be dissolved by gentle heat when wanted to use. By adding to this $\frac{1}{2}$ ounce Nitric Acid it makes a liquid which is always ready for use.

The Shoe Dressing (4457) may also be used for Harness Polish.

4464. Hectograph Copying Pad.— Hectograph Copying Pads should be made somewhat softer for winter use than for summer, which can be done by adding a little larger proportion of Glycerin. Good Glue 4 ounces av., Glycerin 16 ounces av., Water 8 fl.ounces. Break up the Glue

and soak in the Water for a few hours, then heat by water-bath until melted, and add the Glycerin and heat together for some time to evaporate part of the Water, then strain into a shallow square tin to make the desired shape, and skim with a card to free from bubbles. This is improved by adding 1 ounce carbonate of barium to the liquid while warm.

The writing to be copied is done with Hectograph Ink (4436) and transferred to the pad, sheets of paper are then put on and copies made.

4465. Carbon Duplicating Paper.— Lard 10 ounces. Beeswax 2 ounces, Canada Balsam 1½ drachm, Lampblack sufficient. Melt the Lard, Wax and Balsam together and add enough Lampblack to make of the desired color. This is applied to firm thin paper with a flannel dauber and wiped off with clean rags.

POLISHING PREPARATIONS.

Among the preparations put up and sold by druggists and others connected with the business are a great variety of Polishes of different kinds, and for various uses. The following are the formulas for the more important ones :

Furniture Polish.

For restoring the color or luster of furniture, preparations are designed to be applied with a cloth, and rubbed until dry.

4466. Furniture Cream.—Common White Soap 150 grains, Sal Tartar 60 grains, White Wax 2½ ounces, Water 5 fl.ounces, Oil of Turpentine 10 fl.ounces. Melt the Soap in the Water by the heat of water-bath, add the Sal Tartar and then the White Wax. When the Wax is melted, remove from the fire and slowly add, with constant stirring, the Oil of Turpentine, mixing them thoroughly while cooling. This is to be applied with a cloth and rubbed down with Canton flannel.

4467. Furniture Polish.— Linseed Oil 6 fl.ounces, Alcohol 3 fl ounces, Shellac 1 ounce av., "Butter" of Antimony 1½ fl.ounces, Hydrochloric Acid ½ ounce, Oil of Turpentine 5 fl.ounces. Dissolve the Shellac in the

Alcohol, and mix with the Linseed Oil and Turpentine, then, having mixed the Hydrochloric Acid and "Butter" of Antimony, add them to the preparation and mix thoroughly. Apply as the preceding.

Glass Polish.

For polishing glass, mirrors and bright ware, as silver-plated ware, etc., the following are recommended :

4468. Glass and Silver Polish.— Prepared Chalk 3 ounces av.. Alcohol, Water of Ammonia and Water, each, 3 fl.ounces. Mix them by rubbing the Chalk to a smooth paste with the liquids.

4469. Glass Polish.—Calcined Magnesia mixed with Gasoline into a liquid of the consistence of cream is excellent for polishing plate glass, mirrors, etc. Calcined Magnesia made up into balls with powdered soap is also a good preparation for this purpose.

Silver Polishes.

The following are recommended for polishing silver and nickel-plated ware, etc. They make fine polishes that will not scratch.

4470. Silver Polishing Liquid.— Prepared Chalk 1 pound, Crocus Martis 4 ounces. Mix well together and to make up, put 1 ounce of the mixture in a 4 ounce bottle, add 1 ounce of Water of Ammonia and Water enough to fill the bottle. Shake before using and apply with a cloth, then rub off when dry with another cloth.

4471. Silver Polish Powder.—Rouge or fine Crocus Martis 1 ounce, Fossil Silica 4 ounces. Prepared Chalk 1 pound. Rub the Fossil Silica to a fine powder and mix intimately with the Chalk. This will not scratch the finest surface. A cheaper powder may be made with whiting and rotten stone, or by using Prepared Chalk alone.

4472. Silvering Solution or Polish.—Cyanide of Potassium 2 ounces, Nitrate of Silver 1 ounce, or a sufficient quantity, Distilled Water 12 ounces, Precipitated Chalk 2 ounces. Dissolve the Cyanide of Potassium in the Water and add to it a concentrated solution of Nitrate of Silver as long as the precipitate first formed is redissolved, then add the chalk, and mix them thoroughly. This serves as a plating and polish for silver.

4473. Gilding Solution.— This is made in the same manner as the foregoing, only Chloride of Gold and Sodium is used instead of Nitrate of Silver.

Polishes for Brass and Metal.

The foregoing polishes may also be used on brass and metals, but do not "take-hold " like the following :

4474. Polishing or Pultz Pomade.—Subcarbonate of Iron 6 ounces, Fossil Silica 2 ounces. Petrolatum 1 pound, Cotton Seed Oil 2 ounces. Oil of Mirbane, or Essential Oil of Almonds 40 minims. Reduce the Fossil Silica to a very fine powder and mix it with the Iron, melt the Petrolatum, add the Cotton Seed Oil and stir in the powders, run through a sieve, and while cooling add the flavoring Oil and stir until ready to set, then run into boxes. Instead of Fossil Silica, Prepared Chalk or Whiting may be used. This is applied with a rag and well rubbed, then wiped off with a clean cloth and the surface polished with a little whiting if necessary.

