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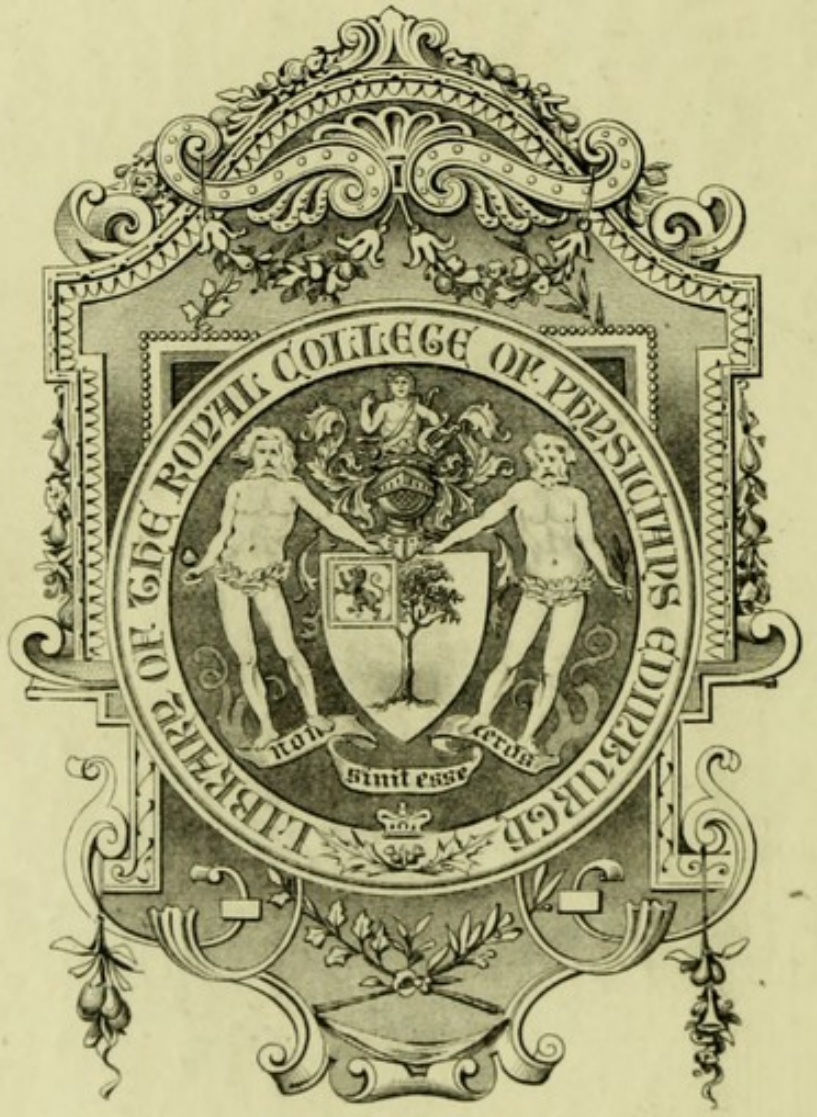

PUBLICATIONS OF THE UNIVERSITY OF MANCHESTER

MEDICAL SERIES
No. II.

Practical Prescribing and Dispensing

SHERRATT & HUGHES
Publishers to the Victoria University of Manchester
Manchester: 27 St. Ann Street
London: 60 Chandos Street

PRACTICAL PRESCRIBING AND DISPENSING

FOR MEDICAL STUDENTS

BY

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SECOND EDITION

MANCHESTER
AT THE UNIVERSITY PRESS
1906

University of Manchester Publications
No. II.

PREFACE.

It is not unusual to hear a complaint that medical students receive an education which is defective in so far as relates to the writing of prescriptions. There are some who even venture to say that the present great vogue of factory-made medicines among medical practitioners is due to this defect. The facilities provided in many schools of medicine for the teaching of this subject are so scanty as to lead one to think that the complaint is not altogether without foundation; and the books dealing with it are, in not a few instances, lacking in definiteness of aim. The medical man neither requires a training in the methods of tincture making, nor in the manufacture of sulphuric acid; still less does he need to be taught how to dispense incompatible prescriptions. These are branches of pharmacy which may be well left to the pharmacist. In order, however, to be able to avail himself of the ample resources of the national Pharmacopœia, and to equip himself so as to be independent of the compound mysteries of the drug factory, he should have, in the course of his curriculum, opportunities for acquiring proficiency in the writing of prescriptions, of making a practical acquaintance with the various forms in which medicines are administered, and of learning how to avoid the prescribing of incompatible drugs.

Under the late Professor Leech I had an opportunity some few years ago of putting into operation a

course of practical prescribing and dispensing devised to provide such opportunities. This book is based upon that course of study. To give unity to the book it has been necessary to depart from the sequence of the laboratory exercises, which were arranged for large classes of students. For the use of similar classes, in which a number of students make the same preparation at the same time, I have appended, through the kindness of Professor Wild, the dispensing exercises now in use in the Materia Medica department of the University of Manchester. Where it is possible for the student to follow an independent course of work in the dispensary, he should take the sections in their arranged order.

Although it is not so general as formerly to write the directions of prescriptions in Latin, I have thought it desirable to add a collection of the words and phrases used in prescriptions; but I have reversed the usual arrangement, because the prescriber wishes to know the Latin equivalent of the English, and not *vice versa*, as is the case with the dispenser.

In the section dealing with the forms of administration and incompatibles, all the preparations of the British Pharmacopœia and of the Formulary of the British Pharmaceutical Conference are mentioned, together with their doses. The dread of incompatibility may often deter the young practitioner from prescribing an unfamiliar remedy. I have, therefore, given pretty complete lists of incompatibles in order that the danger of falling into unsuspected error may be lessened as much as possible. A careful study of the lists will show the student that the unknown

dangers are much fewer than he is apt to imagine, because he will find that most of the incompatibles mentioned come within the purview of his chemical knowledge.

With a view to meeting the requirements of those students whose examinations require a knowledge of the impurities of chemical remedies and of the tests for the same, I have added a section dealing with this branch of materia medica.

In conclusion, I must express my indebtedness to Squire's "Companion to the British Pharmacopœia," MacEwan's "Art of Dispensing," and to White and Humphrey's "Pharmacopedia," which I have had occasion to consult frequently.

My heartiest thanks are due to Professor R. B. Wild for his unfailing kindness and courtesy in making many most useful suggestions, such as the lists of strengths of tablets, suppositories, etc., for reading the proof-sheets, and for favouring me with the dispensing exercises in use in his classes.

My thanks are also due to Mr. James Grier, of the University of Manchester, for his many suggestions and criticisms, which I have found very helpful.

WILLIAM KIRKBY.

PREFACE TO THE SECOND EDITION.

To extend the usefulness of this work it has been found desirable to incorporate as far as possible the metric system of weights and measures, and to add a chapter upon Solubilities with a view to assisting the student's acquaintance with the commoner classes of inorganic and organic remedies. The metric weights and measures used in the prescriptions are not the exact equivalents of the quantities expressed in the old notation; but both formulæ yield practically the same result if either system is adhered to throughout the prescription. In the chapter on the "Forms of Administration" of drugs it has been found that the introduction of the metric doses throughout the paragraphs would be confusing, therefore it has been necessary to give in that chapter, and a few other places, short tables of the most useful metric equivalents. It is with reluctance that the use of the "mil" and its derivatives, instead of the cubic centimetre, has had to be abandoned for the present, because the convenience of those medical schools in which the metric system is already in use could not be overlooked.

I am much indebted to Professor Wild and Mr. James Grier for their continued help, and to Dr. H. P. Keatinge (Director of the Egyptian Government Medical School, Cairo), for his kind and useful suggestions.

W. K.

April, 1906.

CONTENTS.

WEIGHTS AND MEASURES.

The **"Imperial System"** of weights and measures is official for the purposes of the British Pharmacopœia; but for convenience in prescribing and dispensing some of the denominations of the apothecaries' weights are retained in use because the avoirdupois ounce of 437·5 grains is not a simple multiple of a grain, and does not, therefore, admit of easy subdivision.

Weights.

1 Grain,	granum,	gr.	
1 Ounce,	uncia,	oz.	=437·5 grains
1 Pound,	libra,	lb.	=16 oz. =7000 grains

It is optional and convenient to use the scruple and drachm of the apothecaries' weights for quantities intermediate between the grain and ounce.

1 Scruple,	scrupulus,	℈	=20 grains
1 Drachm,	drachma,	ʒ	=60 grains

In the writing of prescriptions the symbol (℥) of the apothecaries' ounce is commonly used when ordering solid drugs; but as its value is 480 grains it should only be used when that weight is required.

Measures of Capacity.

1 Minim,	minimum,	min.	
1 Fluid drachm,	fluidrachma,	fl. drm.	=60 minims.
1 Fluid ounce,	fluiduncia,	fl. oz.	= 8 fl. drms.
1 Pint,	octarius,	O.	=20 fl. oz.
1 Gallon,	congius,	C.	= 8 pints

The volume of 100 grains of water at 62°F. is taken as 110 minims. It is much more general to use the

symbols ♏, ℥, and ℨ, for the minim, fluid drachm, and fluid ounce respectively than those directed by the Pharmacopœia.

In conjunction with the symbols ℈, ℥, ℨ, O, C, Roman numerals are employed, *e.g.*, ℈ ij, ℨviij, Cj. To indicate "one-half" the contraction "ss" (semis) is used in this manner:—℥ss (half-drachm). When lesser fractions are written it is customary to use Arabic numerals (gr. $\frac{1}{120}$)

In writing prescriptions in the metric system it is customary on the Continent to order both the solid and the liquid medicines in grammes. This does not make for accuracy in the dosage of the liquids because of the great variations in their specific gravities, and because the mixtures are directed to be taken by the spoonful. In this country liquids are ordered by measure and solids by weight, and this practice should be adhered to when the metric system is used. In expressing metric quantities, they may be stated as grammes and cubic centimetres and decimal fractions thereof; but whenever there is any danger of ambiguity it is better to give in full, or in a distinct contraction, the denomination of the lowest term (*e.g.*, 165 decigrammes, 45 centigrammes *or* 45 cgm.). This latter method obviates any doubt as to the position or presence of the decimal point.

Relation of the Imperial Standards to the Metric Standards.

Weights.

1 Pound = 453·59243 grammes
1 Ounce = 28·34953 grammes, nearly 28·35 grm.
1 Grain = 0·064798918 gramme, nearly 0·0648 grm.

Measures of Capacity.

1 Gallon	=	4·5459631 litres
1 Pint	=	568·336 cubic centimetres, nearly
1 Fluid ounce	=	28·417 cubic centimetres, nearly
1 Fluid drachm	=	3·552 cubic centimetres, nearly
1 Minim.	=	0·059 cubic centimetre, nearly

Weights.

1 Milligramme,	mgm. =	0·015 ($\frac{1}{65}$) grain, nearly
1 Centigramme,	cgm. =	0·154 ($\frac{1}{6}$) grain, nearly
1 Decigramme,	dgm. =	1·543 grains, nearly
1 Gramme,	grm. =	15·4323564 grains
1 Kilogramme	kgm. =	2 lbs. 3 ozs. 119·8564 gr. ($2\frac{1}{4}$ lbs., nearly)

Measures of Capacity.

1 Cubic centimetre,	c.c.[1] =	16·9 minims, nearly
1 Litre	=	1 pint 15 fl.oz. 1 fl.dr. 34 min., nearly

Household measures. Since patients are not usually familiar with the meaning of the terms "fluid drachm" and "fluid ounce," it is necessary to order liquid medicines to be taken by the spoonful or glassful.

Cochleare, *gen.* aris, *pl.* aria — a spoonful

Cochleare infantis Cochleare minimum Cochleare parvulum	a teaspoonful	= 1 fluid drachm (approx. 4 c.c.)
Cochleare mediocre Cochleare medium Cochleare modicum	a dessertspoonful	= 2 fluid drachms (approx. 8 c.c.)
Cochleare amplum Cochleare largum Cochleare magnum	a tablespoonful	= 4 fluid drachms (approx. 15 c.c.)

[1] The cubic centimetre is more correctly designated a millilitre or mil of which the submultiples are the decimil and centimil.

Cyathus vinarius	a wineglassful	$=2\frac{1}{2}$ fluid ounces
Cyathus magnus	a tumblerful	=8 to 10 fluid ounces

Gutta, *pl.* æ	a drop.	60 drops of distilled water equal about 1 fluid drachm, but of chloroform 250 drops are required to make up the same volume.

The number of drops in a given volume varies according to the character of the liquid and of the vessel from which the dropping is done. The spoons of the household also vary within wide limits. It is therefore necessary when prescribing medicines in even a moderately concentrated state that directions be given for the patient to be supplied with a measure graduated in teaspoons and tablespoons, or in minims. As a further safeguard it is advisable for the patient to know how many doses the bottle contains. Some pharmacists place the number of doses on a separate label.

Exercises.

Weigh — Twenty grains (*or* 15 dgm.) powdered rhubarb; one drachm (*or* 4 grm.) sodium bicarbonate; one scruple (*or* 1·5 grm.) extract taraxacum.

Before weighing, see the hand scales swing freely and evenly; let the pans rest on the counter and place the weight in the left-hand one; the substance is to be weighed in the right-hand pan, and the scales are to be suspended in the left hand; the pans are to be elevated above the counter only when the balancing observation is being made.

Measure—Three fluid ounces (*or* 85 c.c.) peppermint water; fifteen minims (*or* 1 c.c.) tincture of opium; two and a half drachms (*or* 8·5 c.c.) aromatic spirit of ammonia.

Household measures—Compare the teaspoons, dessertspoons and tablespoons with their equivalents in drachms and cubic centimetres. Observe how greatly they vary from those equivalents.

Count the number of drops required to measure one fluid drachm of each of the following:—Spirit of nitrous ether; tincture of ginger; tincture of digitalis; glycerin; simple syrup.

In measuring, notice that the measure has graduation marks on the opposite sides; these must be in a line with each other and with the eye. The liquid will exhibit at its surface two lines—an upper and a lower one; it is the latter, forming the bottom of the meniscus, which is regarded as giving the true measure.

Write with appropriate symbols the following quantities:—Thirty grains; two and a half scruples; half a pint; seven fluid ounces; two ounces; sixteen minims; four drachms; sixteen centigrammes; five and three-quarter grammes; twenty-two milligrammes; twenty-five cubic centimetres; nine and a quarter cubic centimetres.

PRESCRIPTIONS.

Latin is the language used in writing prescriptions for the following reasons: it is generally understood throughout the civilised world; the Latin names of drugs are distinctive and similar in all countries; and it is sometimes desirable that the patient should be ignorant of the medicines which are ordered.

A prescription consists of six parts:—

1. **The Superscription,** consisting of the sign ℞, usually regarded as an abbreviation of *recipe* (take).

2. **The Inscription,** or designation of ingredients setting forth the medicines and quantities required.

3. **The Subscription,** the directions to the dispenser.

4. **The Signature,** the directions to the patient.

5. **The patient's name.**

6. **The date and initials of the prescriber.**

The inscription and the subscription are invariably written in Latin; but the directions to the patient are better written in English[1] unless some cogent reason exists for doing otherwise. On no account should the patient's name, the date, and the prescriber's initials be omitted, as they serve to impress upon the patient that the prescription is only applicable to his case in the particular circumstances which have led to a medical consultation. The initials furnish guidance to the

[1] In France the directions to the patient are always written in French.

dispenser as to the authenticity of the prescription, and to the identity of the prescriber if it is considered necessary to consult him as to any matter of doubt. Further, the date is a guide to the dispenser as to his duty in repeating potent medicines without express orders from the medical man.

The inscription of a model prescription is supposed to embrace four parts, which, however, are not always necessary, namely:—

The basis, or chief active ingredient.

The adjuvant, or auxiliary.

The corrective, to qualify the action, or correct some objectionable quality of the other ingredients.

The vehicle, which serves either to dilute, or give proper form or consistence to, the preceding.