4475. Polishing Liquid—*For Brass, Copper, etc.*—Oxalic Acid 1 ounce, Crocus Martis 2 ounces, Whiting 4 ounces, Water 1 pint. Mix. Shake before using, apply with rubbing and polish dry with Whiting. The same substances may also be used dry, or applied with a little Oil with rubbing and rubbed dry with whiting.

4476. For Polishing Tin.— Mix Oxide of Tin 1 part with Whiting 3 parts, and polish by rubbing with the powder.

4477. Tripoli.— This is a gritty, polishing substance made by calcining flint and reducing to a powder; ordinary *Water Lime* is used for the same purpose. They are not intended for fine, highly-polished surfaces, but for brightening and scouring.

4478. Stove Blacking or Polish.— Stove Blacking as it is known in the market is simply Blacklead, Amorphus Graphite or Plumbago, variously prepared and moulded, pressed, or cut into shape. It is obtained from mines, and consists of Carbon mixed with Iron, the mixture often being called Carbide or Carburet of Iron. It is finely

ground, made into a stiff paste, moulded into bricks or other convenient form and dried. It is also furnished in the form of paste run into boxes.

Laundry Polish.

For giving a gloss to linen, preparations are put up in the form of liquids, also in cakes of wax. They are mixed with the starch when made, and the polish is secured by ironing with a rounding polishing iron.

4479. Laundry Wax or Polish — *Starch Gloss.*— White Wax, Paraffin, Spermaceti, Stearin, powdered Gum Arabic, of each equal parts, melt the waxes, and while cooling stir in the powdered Gum Arabic and run in molds. Two drachms of this wax boiled with a pint of starch and thoroughly mixed with it is the proper proportion for polishing, half the quantity suffices for ordinary finishing.

Paraffin alone is used for the same purpose.

4480. Liquid Starch Glace.— White Wax 1 ounce, Spermaceti 1 ounce, Gum Arabic 1 ounce, Borax 1 ounce, Water 10 ounces, Oil of Cloves 10 drops. Dissolve the Borax and Gum Arabic in the Water, melt the Wax and Spermaceti and while liquid rub with the solution of Borax, etc., to make an emulsion, mixing them thoroughly. A tablespoonful or two of this liquid in a pint of starch gives a fine polish. It may also be applied after starching by rubbing over the starch with a cloth, and then polishing with the iron.

PRESERVATIVES.

For preserving fruit, fruit juices, foods, etc., several preparations are put up and sold in various forms. The following are representations.

4481. Cider Keeper.—For keeping Cider and other fruit juices. Salicylic Acid has been proven to be the best. It may be put up in packages of $\frac{3}{4}$ ounce each, which is sufficient to keep a barrel (45 gallons) of Cider. It is to be added when the Cider is "just right," and should be mixed with a gallon of Cider before adding to the remainder, and then thoroughly mixed with the whole.

For keeping wines, etc., it should not be added until after fermentation has ceased.

4482. Cider Preservative.—Sulphite of Lime is used for this purpose with good effect. Four ounces in a barrel of Cider is the required quantity, mixed in the same manner as above described.

4483. Fruit Juice Preservative.—To preserve Fruit Juices in their natural condition without the aid of heat, add to each gallon of the freshly pressed juice 20 fl.ounces of Cologne Spirit in which 40 grains of Salicylic Acid have been dissolved, and set away, tightly stopped, in a cool place. Treated in this manner Fruit Juices will not spoil, ferment or mould.

4484. Fruit Preserving Liquids.— A saturated solution of Hyposulphite of Sodium may be used for preserving fruit, in the proportion of a tablespoonful to a quart of fruit. It imparts a bitterish, saline taste.

A solution of Salicylic Acid 1 ounce, in Alcohol 1 pint, may be used for the same purpose, a tablespoonful being used with a quart of fruit and the ordinary quantity of sugar.

4485. Egg Preservatives.—Eggs may be preserved by dipping them in melted paraffin or by rubbing them over with Petrolatum, with which a little Salicylic Acid, say $\frac{1}{2}$ per cent., has been mixed. They should be rubbed over twice with this.

They may also be preserved by soaking in the saturated solution of Hyposulphite of Sodium as above, or in a strong solution of Salicylic Acid in Alcohol.

4486. For Preserving Specimens.—For specimens to be preserved in anatomical jars, Diluted Alcohol is the best preservative. The substance should be suspended from the hook or by a cord, and covered with Diluted Alcohol.

4487. For Preserving Organic Substances.— Wickersheim's Process.

FOR INJECTING. FOR STEEPING.

Arsenious Acid,	16 grammes.	12 grammes.
Sodium Chloride,	80 grammes.	60 grammes.
Potassium Sulphate,	200 grammes.	150 grammes.
Potassium Nitrate,	25 grammes.	18 grammes.
Potassium Carbonate,	20 grammes.	15 grammes.
Water,	10 liters.	10 liters.
Glycerin,	4 liters.	4 liters.
Methylic Alcohol,	$\frac{3}{4}$ liter.	$\frac{1}{2}$ liter.

The solid substances are boiled in the Glycerin and Water, and the Alcohol added when cool. These liquids are used for preserving dead bodies, embalming, etc.

WINES AND SPIRITOUS LIQUORS.

Wines and Spiritous Liquors form quite a large portion of the articles used and sold by druggists. In this article it is impossible to give anything but a brief outline of their manufacture, but our work seems incomplete without such reference. The following processes, formulae, etc., are therefore given. They have also been referred to in the articles: Alcohol, Wines, and Spirits, Part III.

Wines.

Natural and artificial Wines are found in the market in great variety; both kinds will be considered in this article.

4488. Pure Wines are, or should be, made by the fermentation of Grape juice, by which their saccharine matter is converted into Alcohol or Spirit, which, if in sufficient quantity, prevents the Wine from deliterious change; but if insufficient, is still further oxidized, being converted first into an aldehyd and then into acetic acid or vinegar. With light grape juices it is often necessary to add cane-sugar previous to or during fermentation, that a larger proportion of Alcohol may be produced by its decomposition, or to add a small percentage of Cologne Spirit to the Wine after the fermentation is completed, and before the

acetic change has begun, and should be three years old before they are offered for use.

In making Wines the cask or package in which they are made should be kept filled, by adding a little from time to time as the pumice and foam works off through the open bung at the top. When the fermentation is completed, they should be tightly bunged and put aside in a cool place, and after standing a few months "racked off " into another clean cask, rejecting the sediment at the bottom.

4489. White Wines.— These are made from many varieties of grapes by pressing out their juice, fermenting and treating as already described. These Wines are known by various names derived from the variety of grapes from which they are obtained, the locality where they are produced, etc. In medicine, imported Sherry is preferred, as it contains a larger percentage of Alcohol than other varieties. Our own native Wines are also much used, California Wines, Angelica Sherry and Muscatel, being of good body and flavor, and Catawba Wine made in the East, are much esteemed.

4490. Red Wines.— Most of the Red Wines are made by fermenting the juice of red grapes in presence of their skins and pulp. Unlike the White Wines the juice is not pressed out until the fermentation has proceeded for some time. This process secures the red color and the astringent qualities which the Red Wines usually possess. The favorite medicinal Red Wine is the Oporto or Port; but similar Wines made in this country from various varieties of red grapes are much used.

4491. Improvement of Wines.—It has been found by experiment that the quality of Wines may be improved and the quantity much increased in various ways.

Chaptal's process consists in the addition of sugar to the expressed juice before fermentation, which being decomposed increases the Alcoholic strength. Marble dust is then added to neutralize the excess of acid.

Dr. Gall's method is to prepare a normal must or juice mixed with an equal quantity of Water, containing 0.5 to 0.6 per cent. of free acid and 22 to 24 per cent. of sugar, which is treated in the same manner as true grape juice.

Petiot's method for improving and increasing the quantity of Wine, consists of adding to the expressed juice an equal volume of Water containing the same proportion of sugar as is contained in the natural juice. Then to the pulp of the grapes adding a like quantity of Water sweetened in the same proportion and allowing to ferment for three days. Then pouring off and again adding the same quantity of sweetened Water to the same pulp and allowing to ferment as before, and finally mixing the liquids all together, thus making four times as much Wine as there was grape juice to start with, and, it is claimed, equal in all respects to pure grape juice Wine. Wines made in this manner have the true bouquet of pure Wines, are not subject to disease like pure Wines, and mature in a few months instead of two or three years as is required for natural wines.

Glycerin and Salicylic Acid are often added to Wines to preserve them. To preserve light Wines (deficient in Alcohol), they are heated to 124° F. and put up at once in bottles or casks, and closely sealed; this process was introduced by Pasteur.

Artificial Wines.

Besides the process of improving and diluting Wines above described, a great deal of Wine entirely fictitious is found in the market. A few formulas only can be given, and they are given as suggestions rather than formulas, for each kind of Wine requires some special treatment peculiar to itself.

4492. Artificial White Wine.— As a base for any of the Artificial White Wines the following may be used: Grape Sugar 25 pounds, Tartaric Acid $\frac{1}{2}$ pound, Hot Water 6 gallons, Cold Water 19 gallons. Grape pulp, fresh, 50 pounds (or common raisins 30 pounds). Dissolve the Sugar and Acid in the hot Water and add the cold Water, add this to the Grape pulp or to the raisins, chopped fine, stir well together and allow to ferment 4 or 5 days, stirring occasionally, then press and transfer the liquid to a barrel in the cellar and treat in the same manner as other Wine. If necessary after fermentation Cologne Spirit may be added to make up the alcoholic percentage required.

The Grape pulp or raisins used will give the desired flavor to the Wine, according to the kind used, but if a more distinctive flavor is desired, the artificial flavors or oils made for the purpose from Ethers may be used

as directed. In this manner Angelica, Muscatel, Catawba, Rhine Wine, Sherry and other varieties may be made. Champagne is artificially prepared from white wine by charging it with carbonic acid gas, and bottling.