A typical prescription:—

Mr. James Smithson.		Name
℞.		Superscription
Potass. Acetat. ʒiii.	*Basis*	Inscription
Tinct. Digital. ʒj.	*Auxiliary*	
Syrup. Aurant. ʒvj.	*Corrective*	
Infus. Scoparii ad ℥vj.	*Vehicle*	
M. ft. mist.		Subscription
One tablespoonful to be taken every six hours		Signature
Aprilis iv., 1904		Date
A.B.		Initials

In its unabbreviated form it reads thus:—

Recipe
Potassii Acetatis drachmas tres
Tincturæ Digitalis drachmam
Syrupi Aurantii drachmas sex
Infusi Scoparii ad uncias sex
Misce. Fiat mistura

Translation:—
Take
(of) Potassium Acetate three drachms
Tincture Digitalis one drachm
Syrup of Orange six drachms
Infusion of Broom to[1] six ounces
Mix. Let a mixture be made

A consideration of the foregoing example will show that the quantities are in the accusative case, being the objects of the verb "take thou" *(recipe)*, and the ingredients are in the genitive case.

The subscription is usually confined to simple directions, as: fiat[2] mistura (let a mixture be made); fiant pilulæ (let pills be made); fiat lotio (let a lotion be made); misce (mix); signa (label); signetur (let it be labelled).

Having decided what drugs he intends to administer, the prescriber first determines the dose of each necessary, and the quantity of vehicle requisite to dissolve, or to hold in suspension, the constituents so that the preparation may be suitable for administration. Lastly, he decides the number of doses, which will be regulated by the length of time he wishes the medicine to be taken, and by the proneness of it to undergo decomposition.

Calculation of the quantities.

	Single Dose		No. of Doses		Quantity Required
Potassii Acetatis..... ...	gr. xv	×	12	=	℥iij
Tincturæ Digitalis.....	♏ v	×	12	=	℥j
Syrupi Aurantii	℥ss	×	12	=	℥vj
Infusi Scoparii ad	℥ss	×	12	=	℥vj

[1] *Ad* = to *or* up to, signifies that the final measure of the mixture is to be six ounces. It will be noticed that "Infusi Scoparii ad ℥vj" places the ingredient in the genitive case which is the common form of writing it when followed by *ad*, but some writers place the ingredient in the accusative.

[2] The verb *Fio* takes a nominative after it.

Sizes of Bottles. The following are the usual sizes found in use in pharmacy, and it is desirable that all liquid medicines should be prescribed so as to fill one of these bottles :—

℥j, ℥ij, ℥ss, ℥j, ℥iss, ℥ij, ℥iij, ℥iv, ℥vj, ℥viij, ℥x, ℥xij, ℥xvj, ℥xx, ℥xxiv, ℥xxxij, ℥xl.

The following are the usual sized bottles available in countries using the metric system :—

10, 15, 20, 30, 50, 60, 100, 150, 200, 250, 300, 350, 400, 500 cubic centimetres.

Sometimes it is needful to order drugs in doses exceeding those of the Pharmacopœia. In order to avoid a visit from the pharmacist such an excessive dose should be underlined and have the prescriber's initials against it :—

Extract. Nucis Vomic. gr. ij.—A.B.

Abbreviations should never be such as to cause ambiguity. The following examples will emphasise this maxim :—

Zinc. Phosph.	may mean	{ Zinci Phosphas Zinci Phosphidum
Acid. Hydroc. Dil.	„	{ Acid. Hydrochlor. Dil. Acid. Hydrocyan. Dil.
Extract. Col.	„	{ Extract. Colchici Extract. Colocynthidis
Potass. Sulph.	„	{ Potassii Sulphas Potassa Sulphurata

Exercises.

Write out the following in full and abbreviated Latin :—

Take of Ethereal Tincture of Lobelia two fluid drachms
or 6 cubic centimetres
Tincture of Stramonium two fluid drachms
or 6 cubic centimetres
Spirit of Chloroform four fluid drachms
or 12 cubic centimetres
Camphor Water seven fluid ounces
or 176 cubic centimetres
Let a mixture be made.

Take of Spirit of Nitrous Ether two fluid drachms *or* 6 c.c.
Potassium Nitrate twenty grains „ 1 grm.
Infusion of Broom to four fluid ounces „ 100 c.c.
Mix.

Take of Solution of Subacetate of Lead one fluid drachm
or 3 c.c.
Dilute Acetic Acid
Rectified Spirit of Wine, of each four fluid drachms
or 12 c.c.
Rose Water to ten fluid ounces
or 250 c.c.
Let a lotion be made.

Take of Salicin twenty-four grains *or* 16 dgm.
Quinine Sulphate twelve grains „ 8 dgm.
Extract of Gentian twelve grains „ 8 dgm.
Let twelve pills be made.

Take of Powdered Rhubarb one scruple *or* 12 dgm.
Mercury with Chalk three grains „ 2 dgm.
Let a powder be made.

SOLUBILITIES.

The Substances which have to be compounded into medicines may be divided into two classes according to their chemical nature, namely, inorganic and organic substances. The behaviour of these towards one another and towards the solvents with which they are frequently mixed, needs to be understood in a general way before the student is fitted to combine them together in extemporaneous medicines with confidence.

Inorganic Salts. The solubility of these in water varies considerably, but the different kinds of salts may be classified to some extent. **Acetates** (which are used in medicine), the **carbonates** of the alkalis, the **citrates,** alkaline **hydroxides, nitrates, phosphates** of potassium, sodium and ammonium, **sulphates** (except those of antimony, barium and lead), **tartrates** (used in medicine), and the **bromides, chlorides** and **iodides** of the alkalis are all soluble in water. The **carbonates** (with the exception of the ammonium salt) and all the **sulphates** are insoluble in alcohol. **Borax, alum** and **lead subacetate** are soluble in glycerin.

Organic Substances. Many of these are not readily soluble in, or miscible with, water; but are more

so in alcohol, chloroform and ether. **Gums** are soluble in water or readily swell up in it; they are not soluble in alcoholic media. **Sugars** are soluble in water; but only slightly so in alcohol. **Starches** are insoluble in cold water, but gelatinise in hot water; they are insoluble in alcohol. **Alkaloids** in the free state are mostly insoluble in water (except nicotine, pilocarpine and some few others), while most of their salts are readily so; with respect to alcohol the reverse is the case, namely, the free alkaloids are generally soluble and the salts are not. **Volatile oils, camphor, menthol, thymol, resins, balsams** and **oleo-resins** are all soluble in alcohol, ether, and chloroform, but they are insoluble (except to a slight extent) in water. **Fixed oils** and **fats** are insoluble in water and when it is required to mix them with it special means have to be adopted (see emulsification); with the exception of **Castor oil** and **Croton oil** they are insoluble in alcohol, but most of them are miscible with chloroform. **Gum-resins** are not completely soluble in any of the ordinary solvents; by triturating them with water, the gum they contain is converted into a mucilage by means of which the resins and volatile oils contained in them are held in suspension.

Some **Organic acids,** such as tartaric and citric acids, are readily soluble in water, but others, such as salicylic and benzoic, are comparatively insoluble, but quickly soluble in alcohol. The solubilities of **synthetic organic compounds** do not permit of classification in groups because they are so varied.

Practical Exercises.

Dissolve a little gum acacia in three times as much cold water, then add an equal volume of rectified spirit. Observe the precipitation of the gum.

Dissolve ℥j (5 grm.) magnesium sulphate in ℥ss (20 c.c.) of water, then add an equal quantity of rectified spirit, and note the precipitation of the salt.

Triturate a small quantity of starch with water and carefully filter. To the filtrate add a drop of tincture of iodine and observe that no blue colour is developed (absence of starch). Then heat a little starch and water together and observe the formation of a gelatinous solution.

Add gr. iij (2 dgm.) quinine sulphate to ℥ij (8 c.c.) of water and observe that it is practically insoluble, then add 5 drops diluted sulphuric acid which will dissolve the salt. To the solution add aromatic spirit of ammonia, drop by drop, and notice how it precipitates the quinine.

To about ℥ss (15 c.c.) of water add a piece of camphor, shake well together for a little time, and remove the camphor, and notice that the water has acquired a camphoraceous odour, but the camphor does not appear to be diminished in bulk. Then add the camphor to about twice

its volume of rectified spirit, and observe that it quickly dissolves. Camphor is a type of the volatile oils, menthol, thymol, resins, oleo-resins and balsams.

Treat a little olive oil with water and with rectified spirit and observe that it is not miscible with either.

Treat castor oil with an equal quantity of rectified spirit and they will be found to mix readily.

Triturate ℈ j (15 dgm.) asafetida in a mortar and add to it gradually ℥i (30 c.c.) of water. Notice that a milky fluid is obtained.

MIXTURES AND DRAUGHTS.

Mixtures are compound liquid medicines prepared extemporaneously for internal administration in successive doses of from one teaspoonful to two or more tablespoonfuls.

Draughts differ from mixtures in consisting of only one dose, and rarely exceed one and a half to two fluid ounces (40 to 60 c.c.) When a liquid medicine is ordered in doses of less than one teaspoonful it is commonly designated **"The Drops."**

Mixtures may be formed in the following ways :—

α Simple solution of one or more salts in the vehicle, with or without other liquid ingredients.

β Chemical solution—when the vehicle or some other ingredient converts an insoluble salt into a soluble one.

γ Suspension of solid ingredients in the vehicle, with or without a suspending agent.

δ Admixture of two or more liquids with or without chemical action.

ϵ Emulsification (*vide* Emulsions).

In prescribing mixtures it should be borne in mind that the components are to give rise to as little chemical action as possible (unless some decomposition is intended to take place); that insoluble ingredients shall be easily

shaken up and diffused; that the mixture shall "keep good" a sufficient length of time to allow of the patient's taking the whole of it; and that too many ingredients are not ordered lest some unforeseen decomposition takes place.

a Simple Solution.

PRACTICAL EXERCISES.

℞.	Potassii Iodid. ℈ iv	*or*	2 grm.
	Spirit. Ammon. Arom. ʒij	,,	6 c.c.
	Syrup. Aurant. ʒss	,,	13 c.c.
	Aquæ ad ʒiv	,,	100 c.c.

M. Ft. mist.
One tablespoonful three times a day after meals.

In this instance the salt being very soluble, it is placed in a glass measure and stirred with water by means of a glass rod. Put the solution into a clean bottle; measure the spirit, then the syrup, and finally rinse the measure with a little water and make up to the required volume.

Viscous liquids are measured after the more fluid ones in order to avoid the use of many measures, except in cases calling for special treatment, which will occur later.

℞.	Ferri Sulphat. gr. xxiv	*or*	1·5 grm.
	Acid Sulph. Dil. ♏ xxxvj	,,	2·25 c.c.
	Aquæ ad ʒvj	,,	180 c.c.

Fiat mist.
One tablespoonful to be taken three times a day.

The crystals of the sulphate are not quickly soluble, and may, therefore, be triturated in a small glass or porcelain mortar.

℞.	Ammon. Carb. gr. xl	*or*	23 dgm.
	Tinct. Scillæ ʒij	,,	7 c.c.
	Syrup. Tolutan. ʒij	,,	7 c.c.
	Aquæ ad ʒviij	,,	200 c.c.

Fiat mist.
Two tablespoonfuls for a dose three times a day.

Heat should very rarely be used to aid solution. Often it would be harmful as in this prescription, the ammonium salt being volatile. Bicarbonates are readily decomposed by even a small elevation of temperature. When infusions and decoctions are used for mixtures containing volatile substances, or such decomposable salts as have been named, they should be previously cooled.

℞. Ferri et Quininæ Citr. gr. xlv *or* 25 dgm.
Spirit. Chloroform. ℥j „ 3·5 c.c.
Syrup. Aurant. ℥ss „ 15 c.c.
Aq. ad ℥vj „ 180 c.c
Ft. mist.
One sixth part to be taken twice a day an hour before meals.

The citrate of iron and quinine is a readily soluble "scale" preparation. Put one third of the water in a measure; place the salt upon its surface and stir carefully with a glass rod. If the water is added to the salt it will probably form a sticky mass.

There are two other similar preparations official:—the iron and ammonium citrate and the tartarated iron. In dispensing these rub them down to a powder in a dry mortar and then add to some water in a large test tube, or a small flask, and gently heat. If an aromatic water is ordered with them they may be dissolved in the cold, but, of course, more slowly.

β Chemical Solution.

PRACTICAL EXERCISES.

℞. Quin. Sulphat. gr. xij *or* 8 dgm.
Acid. Sulphuric. Dil. ♏ xv „ 1 c.c.
Syrup. Aurantii ℥ss „ 15 c.c.
Aquæ ad ℥vj „ 180 c.c.
Fiat mist.
One tablespoonful three times a day an hour before meals.

The dilute sulphuric acid converts the almost insoluble quinine sulphate into a soluble sulphate. For this purpose ten grains of the alkaloidal salt require at least ten minims of the acid.

℞. Acid. Salicylic. ℥j *or* 4 grm.
Liq. Ammon. Acet. ℥iss „ 50 c.c.
Syrup. Aromatic. ℥iij „ 13 c.c.
Aquæ ad ℥iij „ 100 c.c.
M. ft. mist.
Two teaspoonfuls in a little water every six hours.

Salicylic acid is soluble in solution of ammonium acetate forming an ammonium salicylate and liberating acetic acid. It is also soluble in solutions of ammonium citrate, potassium acetate, sodium phosphate and borax.

℞. Acid. Tartaric. ℥ij *or* 6 grm.
Aquæ ℥iv „ 100 c.c.
M. Signa "The Acid Mixture,"

℞.	Potassii Bicarb. ʒiij	*or*	9 grm.
	Syrup. Aurant. ℥ss	,,	12 c.c.
	Aquæ ad ʒviij	,,	200 c.c.

Fiat mist.

Signa :—"Two tablespoonfuls with one tablespoonful of the Acid Mixture to be taken during effervescence every three hours."

In prescribing effervescing mixtures the ultimate acidity or alkalinity is a matter of importance. The resulting mixture in the above case will be slightly alkaline.

20 grains Potassium Bicarbonate neutralise	14 grains Citric Acid 15 grains Tartaric Acid
20 grains Sodium Bicarbonate neutralise	16 grains Citric Acid 17·8 grains Tartaric Acid

Lemon Juice may be substituted for the acid mixture; it contains from 30 to 40 grains of citric acid in the fluid ounce (7 to 9 grammes in 100 c.c.)

℞.	Quininæ Sulphat. gr. xvj	*or*	8 dgm.
	Acid. Citric. ʒj	,,	3 grm.
	Syrup. Limonis ℥ss	,,	13 c.c.
	Aquæ ad ℥iv	,,	100 c.c.

Ft. mist. "The Acid Mixture."

℞.	Potass. Bicarb. ℈iv	*or*	4 grm.
	Aq. ad ʒviij	,,	200 c.c.

Ft. mist.

Two tablespoonfuls with one of the Acid Mixture twice a day during effervescence.

Preparations containing free acid, as lemon syrup, must be prescribed in the acid mixture. The resultant mixture of the above contains sufficient free acid to keep the quinine in solution.

γ Suspension of Solid Ingredients.

In ordering insoluble drugs in mixtures it is usually necessary to add some suspending agent so that the drug may be readily diffused upon shaking, and the patient may have no difficulty in taking it in accurately divided doses. The more common suspending agents are mucilage of gum acacia, mucilage of tragacanth, syrups of different kinds and glycerin. Compound tragacanth powder is also used for the same purpose. It is not

necessary to add these viscous preparations when such a light powder as the light magnesium carbonate is prescribed. All mixtures of this class must bear a "SHAKE THE BOTTLE" label.

PRACTICAL EXERCISES.

℞.	Cret. Præparat. ʒj	*or*	4 grm.
	Mucilag. Acac. ʒss	,,	15 c.c.
	Spirit. Menth. Piperit. ʒj	,,	4 c.c.
	Tinct. Opii ♏xxx	,,	2 c.c.
	Aquam ad ʒvj	,,	180 c.c.

M. ft. mist.
Two tablespoonfuls after each loose motion of the bowels.

Rub the prepared chalk to a fine powder and triturate with a little water to make a thin, smooth paste ; add the mucilage and dilute with more water ; transfer to the bottle and rinse the mortar with a little water, add the spirit and tincture to the mixture in the bottle, and make up to measure.

In all similar prescriptions the powders must be triturated with water before adding either mucilage of gum acacia or mucilage of tragacanth, otherwise a lumpy condition will be caused.