4493. Artificial Red Wines.—As a general base for Artificial Red Wine the foregoing formula may be used with the addition of astringents, coloring substances and flavoring. The substances used for coloring are juices of fruits, as raspberry, cherry, elderberry, pokeberry, whortleberry, etc., or decoctions of Cochineal, Brazil wood, logwood, etc.; the former are greatly to be preferred; Prunes are also frequently added. The flavorings are made from combinations of ethers, etc. The astringent substances added are, Catechu, Kino, Oak-bark, Tincture of Galls, etc., about 1 ounce of Catechu or Kino being used for 10 gallons of Port Wine and two or three times the quantity for Clarets. Much less sugar also is required in the Bordeaux or Claret Wines.

4494. Wine Essences or Extracts.—The true flavor of Wines can only be obtained in a concentrated form by distilling the Wines or the lees from which the juices are pressed, and separating their flavoring or oils by various treatment. These oils or essences or flavors, are ethers, which result from the oxidation of Alcohol radicals, chiefly of the Amyl and Ethyl series, and they may be artificially produced by combining various Ethers, obtained by the oxidation of fousel oil, potato oil, etc. Their production and combination, however, is still experimental and uncertain, and it cannot be said that the true flavor of any particular kind of Wine has been produced artificially, although close imitations have been arrived at, and manufacturers claim to furnish Wine essences or flavors of various kinds. They are at best, however, but poor imitations, and their formulas had better be deferred until they have been more definitely determined than at present.

Spirits or Spiritous Liquors.

Spiritous Liquors are prepared from saccharine or starchy liquids by fermentation and subsequent distillation of the more volatile portions which result from the decomposition of the sugar or its change into alcohol. Fruit and other juices, grains of various kinds, or any substances which contain sugar or starch in abundance, may be used for making spirits. In this country *Brandy*, distilled from Wines or fermented grapes, apples, etc., *Rum*, distilled from fermented molasses,

or sugar cane juice, and *Whisky* and *Gin*, distilled from fermented grains or other substances containing starch, are the chief liquors used; but in other countries other liquors containing alcohol are made from various substances, as rice, the juice of cactus, potatoes, etc.

The general process of making Spiritous Liquors is briefly described under Alcohol, Part III. For the special processes and treatment of various substances for the production of Spirits or Alcohol our readers are referred to standard works upon that subject. The following brief suggestions may be of interest:

4495. Brandy.— Brandy is distilled from fermented grape juice or the fermented pulp and juice of grapes; the best varieties being known as Cognac, obtained from the South of Europe; good brandy is also made in this country. A brandy is also obtained from cider, which is familiarly known as "Apple Jack."

Brandy contains from 40 to 60 per cent. of Alcohol, the varieties generally sold being about 50 per cent. or 100° proof.

4496. Artificial Brandy.— The high price of Brandy makes its artificial production quite desirable, and fictitious brandy is much more frequently found in the market than genuine. The simplest way to make Artificial Brandy is to dilute Cologne Spirit 190° proof, with an equal volume of pure Water, adding to each gallon about 5 grains of Tannic Acid, 3 drops Oil of Cognac, 3 drops of Ceanthic Ether, and sufficient burnt sugar coloring to give it the desired color. This may be improved by adding 1 fl.drachm Extract of Orris and 5 drops Essence of Almond to a gallon. One ounce of Syrup is sometimes added.

This may also be prepared from the Brandy Essence and proof Spirit, or diluted Cologne Spirit, as directed below.

4497. Brandy Essence.—A flavoring for Brandy may be prepared ready for use as follows: Oil of Cognac, fine, 1 ounce, Ceanthic Ether, commercial, 1 ounce, Oil of Bitter Almond 2 fl.drachms, Orris Root, in powder, 16 ounces. Tannin 2 ounces, Cologne Spirit, sufficient to make 1 gallon. Macerate the Orris Root in the Spirit for one week and percolate until 1 gallon is obtained; to this add the Tannin, dissolve and filter, and then dissolve the Oils and Ether in the filtrate. Half a pint of this Essence is sufficient for 40 gallons of Brandy (1 ounce for 5

gallons), added to colored proof Spirit. The true Oil of Cognac is very expensive, but upon this depends the fine flavor of the brandy.

4498. Rum.— Rum is distilled from fermented molasses or from the fermented juice of the sugar-cane. New England Rum is distilled from molasses, but *St. Croix* or *Santa Cruz* and *Jamaica Rum*, made in the West Indies, are distilled from the juice and fragments of sugar-cane and the refuse of sugar factories. The juice and slices of pine apples and other tropical fruit are usually added to the distilled rum or mixed with the fermented liquid before distillation. Jamaica Rum is the most esteemed of any,

As found on the market the different kinds of Rum are about 100° proof, but Jamaica Rum as imported contains from 60 to 75 per cent. of Alcohol. Much of the Rum found on the market is artificially prepared after the manner described below.

4499. Artificial N. E. Rum.—Cologne Spirit 190° proof, pure Water, each, 10 gallons, Butyric Ether 2 ounces. Acetic Ether 2 fl.drachms, Extract Orris 2 fl.drachms, Syrup 1 quart. Mix them.

4500. Artificial Jamaica Rum.—To imitate Jamaica Rum best, a portion (from $\frac{1}{2}$ to $\frac{1}{3}$) of imported Jamaica Rum should be used, diluted to proof with Cologne Spirit and Water, and flavored with a little Essence of Jamaica Rum, about 1 ounce to 10 gallons of the finished product. A very good imitation may, however, be made as follows: Cologne Spirit 190° proof 10 gallons, Water 10 gallons. Essence Jamaica Rum 3 ounces, Tincture Catechu 2 ounces, Brown coloring (caramel), sufficient. Mix them.

4501. Artificial Santa Cruz Rum.— This may best be made by mixing 1 gallon of Genuine Santa Cruz Rum with 7 gallons New England Rum, and adding 1 ounce of Jamaica Rum Essence.

4502. Imitation Arrack.—To 12 gallons of New England or Santa Cruz Rum add 1 ounce of Benzoin and 1 ounce of Tolu, and 1 sliced pine apple, macerate for two weeks and filter through a little Magnesium Carb. The Benzoin and Tolu are best dissolved as much as possible in a pint of Cologne Spirit before adding.

4503. Jamaica Rum Essence.—Butyric Ether 15 fl.ounces. Acetic Ether 3 fl.ounces, Tincture of Vanilla, Alcoholic, 2 fl.ounces. Extract of Orris 2 fl.ounces, Cologne Spirit 3 ounces. Mix them.

4504. Whisky.— This is by far the most familiar and most used spiritous liquor of this country. Our distillers are famed for the production of fine brands of Whisky, which, like the wines of certain houses of Europe, have their reputation at home and abroad. The production of fine whiskies is a trade secret with their manufacturers, all being similar in composition and alcoholic strength but differing sufficiently in flavor to make them distinctive and different to experts. Whiskies are made by combining various grains with rye or barley malt, etc., in varying proportions, grinding, fermenting, treating in various ways, distilling, etc.; but the limits of this article does not admit even of a description of the processes employed only in a general way. In the manufacture of fine whiskies from 8 to 10 quarts only are distilled from each bushel of grain used; but in making the cheaper grades of whisky, by improved process, from 13 to 20 quarts are distilled from the mash for each bushel of grain used. Whisky improves by age and is not suitable for use until it is at least 2 years old. Various treatments for "Aging" Whisky by agitation and otherwise are employed.

4505. Artificial Whisky.— Owing to the moderately low price of good Whisky as compared with Spirits but a small proportion of the amount sold is made up from Cologne or Neutral Spirit direct; but by mixing different grades of Whisky, or by mixing good high flavored Whisky with proof Spirit, a great variety of cheap and moderate-priced whiskies are produced. Nor is this alone the reason for mixing whiskies, for by combining some of the best grades with each other "blends" are produced which surpass in flavor those of which they are composed when taken alone. A variety of flavoring essences or oils are also made for flavoring whiskies, but they are little used except by rectifiers.

These oils or essences are combinations of Amyl and Ethyl Ethers as before described and have no standard of composition, different manufacturers furnishing entirely different flavors under the same name.

A general formula for Whisky made from spirits is as follows: Cologne Spirit, 190° proof, 20 gallons, pure Water 20 gallons, good, high flavored Bourbon or Rye Whisky 10 gallons. Mix and color with burnt

sugar (Caramel). For Wheat Whisky leave uncolored. This makes a good cheap Whisky without any objectionable features. If too expensive for the use desired, on account of the addition of the good Whisky, 8 ounces of any of the following essences may be used instead. The proof may also be reduced by adding more Water, and by the addition of 2 ounces of the beading oil it will still "hold its bead."

4506. Bourbon Whisky Essence.—Rectified Fousel Oil 1 ounce, Acetate of Amyl 4 ounces, Pelargonic Ether 2 ounces, Extract of Orris 4 ounces, Oil of Wintergreen 1 ounce. Acetic Ether 1 ounce, Cologne Spirit 12 fl.ounces. Mix them. Use 1 ounce for flavoring 5 gallons.

4507. Rye Whisky Essence.—Butyric Ether 1 ounce, Rectified Fousel Oil 1 ounce, Butyrate of Amyl 1 ounce, Acetic Ether 2 ounces, Extract of Orris 4 ounces. Extract of Vanilla 1 ounce. Extract of Musk Root 4 ounces, Cologne Spirit 12 fl.ounces. Mix them. Use 1 ounce for flavoring 5 gallons.

4508. Scotch and Irish Whisky.—These have a smoky flavor, which may be imitated by adding Soot, or by adding a drachm of Creasote dissolved in an ounce of Acetic Acid to a barrel of ordinary Whisky. Many other varieties of Whisky are known; as *Malt Whisky*, *Monongahela Whisky*, and an infinite number of private brands of manufacturers which have become popular.

4509. Bead or Beading Oil.— For low proof liquors an artificial bead is required. It is made by rubbing 1 ounce of the finest Olive or Almond Oil with 1 ounce of Sulphuric Acid in a mortar, gradually added, and when entirely combined adding sufficient Cologne Spirit to dissolve it, about 20 ounces being necessary. Two or three ounces of this is used in a barrel.

This Beading Oil is used for all kinds of spiritous liquors. The same effect may be secured by filtering through starch or wheat bran.

4510. Rye and Rock.—Good Rye Whisky 6 pints, Water 1 pint. Rock Candy 2 pounds. Dissolve the Rock Candy by heating with the Water; then add the Whisky and filter. The Whisky and Water may also be mixed and the Rock Candy dissolved in the mixture cold, but it is much more expeditious to dissolve the Rock Candy first in the Water by heat.