℞.	Magnes. Carb. Pond. ʒiss	*or*	5 grm.
	Magnes. Sulphat. ʒiv	,,	15 grm.
	Syrupi ʒj	,,	30 c.c.
	Aq. Menth. Piperit. ad ʒvj	,,	180 c.c.

Ft. mist.
Sig. "One tablespoonful twice or three times a day.'

The two salts are to be well triturated and treated with a sufficient quantity of the peppermint water in the mortar to ensure the complete solution of the sulphate. The syrup may be used for rinsing the mortar providing it is followed by some more peppermint water.

℞.	Pulv. Rhei gr. x	*or*	6 dgm.
	Sodii Bicarb. gr. xx	,,	12 dgm.
	Tinct. Zingiberis ♏xx	,,	1·2 c.c.
	Aq. Menth. Pip. ad ʒij	,,	60 c.c.

Ft. haustus.
Statim sumend.

℞.	Bismuth. Subnitrat. ʒiss	*or*	6 grm.
	Tinct. Nucis Vomic. ʒj	,,	4 c.c.
	Glycerin. ʒiij	,,	12 c.c.
	Aquam. ad ʒvj	,,	180 c.c.

M. ft. mist.
One tablespoonful an hour after meals.

Although bismuth salts are of great density it is much better to use a little glycerin to aid their diffusion than either acacia or tragacanth mucilage as these latter tend to form a hard cake with these salts.

℞. Acid. Gallic. ʒiiss *or* 9 grm.
Acid. Sulph. Dil. ʒss ,, 13 c.c.
Aq. ad. ʒiv. ,, 100 c.c.
Ft. mist.
Two teaspoonfuls to be taken as occasion requires.

The gallic acid is readily soluble in this quantity of water when it is heated ; but heat must not be used, because when cool the acid would be deposited in long crystals, which would be very disagreeable to the patient. The proper method of dispensing is to rub down the acid to a fine powder and diffuse in the cold water.

Prescribe a mixture containing potassium bromide, spirit of chloroform, syrup, and camphor water.

Prescribe a draught of sodium bicarbonate, compound tincture of gentian, syrup of ginger, and peppermint water.

δ Mixtures of Two or More Liquids.

In many cases when a mixture consists of two or more liquid components no immediate decomposition is to be feared, and no precise order of mixing may be required. Nevertheless it is a good practice to dilute one of the ingredients freely before adding the others.

Practical Exercises.

℞. Liq. Ferri Perchloridi ʒij *or* 7 c.c.
Spirit. Chloroformi ʒj ,, 3·5 c.c.
Aquam ad. ʒvj ,, 180 c.c.
M. ft. mist.
Two tablespoonfuls to be taken every four hours.

℞. Spirit. Ammon. Aromatic. ♏xl *or* 2·5 c.c.
Tinct. Valerian. Ammon. ♏xl ,, 2·5 c.c.
Aq. Aurant. Flor. ad ʒiv ,, 100 c.c.
Ft. mist.
A fourth part twice a day.

Notice how the orange flower water modifies the odour of the valerian.

PHARMACEUTICAL SOLVENTS.

Water is the most common solvent for inorganic salts, and is also available for many alkaloidal salts and other organic substances. It has a wide range of usefulness for pharmaceutical purposes. The majority of the *liquores* of the Pharmacopœia are aqueous. In the *aquæ* we have instances of its solvent action upon odorous principles (volatile oils) and other organic substances (camphor 1 in 1000, and chloroform 1 in 400). Two classes of preparations of vegetable drugs are made with it, in one of which the ingredients are submitted to boiling in water for five or ten minutes (*decocta*); but in the other class the boiling water is poured upon the drugs, and allowed to infuse for fifteen minutes, half an hour, or an hour according to directions (*infusa*). Two of the official infusions (calumba and quassia) are made with cold water. The *misturæ*, *mucilagines* and *syrupi* are all aqueous preparations.

For extracting the active constituents of drugs of organic origin alcohol is more generally used than water. Resins, volatile oils, alkaloids, glucosides and neutral principles being readily dissolved by it; while starchy, mucilaginous, albuminous and other inert matters are insoluble. The pharmacopœial tinctures are alcoholic preparations in which the proportion of alcohol varies considerably; there being five strengths of it official for

their preparation (90% by volume, 70%, 60%, 45%, and 20%). The official *spiritus*, *vina* and some of the *liquores* are alcoholic preparations. Aqueous preparations of organic drugs are apt to decompose readily, and therefore need to be made extemporaneously (*decocta*, *infusa*); but alcoholic preparations, if properly prepared and stored, may be kept indefinitely. Glycerin is another solvent of use for inorganic salts and some organic substances. It is used for making *glycerinum boracis*, *glycerinum aluminis*, *glycerinum pepsini*, *glycerinum acidi tannici* and others.

Other official solvents are ether (*collodium*), olive oil (*linimentum camphoræ*) and almond oil (*oleum phosphoratum*). Olive and linseed oils are used in extemporaneous pharmacy as solvents for carbolic acid which must be in the crystalline form, because if liquefied otherwise than by heat it will contain water which is immiscible with the oil. There are a few solid organic bodies which have the property of becoming liquid when mixed together, *e.g.*, camphor and chloral hydrate, camphor and carbolic acid, menthol and carbolic acid, carbolic acid and some resinous bodies.

Practical Exercises.

℞. Ferri Sulphat. ℈j *or* 12 dgm.
Tinct. Calumb. ʒij ,, 8 c.c.
Infusi Calumb. ad ʒiv ,, 100 c.c.
Fiat mist.
Sig.:—"Take a fourth part three times a day before meals."

Calumba contains no tannin, therefore it may be used with iron salts; so also may quassia.

℞. Decocti Hæmatoxyli ℥j *or* 500 c.c.
Signa:—"A tenth part to be taken when required."

℞. Potass. Nitrat. ℈ij *or* 25 dgm.
Spirit. Æther. Nitros. ʒij „ 8 c.c.
Infus. Scoparii ad ʒiv „ 100 c.c.
M. Ft. mist.
Two tablespoonfuls twice a day.

The infusion must not be used until it is cold, otherwise a portion of the spirit of nitrous ether will be lost by volatilisation.

℞. Boracis ʒij *or* 5 grm.
Glycerin ʒss „ 10 c.c.
Aquæ ad ʒiss „ 30 c.c.
Fiat applicatio.
To be applied to the mouth night and morning.

Dissolve the borax in the glycerin either by rubbing together in a mortar, or by gently heating together in a small porcelain dish ; then add the water.

℞. Menthol ʒss *or* 2·5 grm.
Chloroformi ʒij „ 10 c.c.
Fiat applicatio.
To be applied to the forehead when required.

Measure the chloroform into a bottle of the right size, and add the menthol ; shake.

℞. Chloral Hydrat. ʒj *or* 5 grm.
Camphoræ ʒj „ 5 grm.
M. s. a.[1] Fiat applicatio.

Rub together in a warm mortar until liquefied. Observe that this mixture is insoluble in water.

Prescribe a mixture containing bismuth oxide, tincture of gentian and a flavouring agent.

Prescribe a draught containing a preparation of rhubarb and magnesia.

Prescribe a mixture containing a preparation of chalk and tincture of catechu.

[1] *Misce secundum artem* = mix according to art.

LIMITS OF SOLUBILITY. INCOMPATIBILITY.

When prescribing salts which are not very soluble care must be taken that there is no excess over what will make a clear solution with the cold vehicle, that is, if the salts are intended to be exhibited in solution. If it is necessary to administer larger quantities than can be dissolved they must be triturated to a fine powder before mixing. This method is not applicable to gargles as it is imperative that the medicaments should be in solution. In any case heat should not be resorted to to bring about the solution of an excessive quantity, because when cool it is almost certain that the excess will crystallise out, and be more disagreeable to the patient than a fine powder.

Practical Exercises.

℞.	Potassii Chlorat. ℥ij	*or*	8 grm.
	Aquæ ℥iij	„	100 c.c.

Fiat gargarisma.

Dissolve the potassium chlorate by the aid of heat. Set aside and observe the formation of crystals. **This method must be avoided.**

This salt is soluble 1 part in 16 of cold water. For general purposes it is better to reckon it as 1 in 20, and thus make allowance for temperatures below the average.

℞.	Potassii Chlorat. ℥j	*or*	4 grm.
	Acidi Hydrochloric. Dil. ℥j	„	4 c.c.
	Aq. ad ℥vj	„	180 c.c.

Ft. mist.
One tablespoonful every six hours.

Can be made with warm water without any fear of subsequent crystallisation.

℞.	Acetanilid. gr. xviij	*or*	12 dgm.
	Syrup. Aromat. ʒiv	„	16 c.c.
	Aquæ ad ʒiij	„	100 c.c.

Ft. mist.
Two tablespoonfuls twice a day when required.

The acetanilide is in excess of the quantity which the water will dissolve in the cold ; it must therefore be well triturated before mixing with the syrup and water.

Incompatibility is of three kinds, namely, therapeutical, chemical and physical, Therapeutical incompatibility is said to exist when drugs having antagonistic therapeutic properties are prescribed together. The consideration of this branch of the subject belongs to pharmacology. As applied to the compounding of medicines incompatibility is an antagonism, either chemical or physical, which is exhibited between many substances when they are brought together in a liquid or solid form.

Chemical Incompatibility may be grouped under six heads:—

1. **Precipitation of an insoluble salt from a mixture of the solutions of two soluble ones.**

   Example—Salts of iron and alkaline carbonates.

2. **Decomposition of a salt of a weak acid by a stronger acid.**

   Example—Alkaline carbonates and vinegar of squill.

3. **Decomposition of a salt of a weak base by a strong alkali.**

   Example—Ammonium salts and solution of potash.

4. **Precipitation of alkaloids from their salts by alkaloidal precipitants.**

   Example—Solution of morphine hydrochloride and potassium bicarbonate.

5. **Formation of coloured chemical substances retained in solution.**

   Example—Solution of potassium iodide and spirit of nitrous ether.

6. **Formation of substances, soluble or insoluble, of more or less uncertain composition.**

   Example—Tincture of perchloride of iron and infusion of bearberry.

Physical Incompatibility.—Four varieties of it may be distinguished.

1. **Insolubility of resins, fats, oils, and similar substances in aqueous or alcoholic media.**

   Example—Olive oil and water.

2. **Precipitation of active ingredients from their solution by the addition of liquids in which they are insoluble.**

   Example—Solution of magnesium sulphate and an excess of an alcoholic tincture.

3. **Precipitation of inert substances by the addition of liquids in which they are insoluble.**

Example—Aqueous preparations (*e.g.*, infusions) throw down mucilaginous and albuminous matters on the addition of large quantities of alcoholic preparations.

4. **Liberation of water of crystallisation by the decomposition of salts in the dry state.**

Example—Sodium sulphate and potassium citrate.

In the following prescriptions extended examples of incompatibility are given, together with indications, in some cases, as to how they may be dispensed. Such prescriptions are inelegant and should be carefully avoided, because one dispenser may adopt one method of overcoming the difficulty, and a succeeding one may adopt another method producing a different result, which may cause some alarm in the mind of the patient. (For the incompatibles of pharmacopœial preparations see Forms of Administration, Solubilities and Incompatibles of the Chief Official and Extra-official Drugs, p. 74.)

PRACTICAL EXERCISES.

℞. Liquor. Ferri Perchlor. ʒij	*or*	6·25	c.c.
Mucilag. Acac. ʒss	,,	12·5	c.c.
Aquam ad ʒiv	,,	100	c.c.

M. ft. mist.
Two teaspoonfuls every fourth hour.

In the first instance mix in the order given. Make up a second time by diluting the iron solution with all the available water and then adding the mucilage. Note the different results.

℞.	Liquor. Ferri Perchlorid. ℥ij	*or*	10 c.c.
	Spirit. Ammon. Aromat. ℥iij	„	15 c.c.
	Tinct. Nucis Vomic. ℥ss	„	2 c.c.
	Aquæ Chloroform. ad ℨvj	„	150 c.c.

Fiat mist.

The alkaline ammonium preparation and the acid iron preparation are clearly incompatible; when mixed the hydrated oxide of iron would be produced.

℞.	Ammonii Carbonat. ℈ j	*or*	1 grm.
	Oxymel. Scillæ ℥iv	„	12 c.c.
	Tinct. Camph. Co. ℥j	„	3 c.c.
	Aq. Fœnicul. ad ℨiv	„	100 c.c.

Misce.

The free acetic acid in the oxymel will decompose the ammonium salt with the liberation of carbonic acid gas. In such a prescription the tincture of squill should be ordered.

℞.	Quininæ Sulphat. gr. xij	*or*	6 dgm.
	Acid. Sulphur. Dil. ℥ss	„	1·3 c.c.
	Sodii Salicylat. ℥iss	„	4 grm.
	Aquæ ad ℨvj	„	150 c.c.

Ft. mist.

The acid causes the precipitation of salicylic acid and quinine salicylate, both of which are insoluble. This is a bad combination.

℞.	Quininæ Sulphat. gr. v	*or*	25 cgm.
	Acid. Sulphur. Dil. ℥j	„	3 c.c.
	Infus. Rosæ ad ℨiv	„	100 c.c.

Ft. mist.

An objectionable precipitate of quinine tannate is formed.

℞.	Magnesii Sulphat. ℨj	*or*	30 grm.
	Tinct. Sennæ Co. ℥j	„	33 c.c.
	Aq. ad ℨiij	„	100 c.c.

Fiat mist.

The tincture will throw the salt out of solution.

℞.	Sodii Salicylat. ℥j	*or*	3 grm.
	Syrup. Limonis ℨss	„	12 c.c.
	Aq. ad ℨiv	„	100 c.c.

Ft. mist.

The free acid in the syrup will liberate the insoluble salicylic acid.

℞.	Potassii Iodidi ℈ j	*or*	1 grm.
	Spirit. Ætheris Nitros. ʒij	„	7 c.c.
	Aquam ad ʒiv	„	100 c.c.

Ft. mist.

Spirit of nitrous ether is generally acid after having been prepared some little time. Unless neutralised before mixing with the solution of the iodide, the latter will be decomposed with the liberation of free iodine which is decidedly dangerous.

℞.	Sodii Sulphat. gr. xx	*or*	13 dgm.
	Potass. Citrat. gr. xx	„	13 dgm.

Ft. pulv.

Upon triturating together the salts become moist from the liberation of the water of crystallisation of the sulphate.

Prescribe and dispense a mixture containing quinine sulphate and a preparation of orange.

Prescribe and dispense a mixture containing a salt of lithium and a flavouring agent.

Prescribe and dispense a mixture containing an alkaline bicarbonate and a preparation of ammonia.

EMULSIONS.

The incompatibility of oils, fats and resins with water has already been mentioned. When these substances have to be administered internally it often happens that an aqueous vehicle is the only kind that can be used. Therefore special means have to be taken to overcome the natural repugnance to admixture which exists. The end is usually attained by making use of a viscous fluid, or of an alkaline substance which will yield a soap with the oil. The result of the proper incorporation of these materials so as to yield a homogeneous mixture is an emulsion. The milk of animals is a natural type of an emulsion. In it the globules of fat are surrounded by a thin layer of albuminous matter which prevents them from coalescing and keeps them suspended in the milk-plasma. The theory of emulsification is based upon this type, the object aimed at being to obtain the globules of oil, or particles of resin, in as fine a condition as possible, and to surround them with an envelope of a viscous substance, which, while it has an affinity for water, will prevent the globules or particles from uniting with one another.

Artificial emulsions are of two kinds—(1) those prepared from substances which have associated together the material to be emulsified and the emulsifying agent, such as gum-resins and some oleaginous seeds. Substances of this nature simply require to be carefully triturated with

water to yield fairly stable emulsions. (2) Emulsions prepared with an added emulsifying agent. These are made from resins, oleo-resins, fixed oils and volatile oils.

1. Gum-Resin and Seed Emulsions.

Powdered gum-resins must never be used for emulsions, because a considerable quantity of the volatile constituents of the original drug has been dissipated in the drying process preparatory to grinding.

Practical Exercises.

℞. Misturæ Ammoniaci ℥iv *or* 120 c.c.
Ft. mist.
One fourth part to be taken when required.

Ammoniacum, in coarse powder	55 grains	*or*	3·75 grm.
Syrup of Tolu	2 drachms	„	7·5 c.c.
Water to	4 fl. ounces	„	120 c.c.

Choose clean fragments of gum-resin, free from dust, and reduce to powder; then triturate thoroughly to a thin paste with a little water; gradually add the remainder of the water and syrup; finally strain through muslin.

℞. Mist. Amygdalæ ℥iv *or* 120 c.c.
Ft. mist.

Signetur;—"Two tablespoonsfuls when the cough is troublesome."

Compound Powder of Almonds	½ ounce	*or*	15 grm.
Distilled water	4 fl. ounces	„	120 c.c.

Triturate the powder with a little water to form a thin paste; when quite smooth gradually dilute with the remainder of the water.

Almonds are oil-bearing seeds which may be readily emulsified, after being blanched, with water. In the pharmacopœial powder a certain quantity of sugar and powdered gum acacia are added to improve the resulting mixture.

2. Emulsions with an added Emulsifying Agent.

The agents in general use are gum acacia, in the form of powder or mucilage, tragacanth, yolk of egg, and, more rarely, for fixed oils, solutions of caustic and carbonated fixed alkalis. Others have been recommended for certain drugs and for special circumstances, *e.g.*, casein, Irish moss and the tinctures of senega and quillaia. The prescriber should not venture to order these latter unless he is perfectly acquainted with the appearance and properties of the emulsion which they will yield.

For the emulsification of oleo-resins, fixed oils, and volatile oils gum acacia is undoubtedly the best excipient; it produces the whitest and most stable emulsions. Two methods of using it are recommended :

1. For four parts of a fixed oil, or an oleo-resin (as copaiba), take two or three parts of fresh mucilage of acacia (if old it will be acid and spoil the emulsion). Put the mucilage in a clean porcelain mortar, which is not too small, and add the oil to it gradually, each portion being thoroughly incorporated before the next is added. If the mixture becomes too thick add a few drops of water. When the whole of the oil has been added the mixture should exhibit no oily drops and should adhere readily to the sides of the mortar. The pestle requires judicious manipulation. It must be operated throughout in one direction as quickly and as lightly as possible. No pressure must be used, as the intention is not to *rub* the oil into globules; this would generate heat which is harmful; but to whisk it into the

most minute globules possible. When the primary emulsion is complete it may be gradually diluted with water with constant stirring, and at the last tinctures and solutions of salts may be added. Any large quantity of salts or tinctures will spoil the emulsion. Four parts of an oil or oleo-resin require at least two parts of mucilage of acacia. It is better, however, to order three or four parts. Four parts of volatile oil (*e.g.*, oil of turpentine) require about six parts of the mucilage.

2. For four parts of a fixed oil or oleo-resin take two parts of powdered gum acacia. Put the powder into a dry mortar and add all the oil to it. Incorporate thoroughly. Measure four parts of water in a *clean* measure, add it all at once to the mixture and triturate quickly and lightly until the primary emulsion is formed, which may be then gradually diluted with water, stirring constantly.

For the primary emulsion the proportions to be maintained are :—

Fixed oil	1 part
Powdered acacia	½ part
Water	1 part

Volatile oils require a larger proportion of the gum acacia :—

Volatile oil	1 part
Powdered acacia	¾ part
Water	1½ part

It is to be noted that the water ordered is twice as much as the powder.

Yolk of egg is to be used in the proportion of one yolk to an ounce of fixed oil or half an ounce of a volatile oil. The egg and successive small portions of the oil are

mixed lightly and quickly together in a mortar with cautious additions of water when the mixture becomes too thick. When completely emulsified the remainder of the water is gradually stirred in.

Some kinds of emulsions are to be made in bottles and others in measures. The methods of making these are attached to the prescriptions given for practice.

Practical Exercises.

℞.	Copaibæ ʒiij	*or*	12 c.c.
	Pulv. Acaciæ ʒij	,,	8 grm.
	Spirit. Ætheris Nitrosi ʒj	,,	4 c.c.
	Aquæ ad ʒiij	,,	100 c.c.

M. Ft. mist. One tablespoonful every three or four hours.

In making the primary emulsion use ʒss (16 c.c.) of water, that is twice as much as the powdered acacia.

℞.	Olei Ricini ʒvj	*or*	20 c.c.
	Mucil. Acaciæ ʒiij	,,	10 c.c.
	Aq. Aurant. Flor. ʒij	,,	7 c.c.
	Aq. Cinnamom. ad ʒij	,,	50 c.c.

Ft. haustus.
"Take as directed."

Add the waters together; place the mucilage in a mortar and add to it alternately the oil and water in small portions.

℞.	Olei Terebinthinæ ʒiij	*or*	9 c.c.
	Pulv. Acaciæ ʒij	,,	6 grm.
	Olei Limonis ♏iij	,,	0·16 c.c.
	Aquam ad ʒviij	,,	200 c.c.

Fiat mistura.

Two or three teaspoonfuls to be taken at bed-time.

Mix the two oils together before adding to the powder.

℞.	Ol. Amygdal. Dulc. ʒiij	*or*	12 c.c.
	Liq. Potassæ ♏xlv	,,	2·5 c.c.
	Syrup. Tolut. ʒj	,,	4 c.c.
	Tinct. Opii Ammon. ♏xlv	,,	2·5 c.c.
	Aquæ ad ʒiij	,,	100 c.c.

Misce.

One tablespoonful three times a day when the cough is troublesome.

Dilute the solution of potash with water to three drachms (12 c.c.), that is, to the same volume as the oil. Put it into a bottle and add the oil to it gradually, shaking after each addition; when thoroughly emulsified add the water by degrees, shaking gently; lastly add the tincture and syrup previously diluted with some water.

In all similar cases the solution of the alkali must be made equal in volume to the oil.

Resinous tinctures should always be dispensed with mucilage, of which there ought to be not less than one-sixteenth part in the finished mixture.

℞. Tinct. Cannab. Indic. ʒj	*or*	3	c.c.
Syrup. Aurantii ʒij	,,	6	c.c.
Mucil. Acaciæ ʒij	,,	6	c.c.
Aquæ ad ʒiv	,,	100	c.c.

Fiat mistura.

One tablespoonful every four hours.

Dilute the mucilage with at least an ounce (25 c.c.) of water and then add the tincture; shake gently; dilute with water and add the syrup last.

℞. Tinct Guaiaci Ammon. ʒiij	*or*	12·5	c.c.
Mucil. Acaciæ ʒss	,,	17	c.c.
Potass. Iodid. ʒss	,,	2·25	grm.
Aq. Cinnamomi ad ʒiij	,,	100	c.c.

Ft. mist.

One tablespoonful to be taken after breakfast and dinner.

Proceed as in the previous example.

Prescribe an alkaline mixture containing potassium bicarbonate with a suitable carminative.

Prescribe a mixture containing potassium chlorate.

Prescribe a mixture containing magnesium sulphate and a preparation of senna; dispense the same.

PILLS.

Pills are small globular bodies varying in weight from one to five grains. If the ingredients ordered would make a pill of less than one grain directions should be given to the dispenser to make a pill of that size, as very small ones are troublesome to handle and to swallow. The most convenient size for the patient is, as a rule, three grains. Pills may be prepared from dry powders, which are brought into a plastic state by the addition of a liquid, or semi-liquid, substance called the excipient, or from semi-solid extractive matters of a consistency suitable for moulding into the pilular form; if not of the proper consistency an inert powder (dry excipient) may be added until the right degree of plasticity is obtained.

Well made pills possess the following qualities:—

They contain equal quantities of the ingredients.

They are equal in size.

They have a smooth round surface.

They are homogeneous in texture.

They are sufficiently firm to maintain the globular form under slight pressure.

They are not too hard to disintegrate readily in the digestive fluids of the body.

This form of medication is only applicable to solid, or semi-solid, drugs with small doses; volatile oils, croton oil and creosote are, however, often prescribed in this manner. No preparations call for more judgment and skill in prescribing and dispensing than pills. This is

especially true as regards the selection of the proper excipients. The medical man will often find himself perplexed in the making of his choice. When he is doubtful as to the most suitable one, rather than venture to order one which might not produce a good result he had better leave the choice to the pharmacist.

Excipients.

Liquid and Semi-Solid.

Alcohol. May be used mixed with an equal quantity of water for powders containing resinous matters. This diluted spirit answers well for citrate of iron and quinine if quickly manipulated.

Compound decoction of aloes. May be used for pills containing aloes.

Confection of roses. Is rarely used because it adds too much bulk to the pills.

Extracts. Several of the semi-solid extracts of the Pharmacopœia may be ordered as excipients when they are therapeutically compatible with the other ingredients. The extracts of chamomile, gentian, hyoscyamus (for camphor) and taraxacum are the most suitable ones.

Glucose. The liquid variety is a useful excipient for general use, especially when mixed with syrup as in the pharmacopœial syrup of glucose. A still more useful combination is equal parts of ordinary treacle and liquid glucose.

Glycerin. As a general excipient it requires to be mixed with tragacanth as in the official glycerin of tragacanth. Occasionally it is useful alone for special

drugs; gallic acid may be made into pills by the addition to it of from one-sixth to one-eighth its weight of glycerin.

Glycerin of tragacanth. Is a good general excipient; it is particularly useful for soluble salts.

Manna. This is very successful in the massing of heavy insoluble salts, such as calomel, if a small proportion of compound tragacanth powder and a trace of moisture are added.

Mucilage of acacia. Sometimes used for dry powders; but it makes the pills too hard. Better results are obtained by mixing it with an equal volume of syrup.

Syrup. Is not sufficiently adhesive; it needs the addition of a little mucilage of acacia.

Water. Has a very limited use as an excipient; but it is very efficient in aiding the incorporation of other excipients when judiciously used.

Dry.

Althæa, powdered. Is employed when the ingredients are too moist. It must be used sparingly and time should be allowed for the absorbing action to take place, otherwise it may be found subsequently that the pills are too hard. Mixed with an equal quantity of powdered liquorice root it is a good excipient for carbolic acid.

Calcium phosphate. The precipitated salt, in small quantity, is good for stiffening fats when required in the pilular form. It is also used for absorbing volatile oils.

Compound tragacanth powder. A general excipient of great usefulness. It is excellent for heavy insoluble salts when combined with a little manna or

glucose. Volatile oils may be massed with it and a little curd soap.

Curd soap in powder. A good excipient for resinous substances. With a little liquorice powder it answers well for volatile oils and creosote. Care must be taken not to combine it with incompatible substances such as acids, acid salts and metallic salts.

Gum acacia, powdered. When mixed with a little althæa or liquorice it is useful for giving firmness to soft masses. When used alone the mass becomes too hard.

Kaolin. Should be added to easily reducible substances, such as potassium permanganate, and massed with lanoline or resin ointment.

Liquorice root, powdered. This may take the place of powdered althæa; it is not so bulky and it is less adhesive.

Tragacanth, in powder. When used in minute quantities it is good for binding together masses which tend to crumble; the quantity should not exceed five per cent. of the finished mass.

Pills are frequently required to be coated with silver, sugar, gelatin, or French chalk. Occasionally they may need to be coated with keratin[1] when it is desired that they shall not undergo disintegration before they reach the small intestine. The medical student does not require a practical acquaintance with pill coating; but he should learn how to silver pills, which may be done by seeing a demonstration of the method.

1 Keratin solution is prepared by digestng horn shavings in an acid solution of pepsin until all digestible matters are removed; the residue is dissolved in solution of ammonia; the ammoniacal solution is evaporated to a gummy liquid which is used for pill coating.

Pills containing volatile ingredients or drugs with strong odours should be directed to be dispensed in phials instead of boxes. If they contain substances liable to deteriorate upon contact with the atmosphere (*e.g.*, *pilula ferri iodidi*, *pilula phosphori*) they should be coated with French chalk if time permits, or, if required urgently, they should be varnished. Two kinds of varnish are common in pharmacies; one is an ethereal solution of balsam of tolu, and the other may be an ethereal or an alcoholic solution of sandarach resin.

Practical Exercises.

℞. Pil. Hydrargyri gr. iv *or* 25 cgm.
Ft. pilula mitte vj

Let the patient take one at night and a saline aperient draught the following morning.

Observe that in prescriptions for pills it is usual to write the formula for a single pill and afterwards specify the number to be sent.

℞. Pulv. Rhei gr. j *or* 6 cgm.
Pulv. Zingib. gr. j „ 6 cgm.
Pil. Hydrargyri gr. iij „ 18 cgm.
Fiat pilula mitte vj
One to be taken when needed.

The dry ingredients must be triturated together in the mortar before the addition of the semi-solid ingredient.

℞. Quininæ Sulphatis gr. ij *or* 12 cgm.
Fiat pil. mitte xij
Take one twice a day between meals.

White substances should be massed with colourless excipients. In this case glycerin of tragacanth, or glucose, is suitable.

℞. Pulv. Antimonialis
Pulv. Ipecacuan. Co. ana gr. ij *or* 12 cgm.
Excipientis q.s.
Fiat pilula mitte vj
Let two be taken at bed-time.

℞. Strychninæ gr. ¼ *or* 2·5 mgm.
Ferri Redacti gr. ij „ 12 cgm.
Extract. Gentian. gr. ij „ 12 cgm.
Ft. pil. mitte vj
Take one twice a day between meals.

To obtain the proper proportion of alkaloid and to ensure its accurate subdivision, proceed in this manner:—carefully weigh one grain (6 cgm.) of strychnine; lightly triturate it in a glass mortar; add to it three grains (18 cgm.) of milk sugar and thoroughly mix them; then weigh one grain (6 cgm.) of the mixture, which is equivalent to a quarter of a grain (1·5 cgm.) of the alkaloid (reject the other three grains *or* 18 cgm.), and mix it thoroughly with the reduced iron; finally incorporate the gentian extract. The massing of the ingredients is to be done in the ordinary pill mortar.

Perchloride of mercury may be dispensed in pills by a similar method. The salt is to be rubbed down in a mortar, then dissolved in a little ether, and a weighed quantity of liquorice powder added. Upon further stirring the ether will evaporate and the perchoride will be evenly distributed throughout the powder, which may then be massed, or subdivided by weighing, as may be necessary.

Prescribe a draught of emulsified castor oil.

Prescribe and dispense a mixture containing copaiba.

Prescribe a cough mixture of almond oil and syrup of squill.

Write and dispense a prescription for a mixture containing ammoniated tincture of guaiacum.

POWDERS, CACHETS, CAPSULES, TABLETS.

Powders are usually regarded in prescription writing as divided doses of pulverised drugs, each dose being wrapped up separately in paper. Many drugs and their mixtures can be dispensed in this form; but for a large number it is unsuitable. Drugs which are offensive in odour or taste, or deliquescent, or efflorescent, or of which the dose exceeds twenty or thirty grains (12 to 20 dgm.) should not be thus exhibited. Powders have the advantage of portability, and are convenient for administration to children because they can be made into a confection with treacle, moistened sugar or jam. When it is desired to administer fairly large doses of a powder, say over one drachm (4 grm.), or where the powder is to be used for making a lotion, and it has to be measured by the teaspoonful, it is dispensed in bottles. But when smaller and accurate quantities are to be used for any purpose each quantity is invariably wrapped separately in paper.

Cachets (*capsulæ amylaceæ*) are made of two saucer-shaped discs each with a flattened margin; when the margins of the two portions are brought together a closed cavity is produced. They form an elegant means of taking powders because, being made of rice paper, when dipped into water and placed in the mouth they instantly collapse and are swallowed with ease. In order to charge

them the powdered drug is placed in the lower disc, and the upper disc, with a slightly moistened margin, is super-imposed, and the two are pressed into close contact. Pieces of apparatus are made wherewith a dozen of any size can be closed at one operation. Cachets are only suitable for dry powders; deliquescent substances must not be ordered for them. They are made in various sizes, holding from one grain to twenty grains (6 to 120 cgm.) of a powder of average density.

Gelatin capsules may also be used for enclosing powders, especially those known as Planten capsules which consist of two short hollow gelatin cylinders, each with one closed end; at the open ends they slide over one another so as to form a closed tube. They are swallowed in the same manner as pills. Many medicines are now manufactured as hard and as flexible capsules. These include for the most part preparations of a semi-solid or liquid nature, as *pilula ferri*, *extractum cascaræ sagradæ*, *oleum morrhuæ*, *oleum santali* and *copaiba*.