4511. Tolu, Rock and Rye.—Tincture Tolu 2 ounces, Carbonate of Magnesium $\frac{1}{2}$ ounce. Good Rye Whisky 6 pints, Water 1 pint, Rock Candy 2 pounds. Rub the Magnesium to a fine powder and add the Tincture Tolu; triturate and gradually add 8 ounces of the Whisky, rubbing it thoroughly together. Dissolve the Rock Candy by heating with the Water and add the Whisky, then mix all together, allow it to stand 24 hours, and filter clear. This is a much used and very good stimulating cough preparation.

Dose, tablespoonful or more, as required

4512. Tolu, Rock, Rye and Redroot.—Fluid Extract Bloodroot $\frac{1}{4}$ ounce, Tolu, Rock and Rye 1 gallon. Mix and after standing 48 hours filter. The addition of the Bloodroot to the Tolu, Rock and Rye makes a fine preparation for bronchial difficulties, coughs, colds, etc.

4513. Gin.—Aside from Whisky, Gin is the most used of any of the Alcoholic liquors. The spirit from which genuine Gin is made is distilled from grain and malt the same as Whisky, and after being properly purified by rectification it is redistilled with Juniper berries and some aromatics, or the aromatics are added afterward. Like Whisky, the old distillers of Gin have their trade secrets and make favorite brands which have become well known. Good Gin is made in this country, but Holland has the reputation of producing the best in the world. In distilling Gin, from 5 to 10 pounds of Juniper berries are used for 100 gallons, and the aromatics are proportioned according to the variety desired to be made.

As Gin is a compound liquor, it cannot be classed as artificially made like other liquors, the only difference in the distilled and the prepared Gins being the use of Juniper berries and aromatic substances, instead of the oils or essences of the same.

Instead of the distilled Gin as above described the following may be used, and will give very good results :

4514. Holland Gin.—Cologne Spirit 190° proof 20 gallons, pure Water 20 gallons. Oil Juniper berries $2\frac{1}{4}$ fl.ounces, Oil of Lemon 20 drops. Oil of Coriander 15 drops. Oil Bitter Almonds 5 drops. Oil Cassia 5 drops, Oil Fennel 5 drops. Syrup of Acacia 1 gallon. Dissolve the Oils in a gallon of the Spirits, and having mixed the remainder of the Spirit with the

Water, add the solution to it, then add the Syrup Acacia and mix them well together by agitation. After standing for some time draw off and filter clear through the filtering mixture (see below).

4515. London Cordial Gin.— Cologne Spirit 20 gallons, Pure Water 20 gallons. Oil Juniper Berries 2¹/₄ ounces, Oil Calamus 20 drops, Oil Angelica 10 drops. Oil Coriander 5 drops. Oil Cassia 5 drops. Oil Bitter Almond 5 drops, Syrup Gum Acacia 2 gallons. Dissolve the oils in 1 gallon of the spirits, and having mixed the remainder with the water, add the solution and then the Syrup of Gum Arabic, mix them well together and after standing filter clear.

4516. Schiedam Schnapps.— Make a tincture or extract by percolating Gentian, Bitter Orange peel. Agaric, Galangal, Centaury, each, 4 ounces, all in coarse powder, with diluted Cologne Spirit sufficient to make 1 gallon. Add 1 ounce of this extract to a gallon of the Holland or London Cordial Gin as above.

4517. Old Tom Gin.—Oil Coriander 1 drachm. Oil Cedar 1 drachm, Oil of Fennel 1/2 drachm, Oil Bitter Almonds 15 drops. Oil Angelica 30 drops, Oil Juniper Berries 1/2 ounce, Syrup Acacia 1 gallon, Cologne Spirit, 190° proof, 20 gallons, Water 20 gallons, Orange Flower Water 1 pint. Dissolve the oils in 1 gallon of the spirit and mix with the remainder of the articles as directed for London Cordial Gin. Other varieties may be made in the same general manner.

4518. To Filter Gin and other Liquors.—When Essential Oils are used in compounding liquors they turn milky and must be filtered. For this purpose a mixture of Burnt Alum 4 ounces, White Pipe Clay 6 ounces, Carbonate of Magnesium 4 ounces, Carbonate of Potassium 1/2 ounce, is put in a woolen bag or cloth, and the liquor filtered through the mixture until clear.

By adding a quart of Lime Water to a barrel of Gin the same result may often be accomplished.

4519. To clarify Gin or Cordials—*Spirit Finings* for this purpose are used, and may be made by first adding 2 ounces of powdered Alum dissolved in a quart of warm Water to a barrel, and after thoroughly stirring, adding 1 ounce of Sal Soda dissolved in 1 pint of Water.

By adding a quart of skimmed milk and 2 ounces of Gelatin dissolved in a quart of Water to a barrel of Gin or other liquor and allowing to settle, it is usually made clear, and the blackness which is liable to occur in Gin is removed; 3 or 4 eggs beat to a froth, mixed with a gallon of liquor and added to a barrel, will usually make it clear after standing.

4520. Liquors and Cordials.— A great variety of Cordials, sweetened and flavored Liquors, bitters, ratafias, etc., are made and used but are not much in demand in this country. Almost every aromatic known is introduced in the manufacture of these cordials, etc. A few of them have been mentioned elsewhere (Part III), but the demand for them is so small, and the space so limited, that no more can be here introduced.