Tablets (*tabellæ*) consist of powdered drugs which have been strongly compressed into lenticular discs. They have a maximum weight of five grains (3 dgm.) They are made so that they will dissolve slowly or disintegrate rapidly according to the nature of the medicament. Although they are not usually regarded as extemporaneous preparations the student ought to avail himself of the opportunity of seeing them made. Volatile substances and easily oxidisable ones are not suitable for exhibition in this form.

PRACTICAL EXERCISES.

℞. Hydrargyri Subchlorid. gr. vj *or* 4 dgm.
Pulv. Rhei ʒss „ 2 grm.
Ft. pulvis. Dividendus in tres partes æquales.
Take one powder if required.

The ingredients are to be placed upon a smooth piece of white paper and well mixed with a spatula. As a rule powders should not be triturated together in a mortar unless the combined weight exceeds a drachm and a half (6 grm.), and then the pestle should be manipulated lightly because vigorous rubbing tends to cause the formation of hard and flaky particles, and it interferes in most cases with the ready miscibility of the powder with water. Whenever necessary the powder should be sifted through a fine sieve. The division of the powder into three parts should always be done by weighing; never by guessing. To learn how to wrap up the powders properly the student should watch a dispenser perform the operation.

℞. Phenacetin. gr. iij *or* 18 cgm.
Caffein. Citrat. gr. j „ 6 cgm.
Ft. pulv. in capul. amyl. mitte vj
One twice a day when the pain is troublesome.

This is an illustration of a prescription for powders to be dispensed in cachets.

Confections or electuaries are medicinal preparations consisting of powdered drugs made up into a soft mass by means of syrup, honey or treacle. The dose of them is one or two teaspoonfuls, and they are dispensed in covered earthenware pots or glass jars which will admit of the entrance of a teaspoon.

PRACTICAL EXERCISES.

℞. Confect. Sulphuris ʒj *or* 20 grm.
Signa: "The Electuary."
One teaspoonful to be taken night and morning.

Sublimed Sulphur	200 grains	*or*	10	grm.
Acid Potassium Tartrate	50 grains	„	2·5	grm.
Tragacanth, in powder	2 grains	„	0·1	grm.
Syrup	110 minims	„	5	c.c.
Tincture of Orange	28 minims	„	1·25	c.c.
Glycerin	80 minims	„	3·75	c.c.

Lightly triturate the powders together in a mortar, and then incorporate the liquids, which should be previously mixed. In dispensing confections and similar preparations the liquids are to be added to the powders and not the powders to the liquids.

Prescribe six pills containing arsenious acid, reduced iron and extract of gentian.

Prescribe twelve pills containing podophyllin resin, a preparation of belladonna and a preparation of rhubarb.

Prescribe and dispense six pills containing aloin and a preparation of colocynth.

GARGLES, DOUCHES, SPRAYS, INHALATIONS.

There is a class of liquid medicines which does not belong strictly to the internal or external remedies. It consists of **gargles** (*gargarismata*), **eye washes or douches** (*collyria*), **mouth washes** (*collutoria*), **nasal douches** (*collunaria*), **vaginal and urethral injections** (*injectiones*), and **rectal injections** (*enemata*). These are dispensed in precisely the same manner as mixtures; but the utmost care must be taken that all the solid ingredients, of gargles especially, are sure of being retained in solution, otherwise great inconvenience may be caused to the patient. Gargles, mouth washes and nasal douches are dispensed by the pharmacist in bottles similar to the ordinary mixture bottles because the fears of a sensitive patient would be aroused if they were put into the poison bottles used for lotions and liniments for strictly external use.

Sometimes injections are exceptions in that they may contain solid constituents, in fact, it is occasionally necessary to bring about a chemical decomposition with a resulting precipitate. In such cases it is not usual to add any suspending agent, because the intention is to obtain a coating of the precipitate upon the mucous membranes.

PRACTICAL EXERCISES.

℞. Plumbi Acetat. ʒss	*or*	15 dgm.
Tinct. Opii ʒij	„	6 c.c.
Aq. Destill. ad ʒiv	„	100 c.c.

Fiat lotio.
Apply night and morning as directed.

Dissolve the acetate and dilute with as much water as possible before adding the tincture which will cause the precipitation of the so-called lead meconate.

When the formation of a precipitate is expected the reacting substances should be diluted to the utmost extent so as to produce as fine a precipitate as possible. As a rule distilled water should be used for compounding medicines. For dissolving salts of silver, lead and zinc, its use is imperative to avoid the formation of insoluble salts of the metals.

℞. Solut. Acid. Borici Saturat. Oj *or* 500 c.c.
Signa: "The douche"
"To be used as directed."

Boric acid is soluble in 30 parts of cold water, therefore 292 grains (*or* 16·5 grm. in 500 c.c) are required to make the solution, which may be quickly done by the use of warm water.

℞. Plumbi Acetat. ℥j *or* 4 grm.
Acid. Acetic. Dil. ♏xx ,, 1·3 c.c.
Aq. Rosæ ℥vj ,, 180 c.c.
Ft. collyrium.
To be used frequently.

The acid is added to dissolve any lead carbonate which may be formed by the carbonic acid gas dissolved in the rose water.

℞. Aluminis ℥ss *or* 2 grm.
Infus. Rosæ Acid. ℥iv ,, 100 c.c.
Fiat gargarisma.

One tablespoonful diluted with an equal quantity of water to be used as a gargle.

℞. Glycerin. Boracis ℥j *or* 25 grm.
Aquam ad ℥iv ,, 100 c.c.
Signa: "The gargle; use twice a day."

Enemata should have a mucilaginous base when they are prescribed as sedatives; mucilage of starch is probably the best. When they are intended to be retained in the bowel they should nor exceed two ounces in volume; but when used as evacuants ten or fifteen ounces must be used.

PRACTICAL EXERCISE.

℞. Magnesii Sulphat. ℥j *or* 26 grm.
Olei Olivæ ℥j ,, 26 c.c.
Mucilag. Amyli ℥xv ,, 400 c.c.
Fiat enema.
"To be administered at once."

The starch mucilage is made by rubbing half an ounce (13 grm.) of starch (in powder) to a smooth paste with a little

water, then adding the rest of the water, and heating until the starch is gelatinised. The sulphate is first dissolved in the mucilage, and the oil thoroughly stirred in immediately before injecting.

Sprays *(nebulæ)* are liquid preparations for use in an atomising apparatus, and are intended for application to the nostrils and the throat. They may have an aqueous, an alcoholic or an oily basis. In the latter case the *paraffinum liquidum* of the Pharmacopœia is generally used.

PRACTICAL EXERCISES.

℞. Olei Eucalypti ♏x *or* 0·7 c.c.
Paraffin. Liquid. ℥ij ,, 60 c.c.
Fiat nebula.
"For spraying the throat twice daily."

℞. Cocain. gr. v *or* 3 dgm.
Menthol gr. xxx ,, 2 grm.
Paraffin. Liquid. ℥j ,, 30 c.c.
Fiat nebula.

The above example is given to call attention to the need of prescribing the pure alkaloid, cocaine, when an oily vehicle is used, in which the hydrochloride is insoluble. On the other hand, when an aqueous vehicle is used, the hydrochloride must be prescribed.

Inhalations *(vapores)* are liquid mixtures containing substances volatilisable at a temperature of 140°F. (60°C.) The patient uses them by adding the prescribed quantity to water at the proper temperature in a suitable apparatus, and inhaling the steam which has become impregnated with the volatile medicament.

PRACTICAL EXERCISE.

℞. Olei Pini ♏xl *or* 2·5 c.c.
Magn. Carbon. Lev. gr. xx ,, 13 dgm.
Aquæ ℥j ,, 30 c.c.
Fiat vapor.
Signa: "The Inhalation."

One teaspoonful to be added to a pint of water at 140° F. and the vapour inhaled for ten minutes night and morning.

Triturate the carbonate and the oil together and add the water gradually.

HYPODERMIC INJECTIONS. PERCENTAGE SOLUTIONS.

Hypodermic injections are medicated solutions for administration under the skin in doses of from five to ten minims by means of a small graduated syringe called a hypodermic syringe. Drugs given subcutaneously are quickly absorbed into the circulation; the dose of them is, therefore, much smaller than when given by the mouth. The drug must be in solution and be neutral in reaction and freshly prepared; otherwise solid particles, or the presence of an acid or alkali, or the presence of micro-organisms, might cause serious inconvenience to the patient. Usually distilled water is the vehicle employed; for special purposes it may be desirable to use oil or glycerin; in any case the vehicle is to be sterilised—water by boiling for five minutes and oil or glycerin by heating to about 250°F. (121°C.) for about half an hour. When it is necessary to keep hypodermic solutions for a little time it is convenient to add a small quantity of a non-irritant preservative agent, such as phenol, salicylic acid or camphor. There are four official *injectiones hypodermicæ*, namely, apomorphine, cocaine, ergot, and morphine. It should be particularly noticed that these are centesimal solutions, inasmuch as they contain a certain number of grains of the drug in a hundred grains of water (= 110

minims) or grammes in a hundred cubic centimetres. Five or ten minims of such solutions do not contain an easily ascertainable dose. In prescribing hypodermic injections the physician should draw up his prescription in such a way that five or ten minims will contain an exact and easily calculated dose of the drug, and should not follow the example of the Pharmacopœia, which is misleading to both prescriber and dispenser; this is a difficulty, however, which does not arise when the metric system of weights and measures is used.

For the convenience of those who may have to use hypodermic injections in emergencies small compressed tablets (*tabellæ*) of the drugs are made by several manufacturers. The substance mixed with the medicament may be sugar of milk, dried sodium sulphate, sodium chloride or ammonium chloride. They are readily dissolved in a few drops of water, and solution may be effected in the barrel of the syringe. The more common of the tablets with their strengths are given in this list :—

Apomorphine hydrochloride	gr. $\frac{1}{10}$, $\frac{1}{15}$, $\frac{1}{20}$
Atropine sulphate	gr. $\frac{1}{200}$, $\frac{1}{100}$, $\frac{1}{50}$
Caffeine	gr. $\frac{1}{2}$
Cocaine hydrochloride	gr. $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{2}$
Digitalin	gr. $\frac{1}{100}$
Hyoscine hydrobromide	gr. $\frac{1}{100}$
Hyoscyamine	gr. $\frac{1}{100}$, $\frac{1}{50}$
Morphine and Atropine	
Morphine sulphate	gr. $\frac{1}{4}$
Atropine sulphate	gr. $\frac{1}{150}$
Morphine hydrochloride	gr. $\frac{1}{8}$
Morphine sulphate	gr. $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$
Nitroglycerin	gr. $\frac{1}{100}$
Physostigmine sulphate	gr. $\frac{1}{100}$
Pilocarpine hydrochloride	gr. $\frac{1}{8}$, $\frac{1}{4}$, $\frac{1}{3}$
Sparteine sulphate	gr. $\frac{1}{30}$
Strychnine sulphate	gr. $\frac{1}{100}$, $\frac{1}{60}$, $\frac{1}{50}$, $\frac{1}{40}$, $\frac{1}{30}$

Metric equivalents.

gr. $\frac{1}{2}$ = 3 cgm.	gr. $\frac{1}{8}$ = 8 mgm.
gr. $\frac{1}{10}$ = 6 mgm.	gr. $\frac{1}{20}$ = 3 mgm.
gr. $\frac{1}{20}$ = 1·3 mgm.	gr. $\frac{1}{100}$ = 0·6 mgm.
gr. $\frac{1}{200}$ = 0·3 mgm.	

Percentage solutions. We have already seen that hypodermic solutions (with the exception of the pharmacopœial ones) are a kind of percentage solution in so far as a hundred minims of the solution is made to contain a definite number of grains of the drug. The percentage of them is expressed as *grains in minims.* In chemical work true percentage solutions are used; a hundred parts by weight of the solution contain a definite number of parts by weight of the substance. The volume of the solution, however, will vary according to the specific gravity of the solvent. As it is usual in prescribing in this country to order liquids by measure, the prescriber would be under the necessity of remembering the specific gravities of the various solvents in order to ascertain the amount of medicament his patient is to use for a dose. These true percentage solutions of *weight in weight* are not used in clinical medicine. The simplest method for the medical man to adopt, and one which is usually followed by the pharmacist, is to have these solutions prepared so that a given volume will contain a given weight, that is to say, 100 fluid ounces will contain, say, 5 ounces of the drug, or 100 fluid drachms will contain, say, 10 drachms, and so on. But as the minim of water does not weigh one grain, being only 0·91 grain, a discrepancy arises in the series when these units are reached; hence it becomes

necessary to put the fluid grain in the place of the minim. No great inconvenience will arise if it is remembered that 100 fluid grains are equal to about 110 minims. The percentage in these solutions is expressed as *weight in volume*. Whenever the metric system is employed the question of percentage solutions is much simplified providing it is borne in mind that the *weight in weight* solutions are represented by grammes in grammes, and the *weight in volume* solutions by grammes in cubic centimetres.

LOTIONS, LINIMENTS, PIGMENTS.

Lotions are for the most part aqueous mixtures intended for external application; they are used for bathing the affected part, or for applying by means of a piece of lint which is kept in a moist state by the lotion. They should always be dispensed in poison bottles.

Practical Exercises.

℞. Lotionis Hydrargyr. Nigr. ℥iv *or* 100 c.c.
Fiat lotio. To be used as directed.

Mercurous Chloride	12 grains	*or*	685 mgm.
Glycerin	96 mimims	„	5 c.c.
Mucilage of Tragacanth	4 drachms	„	12·5 c.c.
Solution of Lime to	4 oz.	„	100 c.c.

Triturate the chloride with the glycerin and mucilage; add about an ounce of solution of lime; transfer to the bottle and make up with a sufficiency of the lime solution. This must bear a "Not to be taken" label, as well as a "Shake the bottle" label. The white chloride is converted by the lime into the black mercurous oxide.

℞.	Plumbi Acetatis ℥ss	*or*	2 grm.
	Zinci Sulphatis gr. xv	„	1 grm.
	Aquam ℥iv	„	100 c.c.

Fiat lotio. Use night and morning.

This is an instance of producing an intentional reaction between two salts; the resulting precipitate being lead sulphate. In order to obtain as fine a precipitate as possible, each salt is dissolved in two ounces of distilled water, and the solutions mixed.

℞.	Boracis gr. xxxvj	*or*	25 dgm.
	Spt. Vin. Rect. ℥j	„	4 c.c.
	Glycerin ℥ij	„	8 c.c.
	Aq. ℥vj	„	180 c.c.

Fiat lotio. To be used frequently.

Mix the glycerin and borax together to bring about the solution of the latter; then add the water; the spirit is to be be added when the solution has been transferred to the bottle.

℞. Calamin. Præparat.
Zinci Oxidi āā ʒij *or* 8 grm.
Spirit. Vin. Rect.
Glycerin āā ʒij „ 8 c.c.
Aq. Rosæ ad ℥vj „ 180 c.c.
Fiat lotio.

To be applied every morning by means of a camel hair brush.

In order to free the calamine from the irritating gritty particles it is liable to contain, triturate the calamine and zinc oxide together with a few drops of the rose water until thoroughly moistened; then add more water and pour off the mixture, allowing the heavier particles to subside; repeat this operation with portions of the water until all the finer portion is separated from the coarser, which latter is to be rejected. This process is called *elutriation*. Add the spirit and glycerin to the mixture in the bottle and fill up with rose water to the required measure.

Liniments (*linimenta*) are liquid, or semi-liquid, medicines for external application, which differ from lotions in that they are to be used with friction, and in usually having an oleaginous, or a spirituous, preparation as a vehicle.

Pigments (*pigmenta*) and **Collodions** (*collodia*) are modified liniments. A pigment consists of a drug in an alcoholic or ethereal solvent; it is applied by means of a brush; the volatile portion evaporates and leaves the active ingredients in immediate contact with the skin. Collodions are pigments combined with the official *collodium* or *collodium flexile* so that when applied the area of action of the medicine is definitely circumscribed and the active substance is protected from the influence of the atmosphere.

Practical Exercises.

℞. Liniment. Calcis ℥ij *or* 60 c.c.
Signa: "The Liniment—to be used twice a day."

Olive oil	1 fluid ounce	*or*	30 c.c.
Solution of Lime	1 fluid ounce	„	30 c.c.

Add the whole of the latter to the former in a bottle and shake vigorously.

℞. Ol. Terebinth. ℥iv		*or*	20 c.c.
Acid. Acet. Glac. ℥j		„	5 grm.
Liniment. Camphor. ℥iv		..	20 c.c.

Fiat linimentum.

Use twice a day, morning and evening,

℞. Tinct. Iodin. ℥j		*or*	4 c.c.
Lin. Aconiti ℥j		„	4 c.c.

Fiat pigmentum.

To be painted on the affected part if necessary.
Signa: "POISON."

℞. Iodoform. gr. xl		*or*	3 grm.
Collod. Flexil. ℥j		„	30 c.c.

Ft. collodium.

Signetur: "To be painted on the affected part as often as necessary."

Dissolve the iodoform in the collodion.

Prescribe and dispense an eye wash of boric acid.

Prescribe twelve doses of sulphonal in cachets or capsules.

Prescribe and dispense half-a-dozen aperient powders for an infant.

Write a prescription for an aperient electuary.

Write a prescription for an astringent gargle.

OINTMENTS.

Ointments are unctuous preparations of a consistency to allow of their being spread upon the skin or upon a piece of lint without liquefying. The melting point of them may vary from 100° F. to 120° F. (37° C. to 49° C.), according to the purpose for which they are required. The firmer ones are used for protective purposes and should have a basis of lard mixed with wax or spermaceti, or it should consist of a mixture of soft and hard paraffins in properly adjusted proportions.[1] The softer ointments are used as emollients and for the exhibition of medicines which are to be absorbed into the system through the skin. The basis of these may be compounded of lard or wool-fat, with a proportion of oil or water when necessary. Ointments are made by two methods, namely, (*a*) by fusion, and (*b*) by mechanical incorporation. In the fusion method the fats are melted together by means of a water bath—the materials with the higher melting points being subjected to the heat first—and the active ingredients, whether soluble or insoluble in the melted fat, are added, and the whole well stirred until cool. Some care is required when adding an insoluble powder to melted fats in order to obtain a perfectly smooth ointment. After thoroughly triturating in a mortar it is

[1] Melting point of *paraffinum molle* 92° F. to 102° F. (35·5° C. to 38·9° C.); of *paraffinum durum* 130° F. to 135° F. (54·4° C. to 57·2° C.

to be passed through a very fine muslin sieve; or it may be triturated in a mortar with a few drops of oil or with a little of the melted ingredients in a warm mortar. In the compounding of prescriptions the large majority of ointments may be made by mechanical incorporation. This method requires that the basis shall be added to the powder, if a powder is to be the active ingredient, in the mortar; a sufficiency of the fat is used in the first instance to form a stiff mixture. When this is quite smooth and homogeneous the rest of the fat may be added by degrees. Soluble salts are first dissolved in the smallest possible quantity of water and the solution added drop by drop to the fat in the mortar; each portion must be incorporated before another addition is made. Some drugs require special solvents: mercuric chloride can be dissolved in a little ether or glycerin; camphor in a little ether, chloroform or alcohol, but if in large quantity it should be heated with the melted fat in a closed bottle placed in a water bath. Before adding vegetable extracts it is necessary to rub them to a smooth paste with a little water or dilute alcohol. Small quantities of ointments may be prepared by the help of an ointment slab and a flexible spatula; only an expert, however, would undertake to make a fair quantity in this manner. It is important that a horn or vulcanite spatula is used in all cases where any ingredient would suffer from contact with steel. Good ointments should possess the following properties: they should be free from any rancidity; they should have a melting point

suitable to their purpose, and they should be perfectly free from any irritating particles. Ointments are usually dispensed in covered pots or jars having these capacities:—℥j, ℥ij, ½oz, 1oz, 1½oz, 2oz, 3oz, 4oz, 6oz, 8oz.

Practical Exercises.

℞.	Potass. Iodid. gr. l	*or*	5 grm.
	Potass. Carb. gr. iij	„	3 dgm.
	Aq. Destill. ♏lij	„	47 dgm.
	Adip. Benz. gr. cccc	„	40 grm.

Ft. ung.
To be used night and morning.

Dissolve the salts in the water, and mix the solution with the lard in a slightly warmed mortar.

℞.	Zinci Oxid. gr. lxx	*or*	4·5 grm.
	Adip. Benzoat. ad 1oz	„	30 grm.

Ft. ung.
To be used as directed.

Melt the lard at a low temperature and gradually add the finely-sifted oxide of zinc ; stir constantly until cold.

SUPPOSITORIES, PESSARIES, BOUGIES, PLASTERS.

Suppositories (*suppositoria*) are small conical bodies, having a weight of about fifteen grains (1 grm.), intended for insertion into the rectum. Generally they consist of cacao butter impregnated with the medicinal agent; occasionally the basis is gelatin as in the *suppositoria glycerini* of the Pharmacopœia. Three requirements are to be complied with to produce a good suppository: it must melt readily at the temperature of the body; it must be sufficiently firm at ordinary temperatures to bear the handling necessary for its introduction; and the medicament must be evenly distributed throughout it. For most kinds the *oleum theobromatis* (m.p. 88°F. to 93°F., 31·1°C. to 33·9°C.) fulfils the two first requirements admirably; it is, therefore, the basis most generally prescribed. As the practitioner is not likely to be called upon to compound suppositories a description of their manufacture, beyond the instructions given with the prescriptions below, is not called for.

Pessaries (*pessi*) are of the same shape and composition as suppositories, but are of a larger size as they are used for insertion into the vagina. The most general weight for them is 70 grains (4 grammes), although they are sometimes prescribed of 120 grains (8 grammes) weight. Cacao butter is the usual basis.

Bougies (*buginaria*), like pessaries and suppositories, are cast in metal moulds. Being used for insertion into

the urethra and nose, they have a length of four inches (1 decimetre) and two inches (0·5 decimetre) respectively, and a breadth of about $\frac{3}{16}$ths of an inch (5 mm.) Cacao butter is often used as a basis, but it is sometimes too brittle; when this is the case the gelatin basis may be ordered instead.

Suppositories, Pessaries and Bougies.

List of Drugs and the Doses Prescribed.

	Suppository.	Pessary.	Bougie.
Acid. boric	gr. iij, gr. v	gr. x	
Acid. carbolic.	gr. j	gr. ij	
Acid. gallic.	gr. iij	gr. x	gr. j
Acid. tannic.	gr. iij	gr. x	gr. j
Alumen		gr. x	
Atropina	gr. $\frac{1}{20}$	gr. $\frac{1}{20}$	
Bismuth. oxid.	gr. x	gr. x	gr. v, gr. x
Bismuth. oxychlorid.	gr. x	gr. x	gr. v, gr. x
Borax	gr. v	gr. xv	
Chloral hydras	gr. v	gr. x	
Cocaina	gr. $\frac{1}{2}$	gr. $\frac{1}{2}$	gr. $\frac{1}{2}$
Ext. belladon. alc.	gr. iss	gr. $\frac{1}{2}$, gr. j	gr. $\frac{1}{4}$, gr. $\frac{1}{2}$
Ext. belladon. virid.	gr. $\frac{1}{2}$, gr. ij	gr. iij	
Galla	gr. v		
Hamamelin	gr. j, gr. ij		
Ichthyol	gr. ij		
Iodoformum	gr. iij	gr. v	gr. v
Morphin. hydrochlor.	gr. $\frac{1}{4}$, gr. $\frac{1}{2}$	gr. $\frac{1}{2}$	gr. j
Ol. eucalypt.		♏xxx	♏v, ♏x
Plumbi acet.	gr. iij (c. opio gr. j)		gr. $\frac{1}{4}$, gr. j
Plumbi iodid.	gr. ij	gr. v	
Quinin. hydrochlorid.		gr. xv	
Thallin. sulph.			gr. j, gr. ij
Zinc. acetas			gr. $\frac{1}{2}$, gr. j
Zinc. chlorid.			gr. $\frac{1}{4}$, gr. $\frac{1}{2}$
Zinc. oleas	gr. v		
Zinc. oxidum	gr. v	gr. x, gr. xv	
Zinc. sulphocarbol.		gr. x	gr. $\frac{1}{2}$

Metric equivalents.

gr. $\frac{1}{4}$ = 16 mgm. gr. j = 6 cgm.
gr. iij = 19 cgm. gr. v = 32 cgm.

Plasters (*emplastra*) are a class of preparations which call for no skill on the part of the medical man and for little on the part of the pharmacist as they are now, as a rule, made by machinery. They are made from resinous masses, impregnated with drugs, which have a consistency much firmer than ointments, in fact plaster masses only become plastic upon being heated. Being used solely for application to the skin, it is necessary that they should be spread upon a firm support such as calico, moleskin, dimity, chamois leather or sheepskin (plaster skin). The factory made plasters are spread upon cloths of various kinds in yard lengths. Besides the ordinary resinous bases one containing rubber is readily obtainable. The prescriber will have no difficulty in obtaining the ready-made article; but it sometimes occurs that he desires his patient to have a freshly-spread plaster of a particular shape. The patterns for different parts of the body are a heart-shaped one for the chest, oblong for the back, side, and shoulder, round with a hole in the centre and with a wedge-shaped fissure cut from the centre to the periphery for the breast, and crescentic ovate ones for behind the ears. These extemporaneous plasters, other than blisters, are spread on sheepskin. A piece of leather is cut somewhat larger than the required plaster and ironed free from creases by means of a warm plaster spatula; a paper shape of the required size is cut and soaked in water; meanwhile the plaster mass, in the proportion of 15 to 20 grains (1 grm. to 1·3 grm.) to the square inch (6 sq. cm.), is melted either by the warm spatula upon

brown paper, or in a dish over a water bath. Care must be taken that the spatula is not hot enough to scorch the plaster. The wet paper shape is pressed into contact with the rough side of the leather, and the melted plaster is then placed upon the leather and quickly and evenly extended by as few strokes as possible of the warm spatula; the shape must be removed quickly, while still moist, if a ragged margin is to be avoided. A one-inch (2·5 cm.) margin of leather is left to prevent the plaster from exuding, by the heat of the body, upon the patient's under garments.

Blisters, prepared from *emplastrum cantharidis*, are spread upon the ordinary adhesive plaster of the pharmacy, because the blistering plaster itself possesses no adhesive properties. A paper shape is used as in the case of leather plasters, but it does not require to be moistened; the warmth of the hand is sufficient to make it adhere to the adhesive plaster. The *emplast. cantharid.* is merely made plastic by the warm fingers and spread by the thumb. The spreading of blisters and plasters can only be satisfactorily understood by seeing a demonstration of the processes.

Practical Exercises.

℞. Morphin. Hydrochlorid. gr. ¼ *or* 16 mgm.
Ol. Theobromatis q.s. ut fiat supposit. mitte iij

About 15 or 16 grains (1 grm.) of the cacao butter are required for each suppository. Melt the cacao butter at the lowest possible temperature, and rub the morphine on a warm, smooth slab with a few drops of the melted fat; add the mixture to the melted fat, mix thoroughly, and pour into a gun metal suppository mould, which has been previously prepared by moistening its interior with soap liniment to prevent the suppositories sticking.

℞. Ext. Belladonn. Alc. gr. iij *or* 2 dgm.
Fiant suppositoria tria.
Signa : "To be used as directed."

The extract must be made into a smooth paste with a little dilute alcohol, and then incorporated with a little of the melted fat ; the mixture is to be added to the remainder of the fat, which must be at a temperature only sufficiently high to permit it to flow into the mould. Soap liniment is the most generally useful lubricant for the moulds.

Mitte Emplast. Cantharidis
Signa : "For placing behind the left ear."

Mitte Emplast. Belladonnæ pro mamma.
"To be used as directed."

Mitte Emplast. Picis 6″ × 6″ *or* 1·5 × 1·5 decimetres
"To be applied over the liver."

The dispensing of the foregoing plasters should only be attempted after having seen a demonstration.

Prescribe an ointment of boric acid and soft paraffin.

Prescribe an eye lotion of lead subacetate and a preparation of opium.

Prescribe a vaginal douche of zinc sulphocarbolate.

Prescribe an ointment of ammoniated mercury.

Prescribe and dispense an ointment of sulphur and camphor.

Write prescriptions for the following :—
Six suppositories of tannic acid.
Six bougies of lead acetate.
Three pessaries of lead iodide.
A blister for the temple.
A plaster for the back.

FORMS OF ADMINISTRATION, SOLUBILITIES AND INCOMPATIBLES OF THE CHIEF OFFICIAL AND EXTRA-OFFICIAL DRUGS.

The doses are stated after the preparations. Preparations distinguished by B.P.C. have their formulæ given in the British Pharmaceutical Conference Formulary, 1901.

Metric equivalents.

1 grain	=	65 milligrammes	(mgm.)
10 grains	=	65 centigrammes	(cgm.)
1 drachm	=	3·9 grammes	(grm.)
1 ounce	=	28·35 grammes	(grm.)

1 minim	=	0·059 c. centimetres	(c.c.)
10 minims	=	0·59	,,
1 fluid drachm	=	3·55	,,
1 fluid ounce	=	28·4	,,

Acaciæ Gummi. Solubility—Water, 1 in 1; Alcohol, insoluble.

Prescribed in **mixtures** (Mucilago Acaciæ, ℥j—℥iv). Useful as a suspending agent for heavy powders, with the exception of bismuth salts, and as an emulsifying agent for fatty and volatile oils and resinous tinctures.

Incompatibles. Alcohol, Borax, Ferric Salts, Solution of Lead Subacetate, Sulphuric Acid.

Acetanilidum, gr. j—gr. iij (5 to 20 cgm.) Solubility—Water, 1 in 200; Alcohol, 1 in 4.

May be given dissolved in some weak spirit, such as brandy. Should be prescribed as **powders,** as **cachets,** or as **tabellæ.** A compound powder (Pulvis Acetanilidi

Comp. B.P.C. gr. iij—gr. v) in which it is combined with Caffeine and Sodium Bicarbonate is useful for prescribing in **cachets.**

Incompatibility. It should be a rule with but few exceptions that synthetic remedies should not be ordered with chemically active substances.

Acidum Aceticum.

Given in **mixtures** (Acid. Acetic. dilutum, ℥ss—℥ij ; Oxymel, ℥j—℥ij) for internal use. For outward application it may be ordered as a **lotion,** a **liniment** (Linimentum Terebinthinæ Aceticum) or a **pigment** (Acid. Acetic. Glaciale) for cutaneous excrescences.

Incompatibles. Alkalis, Alkaline Salts, Hydrates. and Carbonates.

Acidum Arseniosum, gr. $\frac{1}{60}$—gr. $\frac{1}{15}$ (1 to 4 mgm).

Solubility—Water, 1 in 100; Glycerin, 1 in 5.

It may be ordered in **pills** (also as Ferri Arsenas gr. $\frac{1}{16}$—gr. $\frac{1}{4}$) or in **tablets.** When prescribed in **mixtures** regard must be had to the reaction of the other ingredients in order that the proper solution may be ordered (Liquor Arsenicalis [alkaline], ♏ij—♏viij; Liquor Arsenici Hydrochloricus [acid], ♏ij—♏viij; Liquor Sodii Arsenatis [alkaline], ♏ij—♏viij).

Incompatibles. Lime Water, Magnesia, Iron Oxide and Astringent matters.

Acidum Benzoicum, gr. v—gr. xv (0·3 to 1 grm.)

Solubility—Water, 1 in 400; Alcohol, 1 in 3.

When prescribed in a **mixture** it must be rubbed down to a fine powder and suspended with a large

proportion of mucilage of acacia or syrup. If given in pills it should be massed with some excipient containing a little tragacanth and glucose. It is best prescribed in **cachets.** The benzoates (Ammonii Benzoas, gr. v —gr. xv; Sodii Benzoas, gr. v—gr. xxx) are prescribed in **mixtures.** The acid is also used in a **lozenge** (Trochiscus Acidi Benzoici).

Incompatibles. Ferric Salts, Lead Acetate, Mercuric Chloride.

Acidum Boricum, gr. v—gr. xv (0·3 to 1 grm.). Solubility—Water, 1 in 30; Glycerin, 1 in 4; Alcohol, 1 in 30.