VARNISHES.

For coating and finishing the surfaces of wood, metals, glass, labels, pictures, etc., solutions of resins of various kinds in spirits or oils are employed. Most of these varnishes are purchased of manufacturing houses who make them in large quantities, but some of them are readily prepared and considerably used by druggists, among which are the following. Some other varnishes have been mentioned elsewhere :

4521. Label Varnish.— This may be made by dissolving pale Shellac 6 ounces in 12 fl.ounces of Alcohol by the aid of heat and adding to the warm solution 1 pint of Linseed Oil and 2 drachms of Chloride of Zinc, agitating them until the Zinc salt is dissolved. It is applied with a brush, or by dipping the label, or floating it.

A spirit varnish made with Sandarach, Shellac and Alcohol may also be used.

4522. Spirit Varnish.—Sandarach 3 ounces, pale Shellac 2 ounces, Alcohol 20 fl.ounces. Dissolve and add Copal Varnish 2 ounces, mix well. strain through gauze, set aside for a month and decant the clear portion from the sediment. This is used for labels, pictures, Waier colors, lithographs, etc.

4523. Shellac Varnish.— For "killing" knots in wood for polishing and many other purposes, Shellac Varnish is used. It is simply Shellac

dissolved in Alcohol. About 3 pounds of Shellac with sufficient Alcohol to make a gallon. It is used thinner for some purposes.

4524. Transfer Varnish.—Mastic, Sandarach, each, 2 ounces, Alcohol 15 fl.ounces. Dissolve and add pure Canada Balsam 4 ounces. This is used for transferring engravings, lithographs, decalcomania pictures, etc., and for gilding, silvering, bronzing, etc.

4525. Other Varnishes.— Of the other varnishes that are used, *Demar Varnish* is made by dissolving Gum or Resin Demar in Oil of Turpentine, *Copal Varnish*, by dissolving Copal in Oil of Turpentine. This is also known as *Furniture Varnish and Carriage Varnish*, many varieties being made from different qualities of gum or resin, Mastic Varnish may be made by dissolving Mastic either in Alcohol or Oil of Turpentine.

Crystal Varnish is made from Canada Balsam mixed with an equal volume of Oil of Turpentine. It is also known as *Map Varnish*, and is used diluted with Oil of Turpentine for making tracing paper. Wax Varnish is prepared by melting 2 ounces of Wax with 6 ounces of Oil of Turpentine and mixing with a pint of Copal Varnish.

Sealing Wax Varnish is made from Shellac Sealing Wax dissolved in Alcohol. It is used for chemical and electrical apparatus, cork tops, etc. Many other varnishes are known and used.

Glass Varnish — for making a film on glass the Wax Varnish above is good. A transparent varnish for glass is made of Sandarach and Mastic, each 2 ounces dissolved in Alcohol 20 ounces.

UNCLASSIFIED PREPARATIONS.

4526. Purifying Bees' Wax.— Melt 10 pounds of wax with 1 pint of Vinegar and a quart of Water; when melted, strain and wrap the vessel and cover it with several thicknesses of cloth so that it will cool slowly ; all sediment settles to the bottom and may readily be scraped off.

4527. Prepared Corks.— Corks may be prepared for resisting the action of acids, etc., by immersing them in melted Paraffin, and when removed putting them at once into cold Water; this gives them a coating

of paraffin and fills all the cavities, making them imperious to acids, etc.

Burnt Cork may be prepared by placing a quantity of corks, in an iron kettle, covering closely and heating them until they are reduced to charcoal; they may then be powdered,

4528. Bleaching Sponges.— To bleach Sponges first dip them in a solution of Permanganate of Potassium 1 ounce in 1 gallon of Water, squeeze out the Water as much as possible, then pour upon them a solution prepared with Hyposulphite of Sodium 1 pound, Water 7 pints. Hydrochloric Acid 1 pint, until they are white, then to prevent turning yellow when dry dip in a solution of 2 drachms Bicarbonate of Sodium in 1 gallon of Water and drain.

4529. Tooth Cement.—For filling the cavities of teeth Collodion may be used as it quickly sets, forming a plug; Portland Cement may also be used. A solution of Mastic, 1 part, in Alcohol, 3 parts, hardens quickly when put in the cavity of a tooth.

4530. Sulphur Lotion.— Sulphocarbolate of Zinc 20 grains, Oxide of Zinc 120 grains. Lac Sulphur 60 grains, Cologne 1 ounce, Glycerin 1 ounce, Rose Water 5 ounces. Rub the Oxide of Zinc with the Lac Sulphur, and then with the Cologne; add the Glycerin and the Rose Water in which the Carbolate of Zinc has been dissolved.

4531. Boracic Acid Ointment.—Boracic Acid 1 part, Yellow Wax 1 part, Benzoinated Lard or Petrolatum 6 parts. Rub the Acid to a very fine powder with a few drops of Alcohol. Melt the Wax and Benzoinated Lard together and incorporate the powder with the mixture while cooling.

4532. Glycerin Cream.— Glycerin Cream 6 ounces. Soft Soap (Sapo Mollis 2908) 5 ounces, Rose Water, triple, 5 ounces. Tincture of Arnica 1/2 ounce. Boric Acid 1/2 ounce. Dissolve the Acid in the Glycerin by heat, and add the mixture to the other ingredients which have been previously well mixed in a mortar.

4533. Polyform Liniment.— This is said to be like Edson's preparation. Chloral Hydrate 1 ounce av., Alcohol 4 fl.ounces, Chloroform 2 1/4 fl.ounces, Camphor 2 ounces av., Ether 2 fl.ounces, Oil

of Peppermint, Oil of Cloves, each, 5 drops. Salicylic Acid 5 grains. Nitrate of Amyl, Sulphate of Morphine, each, 3 grains. Mix them. This is used for Neuralgia, Tic Doloieux, etc.

4534. Local Anaesthetic.— For applying to the gums before extracting teeth and other similar purposes to numb the parts and prevent pain. It is also excellent for neuralgia, etc. Stronger Ether 1½ ounce, Menthol 60 grains. Fluid Extract Cannabis Indica 20 minims, Cocaine 2 grains, Oil Peppermint 15 minims. Saturate absorbent cotton with a small quantity of the liquid and apply to the gums, allowing it to remain about 5 minutes before the operation.

4535. Curry Powder.— Coriander Seed, Turmeric, Dessicated Coconut, each, 4 ounces. Cassia Buds, Fenugreek Seed, Poppy Seed, each, 2 ounces, Mustard, Ginger, Mace, each, 1 ounce, Capsicum, Allspice and Garlic, each, ½ ounce. Grind them all together to a fine powder. This is a fair imitation of the genuine Indian Curry Powder. It is used for seasoning.

4536. Celery Salt.—Celery Seed, in fine powder, 1 ounce, Fine, dry table Salt 7 ounces. Mix them well together.

4537. Pepper Sauce.— This is conveniently made by adding good vinegar to whole Bird Pepper, or Capsicum contained in a Pepper Sauce bottle.

4538. Worcestershire Sauce.— The composition of this sauce is a trade secret, but a variety of similar sauces are found on the market. A good imitation may be made as follows: Chop the green outer covering of unripe walnuts 5 pounds, bruise them to a pulp in a mortar, pour upon them 6 pints of good strong vinegar, and after standing a day heat to boiling and strain with strong pressure. To the liquid thus obtained add garlic, grated to a pulp, 2 ounces, Capsicum, in fine powder, 2 ounces, Black Pepper 1 ounce, Cinnamon 1½ ounce, Nutmeg ½ ounce. Allspice 1 ounce, Cloves ½ ounce, all in fine powder. Salt 12 ounces. Brown Sugar 8 ounces, and enough good vinegar to make 1 gallon of the finished product. This is to stand for some time, with frequent agitation, and then be put up in bottles.

4539. Sugar of Lemons.—Citric Acid i ounce. Extract of Lemon 1 ounce, Sugar 1 pound. Powder the Acid and mix thoroughly with the Sugar, rub the Extract of Lemon first with a small quantity of the mixture and then with the remainder gradually added. A tablespoonful of this makes a small glass of lemonade.

4540. Butter Color.—Annatto, fresh and of good quality, 2 pounds, Salad Oil of good quality without flavor (purified cotton seed oil is best), sufficient to make 1 gallon. Rub the Annatto with a portion about one third of the Oil and macerate it by the heat of a water-bath for 12 hours, stirring occasionally, pour off the liquid and add to the residue another portion, about one third of the Oil, and macerate as before, adding the product to the portion before reserved, then add the remainder of the Oil to the sediment, macerate as before and add the product to the reserved portions to make i gallon of Butter Color.

4541. Absorbent Cotton.— This is prepared from fine selected cotton by first washing it thoroughly with a weak solution, of Sal Soda, and afterwards with clear water, then carefully drying. Probably most of the "Absorbent Cotton" of the market is nothing but fine selected cotton put up in packages, without treatment.

4542. Aseptol.—This is a sticky faint red liquid of specific gravity, i .450, its oder resembling Carbohic Acid. It is chemically, orthoxyphenyl sulpho acid ($C_6H_4OH(SO_4H)_2$), and its proprieties are like Carbohic Acid, but three times its strength, and like Salicylic Acid, and its solution is used externally as a wash and antiseptic in place of Carbohic Acid, and internally is administered instead of Salicylic Acid, the dose being 2 to 4 grains.

4543. Hypnone. This is made by distilling together a mixture of benzoin and acetate of calcium. It is chemically phenylmethylacetone (C_8H_8O .) It is used as a Hypnotic for Alcoholic insomnia, etc. The dose is 3 to 5 minims.

4544. Ichthyol.—This substance was discovered by Schrotter, and is obtained by distilling bituminous matter found in Tyrol, which contains the fossilized remains of fish and marine animals.

4545. Phenacetine.—This is a new chemical derived from the coal tar products, and recommended to be used in place of Antipyrine, being

similar to it in action, and claiming to be free from any deleterious effects.

4546. Strophanthin.—This is a new toxic remedy similar in characteristics to digitalis, and is said to be obtained from the African arrow poison plant *strophanthus hispidus*.

4547. Vienna Paste or Caustic.—Powder and mix together in a warm mortar equal parts of Potassa and Unslacked Lime, see 2712.