It is prescribed as a **lotion** for various purposes, also as a **dusting powder,** a **pessary,** an **ointment,** (Unguentum Acidi Borici) and in the form of a **lint** (Boric Lint). Occasionally it is given internally in a **mixture,** as a **powder,** or in **cachets.** When used as a **pigment** it should be in solution in glycerin (Glycerinum Acidi Borici).

Acidum Carbolicum, gr. j—gr. iij (5 to 20 cgm). Solubility—Water, 1 in 12; Olive Oil, 1 in 2; Glycerin, 3 in 1.

For internal use it may be prescribed in **pills** with suitable proportions of liquorice powder and compound tragacanth powder, or in a **mixture.** It is also used in the form of lozenges (Trochiscus Acidi Carbolici), as a **pigment** (Glycerinum Acidi Carbolici), a **gargle,** an **inhalation,** a **spray,** an **injection,** a **hypodermic injection** and in **suppositories** (Suppositoria Acidi

Carbolici). For external use it is prescribed in aqueous solution as a **lotion** (1 in 40), and in solution in olive or linseed oil as an **application.** It is also frequently ordered in **ointments** (Unguentum Acidi Carbolici).

Incompatibles. In the pilular form—Camphor, Thymol, Menthol, Resins and Gum-resins. In the liquid state—Ammonium Salts, Ferrous Salts, and Lime.

Acidum Citricum, gr. v—gr. xx (3 to 12 dgm.)
Solubility—Water, 1 in $\frac{3}{4}$.

Used in effervescing **mixtures** and **powders.**

Incompatibles. Alkalis and their Carbonates, Acetates, Potassium Tartrate and Sulphides.

Acidum Gallicum, gr. v.—gr. xv (0·3 to 1 grm.)
Solubility—Water, 1 in 100; Alcohol, 1 in 5; Glycerin, 1 in 12.

When given in a **mixture** it should be triturated to a fine powder. It may be dispensed as a powder in **cachets** or in **pills** massed with a little glycerin.

Incompatibles. Metallic Salts and Spirit of Nitrous Ether.

Acidum Hydriodicum.

Usually prescribed as a **syrup** (Syrupus Acidi Hydriodici, B.P.C., ℥xx—℥lx).

Acidum Hydrobromicum dilutum, ℥xv—℥lx (1 to 3·5 c.c.)

Prescribed in **mixtures.**

Incompatibles. Alkalis and their Carbonates, Metallic Oxides, Salts of Silver and Lead.

Acidum Hydrochloricum dilutum, ℥v—℥xx (0·3 to 1·2 c.c.)

Given in **mixtures, gargles,** and **lotions.**

Incompatibles. Same as for Hydrobromic Acid.

Acidum Hydrocyanicum dilutum, ℥ij—℥vj (0·1 to 0·3 c.c.)

Acidum Hydrocyanicum (Scheele), B.P.C., ℥j—℥iij (0·05 to 0·15 c.c.)

Internally it is given in **mixtures.** For outward application it may be used as a **lotion,** in which glycerin should be an ingredient, or as an **ointment.** It is sometimes used as an **inhalation.**

Incompatibles. Copper, Iron and Silver Salts, Mercuric Oxide, Sulphides and Morphine.

Acidum Hydrofluoricum dilutum, B.P.C. ℥v—℥xx (0·3 to 1·2 c.c.)

Prescribed in **mixtures.**

Acidum Hypophosphorosum, B.P.C., ℥ij—℥v (0·1 to 0·3 c.c.)

Prescribed in **mixtures.**

Incompatible. Mercuric Chloride.

Acidum Lacticum.

Diluted with water it is used as a **spray.** Strong solutions are used as **pigments.**

Acidum Nitricum dilutum, ℥v—℥xx (0·3 to 1·2 c.c.)

Used in **mixtures** and **lotions.** The strong acid is occasionally used as a caustic **application.**

Incompatibles. All readily oxidisable organic substances, Alkalis and their Carbonates, Sulphides, Ferrous Sulphate and Lead Acetate.

Acidum Nitro-hydrochloricum dilutum, ℥v—℥xx (0·3 to 1·2 c.c.)

Prescribed in **mixtures** and as a **lotion.**

Incompatibles. Alkalis and their Carbonates, Sulphides, Bromides, Iodides and Salts of Silver and Lead.

Acidum Phosphoricum dilutum, ℥v—℥xx (0·3 to 1·2 c.c.)

Given in **mixtures.**

Incompatibles. Alkalis and their Carbonates, Ferric Chloride, Lead Acetate and Calcium Salts.

Acidum Salicylicum, gr. v—gr. xx (3 to 12 dgm.)

Solubility—Water, 1 to 500; Alcohol, 1 in 3; Glycerin, 1 in 200.

Usually given in **mixtures** in the form of the Sodium Salt. It is used as a **lotion,** as an **injection,** an **ointment** (Unguentum Acidi Salicylici), a **dusting powder,** and as a **lint.**

Incompatibles. Iron Salts and Spirit of Nitrous Ether.

Acidum Sulphuricum dilutum, ℥v—℥xx (0·3 to 1·2 c.c.)

Prescribed in **mixtures** for which other preparations of it are also used (Acidum Sulphuricum Aromaticum, ℥v—℥xx). It is sometimes ordered in **gargles** (Infusum Rosæ Acidum).

Incompatibles. Alkalis and their Carbonates, Acetates, Benzoates, Salicylates, Mucilage of Acacia, Salts of Calcium and Lead.

Acidum Sulphurosum, ℥ss—℥j (1·75 to 3·5 c.c.)

Administered internally in **mixtures.** Used also as a **lotion, application, spray,** and **inhalation.**

Incompatibles. All oxidising substances, Hyposulphites.

Acidum Tannicum, gr. ij—gr. v (1 to 3 dgm. Solubility—Water, 1 in 1; Alcohol, 1 in 1; Glycerin, 1 in 1.

Used in the form of **mixture, pills** (massed with a minute quantity of glycerin), **cachets, tablets, gargle, ointment, spray, mouth wash, injection, snuff, suppositories** (Suppositoria Acidi Tannici), **pessaries, bougies, pigment** (Glycerinum Acidi Tannici, Collodium Stypticum B.P.C.), and **lozenges** (Trochiscus Acidi Tannici).

Incompatibles. Alkalis and their Carbonates, Metallic Salts—especially those of Iron, Antimony, Lead and Silver—Mineral Acids, Alkaloids, Albumen, Gelatin, Chlorates, Lime Water and Chlorine Water.

Acidum Tartaricum, gr. v.—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 1; Alcohol, 1 in 3.

Given in saline **mixtures** and in effervescing **powders** (Pulvis Sodæ Tartaratæ Effervescens; Sodii Citro-Tartras Effervescens, gr. lx—gr. cxx).

Incompatibles. Alkalis and their Carbonates,

Ammonia, Salts of Calcium, Lead, Mercury and Potassium, and Vegetable Astringents.

Aconiti Radix.

Administered internally in **mixtures** (Tinctura Aconiti, ℥ v—℥ xv ; if frequently repeated, ℥ ij—℥ v), and externally as a **liniment** (Linimentum Aconiti ; Chloroformum Aconiti B.P.C.).

Aconitina. Solubility — Water, almost insoluble; Alcohol, 1 in 35; Chloroform, 1 in 1.

Applied externally as an **ointment** (Unguentum Aconitinæ).

Æther, single administration ℥ xl—℥ lx (2·3 to 3·5 c.c.); for repeated administration ℥ x—℥ xxx (0·6 to 1·8 c.c.). Solubility—Water, 1 in 10; Alcohol, in all proportions.

Administered in **mixtures** (Spiritus Ætheris. single dose ℥ lx—℥ xc, repeated doses ℥ xx—℥ xl ; Spiritus Ætheris Compositus, single dose ℥ lx—℥ xc, repeated doses ℥ xx—℥ xl). Used as an **anæsthetic** (Æther Purificatus).

Æther Aceticus, single dose ℥ lx—℥ xc (3·5 to 5·5 c.c.), repeated doses ℥ xx—℥ xl (1·2 to 2·5 c.c.). Solubility—Water, 1 in 10; Alcohol, in all proportions.

Given in **mixtures** or as an **inhalation.**

Aletris Farinosa.

Prescribed in **mixtures** (Elixir Aletridis, B.P.C. ʒss—ʒj ; Extractum Aletridis Liquidum, B.P.C. ℥ v—℥ xv).

Aloe Barbadensis, gr. ij—gr. v. (1 to 3 dgm.).

Employed in **mixtures** (Decoctum Aloes Compositum ℥ss—℥ij; Tinctura Aloes, ʒss—ʒj) and **pills** (Extractum Aloes Barbadensis, gr. j—gr. iv.; Pilula Aloes Barbadensis, gr. iv—gr. viij; Pilula Aloes et Ferri, gr. iv—gr. viij).

Aloe Socotrina, gr. ij—gr. v (1 to 3 dgm.).

Administered in **pills** (Pilula Aloes Socotrina, gr. iv—gr. viij; Pilula Aloes et Asafetidæ, gr. iv—gr. viij; Pilula Aloes et Myrrhæ, gr. iv—gr. viij).

Aloinum, gr. ss—gr. ij (3 to 12 cgm.).

Prescribed in **pills,** occasionally in **cachets.**

Alumen, gr. v—gr. x (3 to 6 dgm.) Solubility—Water, 1 in 10; Glycerin, 1 in 3.

Used in the forms of **gargle, lotion, injection, collyrium, nasal douche, pigment** (Glycerinum Aluminis) and **powder** (Alumen Exsiccatum).

Incompatibles. Alkalis and their Carbonates, Tannic Acid, Lime, Lead, Mercury and Iron Salts.

Ammoniacum, gr. v—gr. xv. (0·3 to 1 grm.)

Prescribed as a **mixture** (Mistura Ammoniaci, ℥ss—℥j) or in **pills** (Pilula Ipecacuanhæ cum Scilla, gr. iv—gr. viij; Pilula Scillæ Composita, gr. iv—gr. viij). Externally it is used as a **plaster** (Emplastrum Ammoniaci cum Hydrargyro).

Ammonia.

Given in **mixtures** (Spiritus Ammoniæ Aromaticus, single dose ♏ lx—♏ xc, repeated doses ♏ xx—♏ xl; Spiritus Ammoniæ Fetidus, single dose ♏ lx—♏ xc

repeated doses ℥xx—℥xl). Used externally in **liniments** (Linimentum Ammoniæ; Linimentum Camphoræ Ammoniatum).

Incompatible with Acids, Iodine and Carbolic Acid.

Ammonii Benzoas, gr. v—gr. xv (0·3 to 1·0 grm.)

Solubility—Water, 1 in 6 ; Glycerin, 1 in 8; Alcohol, 1 in 30.

Generally prescribed in **mixtures.**

Incompatibles. Acids, Ferric Salts and Fixed Caustic Alkalis.

Ammonii Bromidum, gr. v—gr. xxx (0·3 to 2·0 grm.)

Solubility—Water, 1 in 1½.

Given in the form of **mixture,** sometimes in **lozenges.**

Incompatibles. Acids, Fixed Alkalis, Alkaline Carbonates, Chlorine, Mercurous Chloride, Potassium Chlorate, Silver Nitrate, and Spirit of Nitrous Ether.

Ammonii Carbonas, gr. iij—gr. x (2 to 7 dgm.)

Solubility—Water, 1 in 4.

Prescribed in **mixtures.**

Incompatibles. Acids, Acid Salts, Caustic Alkalis, Salts of Iron, Lime Water, Solutions of Alkaloids, Preparations of Cinchona and Hot Water.

Ammonii Chloridum, gr. v—gr xx (0·3 to 1·3 grm.)

Solubility—Water, 1 in 3.

May be given internally in the form of **mixture,** or may be used in the form of **lozenges, tablets,** and as a **vapour.** Externally it is used as a **lotion.**

Incompatibles. Alkalis, Alkaline Earths and their Carbonates, Mineral Acids, and Lead and Silver Salts.

Ammonii Phosphas, gr. v—gr. xx (0·3 to 1·3 grm.)

Solubility—Water, 1 in 4; Alcohol insoluble.

It may be prescribed in solution in **mixtures.**

Incompatibles. Caustic Alkalis.

Amyl Nitris, ℥ ij—℥ v (0·1 to 0·3 c.c.)

Given by **inhalation.** For this purpose glass capsules, holding from two to five minims, are enclosed in cotton wool; these are broken by squeezing in a handkerchief when required.

Amylum.

Used as a **dusting powder** and as an **application** (Glycerinum Amyli). It is the basis of the mucilage of starch for **enemas.**

Anethi Fructus.

Prescribed in **mixtures** (Aqua Anethi) and **pills** (Oleum Anethi; ♏ ss—♏ iij).

Anisi Fructus.

Administered in **mixtures** (Aqua Anisi; Spiritus Anisi, ♏ v—♏ xx) and **pills** (Oleum Anisi, ♏ ss—♏ iij).

Anthemidis Flores.

Prescribed in **mixtures** and **lotions** in the form of an infusion; also in **pills** (Extractum Anthemidis, gr. ij —gr. viij; Oleum Anthemidis, ♏ ss—♏ iij).

Antimonii Oxidum, gr. j—gr. ij (6 to 12 cgm.)

Given in **pills,** but more generally in **powders** (Pulvis Antimonialis, gr. iij—gr. vj).

Antimonium Sulphuratum, gr. j—gr. ij (6 to 12 cgm.)

Generally prescribed in **pills** (Pilula Hydrargyri Subchloridi Composita, gr. iv—gr. viij).

Antimonium Tartaratum, as a diaphoretic, gr. $\frac{1}{24}$—gr. $\frac{1}{8}$ (3 to 8 mgm.), as an emetic, gr. j—gr. ij (6 to 12 cgm.). Solubility—Water, 1 in 17.

Prescribed in **mixtures** (Vinum Antimoniale, ℥x—℥xxx, as an emetic, ʒij—ʒiv), **pills** and **ointments.**

Incompatibles. Alkalis and their Carbonates, Acids, Lead Salts, Tannic Acid and all Astringent preparations, Mucilage of Gum Acacia.

Apomorphinæ Hydrochloridum, by the mouth gr. $\frac{1}{10}$—gr. $\frac{1}{4}$ (6 to 16 mgm.) by hypodermic injection, gr. $\frac{1}{20}$—gr. $\frac{1}{10}$ (3 to 6 mgm.) Solubility—Water, 1 in 50; Alcohol, 1 in 50.

Administered as a **hypodermic injection** (Injectio Apomorphinæ Hypodermica, ℥v—℥x), and in **mixtures** (Syrupus Apomorphinæ Hydrochloridi, B.P.C. ʒss—ʒj).

Incompatibles. Alkalis and their Carbonates, Iodine, Potassium Iodide, Salts of Iron, Tannic Acid.

Argenti Nitras, gr. $\frac{1}{4}$—gr. $\frac{1}{2}$ (15 to 30 mgm.) Solubility —Water, 1 in $\frac{1}{2}$; Alcohol, 1 in 18.

Used externally as a **caustic** (Argenti Nitras Induratus; Argenti Nitras Mitigatus); also in **bougies, lotions, collyria** and as a **pigment** formed by dissolving it in Spirit of Nitrous Ether. Internally it is given in the form of **pills** massed with kaolin ointment.[1] Solutions of Silver Nitrate must be made with distilled water.

Incompatibles. Alkalis, Alkaline Earths and their Carbonates, Acetic, Hydrochloric, Sulphuric, and Tartaric

1 Kaolin Ointment consists of Soft Paraffin 1 part, Hard Paraffin (m.p. 120°F.) parts, Kaolin 1 part.

Acids and their Salts, Bromides, Iodides and Phosphates, Hydrocyanic Acid and Cyanides, Iodine, Sulphur, Arsenites and Arsenical Solutions, Tannic Acid and Astringent preparations, Volatile Oils, Extracts and Resins.

Argenti Oxidum, gr. ss—gr. ij (3 to 12 cgm.).

Prescribed in **pills** massed with kaolin ointment. It must not be ordered with readily oxidisable substances, such as Creosote.

Incompatibles. Bromides, Chlorides and Iodides, Acids, Ammonia, Tannic Acid and substances which are readily oxidised.

Armoraciæ Radix.

Administered in **mixtures** (Spiritus Armoraciæ Compositus, ʒj—ʒij).

Arnicæ Rhizoma.

Used as an external application in **lotions** (Tinctura Arnicæ).

Arsenii Iodidum, gr. $\frac{1}{20}$—gr. $\frac{1}{5}$ (3 to 12 mgm.) Solubility—Water, 1 in 11.

Sometimes ordered in **pills**; generally in a **mixture** (Liquor Arsenii et Hydrargyri Iodidi, ♏ v—♏ xx).

Incompatibles. Acids, Alkaloids and Mercuric Chloride.

Asafetida, gr. v—gr. xv (3 to 10 dgm.)

Prescribed in **pills,** which should be varnished and not silvered (Pilula Aloes et Asafetidæ, gr. iv—gr. viij; Pilula Galbani Composita, gr. iv—gr. viij), **mixtures** (Tinctura Asafetidæ, ʒss—ʒj; Spiritus Am-

moniæ Fetidus, ℥xx—℥xl) and **enemas.** When the tincture is ordered in a mixture some mucilage of gum acacia should also be prescribed to suspend the resin which will be thrown out of solution by the water.

Atropina, gr. $\frac{1}{200}$—gr. $\frac{1}{100}$ (0·3 to 0·6 mgm.) Solubility—Water, 1 in 300.

Atropinæ Sulphas, gr. $\frac{1}{200}$—gr. $\frac{1}{100}$ (0·3 to 0·6 mgm.) Solubility—Water, 1 in 1.

The alkaloid may be administered internally in **pills** and externally as an **ointment** (Unguentum Atropinæ). The Sulphate is used in aqueous solutions for **eye drops** (Liquor Atropinæ Sulphatis, ℥ss—℥j) and for making **discs** (Lamellæ Atropinæ) for ophthalmic purposes.

Incompatibles. Alkalis, Tannic Acid and Salts of Mercury.

Aurantii Cortex.

Prescribed in **mixtures** (Syrupus Aurantii, ʒss—ʒj; Tinctura Aurantii, ʒss—ʒj; Vinum Aurantii; Vinum Quininæ, ℥ss—℥j; Vinum Ferri Citratis, ʒj—ʒiv; Infusum Aurantii, ℥ss—℥j; Infusum Aurantii Compositum, ℥ss—℥j; Syrupus Aromaticus, ʒss—ʒj).

Incompatibles. Preparations of Ferric Salts.

Aurantii Flores.

Used in **mixtures** (Aqua Aurantii Floris; Syrupus Aurantii Floris, ʒss—ʒj).

Balsamum Peruvianum, ℥v—℥xv (0·3 to 1 c.c.) Solubility—Alcohol, 1 in 1.

Given in **mixtures** emulsified with powdered acacia

or yolk of egg. Externally it is used as an **ointment** when mixed with lard.

Balsamum Tolutanum, gr. v—gr. xv (3 to 10 dgm.)

May be prescribed in **mixtures** (Syrupus Tolutanus, ʒss—ʒj); Tinctura Tolutana, ʒss—ʒj). The tincture requires the addition of some acacia mucilage to suspend the resin when mixed with water.

Belladonnæ Folia et Radix.

They are internally administered in **mixtures** (Tinctura Belladonnæ, ♏ v—♏ xv; Succus Belladonnæ, ♏ v—♏ xv) and **pills** (Extractum Belladonnæ Viride, gr. ¼—gr. j; Extractum Belladonnæ Alcoholicum, gr. ¼—gr. j). Externally they are used as **ointment** (Unguentum Belladonnæ), **liniment** (Linimentum Belladonnæ), **plaster** (Emplastrum Belladonnæ; Emplastrum Belladonnæ Viride B.P.C.), **pigment** (Chloroformum Belladonnæ B.P.C.; Collodium Belladonnæ B.P.C.; Glycerinum Belladonnæ B.P.C.), and **suppositories** (Suppositoria Belladonnæ).

Benzoinum.

Prescribed as a **mixture** (Tinctura Benzoini Composita, ʒss—ʒj), **inhalation** (Tinctura) and **lotion** (Tinctura Benzoini Simplex B.P.C.). The compound tincture is emulsified in mixtures by means of mucilage of acacia or yolk of egg.

Bismuthi Carbonas, gr. v—gr. xx (3 to 12 dgm.)

Administered in **mixtures,** in which it is usually suspended by means of a little glycerin or compound tragacanth powder. This salt should always be ordered

when a bismuth preparation is required with a carbonate or bicarbonate. Occasionally it is given in the form of **lozenges** (Trochiscus Bismuthi Compositus).

Incompatibles. Acids, Tannic Acid, Sulphur, Sulphides.

Bismuthi Oxidum, gr. v—gr. xx (3 to 12 dgm.)

See Bismuthi Carbonas. Sometimes it is ordered in **ointments.**

Bismuthi Salicylas, gr. v—gr. xx (3 to 12 dgm.)

Should be ordered in **cachets** without any admixture.

Bismuthi Subnitras, gr. v—gr. xx (3 to 12 dgm.)

Employed in the same way as the Bismuthi Carbonas, but it should not be mixed with carbonates or bicarbonates.

Incompatibles. As for Bismuthi Carbonas, also Carbonates, Bicarbonates, Mercurous Chloride and Soluble Iodides.

Bismuthi et Ammonii Citras.

This is only official in the form of a Solution (Liquor Bismuthi et Ammonii Citratis, ℥ss—℥j), which is prescribed in the form of **mixture.** A compound mixture is very frequently ordered (Mistura Bismuthi Composita, B.P.C., ♏xx—♏xxx).

Incompatibility. It is an unstable article and should only be prescribed with preparations having a neutral reaction.

Borax, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 25; Glycerin, 1 in 1.

Prescribed occasionally in **mixtures;** more generally in

gargles, lotions, injections, as a **pigment,** (Glycerinum Boracis) and as an **application** to the mouth (Mel Boracis).

Incompatibles. Mineral Acids and their Metallic Salts, Mucilage of Acacia, Alkaloidal Salts (except in the presence of Glycerin) Alkaline Carbonates (in the presence of Glycerin).

Bryonia Dioica.

Given in **mixtures** (Tinctura Bryoniæ, B.P.C., ℥j—℥x).

Buchu Folia.

Invariably prescribed in **mixtures** (Infusum Buchu, ℥j—℥ij; Tinctura Buchu, ʒss—ʒj).

Bntyl-Chloral Hydras, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 50; Glycerin, 1 in 1.

May be given in **mixtures** with a little glycerin to aid solution, or as a **syrup** (Syrupus Butyl-Chloral Hydras, B.P.C. ʒj—ʒiv). Alcohol, as a solvent, should be avoided as it tends to form an oily compound with the drug. It is best exhibited in **pills** massed with compound tragacanth powder and liquid glucose.

Incompatibles. Alcohol, Alkalis and Alkaloids.

Caffeina, gr. j—gr. v (0·5 to 3 dgm.) Solubility—Water, 1 in 80.

Caffeinæ Citras, gr. ij—gr. x (1 to 7 dgm.) Solubility—Water, 1 in 32.

Occasionally prescribed in **pills** massed with glucose, **powders** or **cachets;** more frequently they are ordered in the form of an **effervescent preparation** (Caffeinæ

Citras Effervescens, gr. lx—gr. cxx; Caffeinæ Hydrobromidum Effervescens, B.P.C. gr. lx—gr. cxx).

Incompatibles. Most Alkaloidal reagents.

Calcii Carbonas Præcipitatus, gr. x—gr. lx (0·5 to 4 grm.)

When prescribed in **mixtures** a suspending agent should also be ordered. Sometimes used as a **dusting powder**; frequently employed as a **dentifrice.**

Incompatibles. Acids and Sulphates.

Calcii Chloridum, gr. v—gr. xv (3 to 10 dgm.). Solubility —Water, 1 in 1.

Given in solution in **mixtures.**

Incompatibles. Alkalis, Carbonates, Sulphates, Phosphates and Tartrates.

Calcii Hydras.

Administered in **solution** (Liquor Calcis, ℥j—℥iv Liquor Calcis Saccharatus, ♏xx—♏lx) for internal use. Externally it is used as a **liniment** (Linimentum Calcis).

Incompatibles. Acids, Alkaline and Metallic Salts.

Calcii Hypophosphis, gr. iij—gr. x (2 to 7 dgm.) Solubility—Water, 1 in 8.

Usually given in **mixtures,** or as a **syrup** (Syrupus Calcii Hypophosphitis, B.P.C., ℥j—℥iv; Syrupus Hypophosphitum Compositus, B.P.C., ℥ss—℥ij).

Incompatibles. Chlorates, Iodides, Permanganates, Nitrates, and Mercuric Chloride.

Calcii Phosphas, gr. v—gr. xv (3 to 10 dgm.) Insoluble in water.

Prescribed as a **powder,** or in a dilute acid solution as

a **mixture.** It is an ingredient of a popular **syrup** (Syrupus Ferri Phosphatis Compositus, B.P.C., ʒss—ʒij).

Calendula.

Used as an external **application** and in **mixtures** (Tinctura Calendulæ Florum, B.P.C., ♏v—♏xx).

Calumbæ Radix.

Ordered in **mixtures** (Infusum Calumbæ, ℥ss—℥j; Liquor Calumbæ Concentratus, ʒss—ʒj; Tinctura Calumbæ, ʒss—ʒj). Being free from astringent matters it may be given with preparations of iron.

Calx Chlorinata. Partially soluble in Water.

Used as a **lotion, injection,** and **gargle** (Liquor Calcis Chlorinatæ).

Incompatibility. It is so readily decomposed that it should be used only in the form of a simple aqueous solution.

Calx Sulphurata, gr. ¼—gr. j (15 to 60 mgm.)

Prescribed in the form of **pills** massed with a little sugar of milk and glucose.

Cambogia, gr. ss—gr. ij (3 to 12 cgm.)

Given in the form of **pills** (Pilula Cambogiæ Composita, gr. iv—gr. viii).

Camphora, gr. ij—gr. v (1 to 3 dgm.) Solubility—Slightly in Water; Alcohol, 1 in 1; Chloroform, 4 in 1; Olive Oil, 1 in 4.

Prescribed in **mixtures** (Aqua Camphoræ; Spiritus Camphoræ, ♏v—♏xx), in **pills,** in which it may be combined with extract of hyoscyamus and curd soap, or

with glycerin of tragacanth and a little curd soap, **inhalations, liniments** (Linimentum Camphoræ; Linimentum Camphoræ Ammoniatum), and **ointments,** with which it may be incorporated by dissolving it in a little ether, or by heating it with the fatty basis in a wide-mouth stoppered bottle in a water-bath. Occasionally used as an **application** produced by combining it with carbolic acid with which it forms a liquid on triturating together.

Incompatibles. In the solid state—Carbolic Acid, Chloral Hydrate, and Thymol.

Cannabis Indica.

Prescribed in **mixtures** (Tinctura Cannabis Indicæ, ℥v—℥xv), in which the resin precipitated from the tincture must be suspended by mucilage of acacia, and in **pills** (Extractum Cannabis Indicæ, gr. ¼—gr. j).

Cantharis.

It is a common **application** for blistering purposes (Collodium Vesicans; Emplastrum Cantharidis; Liquor Epispasticus). It is also used in **lotions** (Acetum Cantharidis; Tinctura Cantharidis), **ointments** (Unguentum Cantharidis), and as a stimulating **plaster** (Emplastrum Calefaciens). Occasionally it is prescribed for internal administration in **mixtures** (Tinctura Cantharidis, ℥v—℥xv; if frequently repeated, ℥ij—℥v).

Capsici Fructus.

Given in **mixtures** (Tinctura Capsici, ℥v—℥xv). It is also used in **applications** (Tinctura Capsici Fortior, B.P.C.) and in **ointments** (Unguentum Capsici; Unguentum Oleo-resinæ Capsici, B.P.C.)

Carbo Ligni, gr. lx—gr. cxx (4 to 8 grm.)

It may be given in **cachets** or **capsules,** or it may be given in the form of **biscuits.**

Cardamomi Semina.

It is used in **mixtures** (Tinctura Cardamomi Composita, ʒss—ʒj).

Carui Fructus.

It is prescribed in **mixtures** (Aqua Carui) and **pills** Oleum Carui, ♏ ss—♏ iij).

Caryophyllum.

Administered in **mixtures** (Infusum Caryophylli, ℥ss—℥j) and **pills** (Oleum Caryophylli, ♏ ss---♏ iij).

Incompatibles. Salts of Iron.

Cascara Sagrada.

It is usually prescribed in **pills** (Extractum Cascaræ Sagradæ, gr. ij—gr. viij), **capsules** and **mixtures** (Extractum Cascaræ Sagradæ Liquidum, ʒss—ʒj). Sometimes it is ordered as a **syrup** (Syrupus Cascaræ Aromaticus, ʒss—ʒij). A tasteless liquid extract is also available (Extractum Cascaræ Liquidum Insipidum, B.P.C. ʒss—ʒij).

Cascarilla.

Prescribed in **mixtures** (Infusum Cascarillæ, ℥ss—℥j); Tinctura Cascarillæ, ʒss—ʒj).

Incompatibles. Metallic Salts.

Cassiæ Pulpa.

Given in a **confection** (Confectio Sennæ, gr. lx—gr. cxx).

Catechu, gr. v—gr. xv (3 to 10 dgm.)

Administered in the form of **mixture** (Tinctura Catechu, ℥ss—℥j). **powder** (Pulvis Catechu Compositus, gr. x—gr. xl), and **lozenge** (Trochiscus Catechu). Sometimes used in an **injection.**

Cerii Oxalas, gr. ij—gr. x (1 to 6 dgm.)

Prescribed as a **powder** or in **cachets.**

Chirata.

Always given in **mixtures** (Infusum Chiratæ, ℥ss—℥j; Liquor Chiratæ Concentratus, ℥ss—℥j; Tinctura Chiratæ, ℥ss—℥j).

Chloral Hydras, gr. v—gr. xx (3 to 12 dgm.)

Solubility—Water, 4 in 1; Glycerin, 2 in 1; Chloroform, 1 in 3.

Used in **mixtures** (Syrupus Chloral, ℥ss—℥ij; Liquor Bromo-Chloral Compositus, B.P.C., ℥ss—℥ij), **suppositories** and as a **pigment** (Chloral Camphoratum, B.P.C.)

Incompatibles. Alkalis, Phenazone, Carbolic Acid, Alcohol and Potassium Iodide.

Chloroformum, ♏j—♏v (0·05 to 0·3 c.c.)

Prescribed in **mixtures** (Aqua Chloroformi, Spiritus Chloroformi, ♏v—♏xx, a single dose, ♏xxx—♏xl); Tinctura Chloroformi et Morphinæ Composita, ♏v—♏xv), and **liniments** (Linimentum Chloroformi). It is largely used as an **anæsthetic.**

Chrysarobinum.

It is used in the form of an **ointment** (Unguentum Chrysarobini) or as a **pigment,** which may be formed by dissolving it with some caoutchouc in chloroform.

Cimicifugæ Rhizoma.

Is given in **mixtures** (Extractum Cimicifugæ Liquidum, ℥v—℥xxx; Tinctura Cimicifugæ, ʒss—ʒj).

Incompatibles. Salts of Iron.

Cinchonæ Rubræ Cortex.

Given in **mixtures** (Extractum Cinchonæ Liquidum ℥x—℥xv; Infusum Cinchonæ Acidum, ℥ss—℥j; Tinctura Cinchonæ, ʒss—ʒj; Tinctura Cinchonæ Composita, ʒss—ʒj).

Incompatibles. Tannic Acid, Iodides, Alkalis and their Carbonates.

Cinnamomi Cortex.

Prescribed in **mixtures** (Aqua Cinnamomi; Spiritus Cinnamomi, ℥v—℥xx; Tinctura Cinnamomi, ʒss—ʒj; Syrupus Aromaticus, ʒss—ʒj), **powders** (Pulvis Cinnamomi Compositus, gr. x—gr. xl) and **pills** (Oleum Cinnamomi, ℥ss—℥iij).

Cocæ Folia.

Administered in **mixtures** (Extractum Cocæ Liquidum, ʒss—ʒj).

Cocaina. Solubility—Water, 1 in 1300; Olive Oil, 1 in 12.

Used for administration in **ointments** (Unguentum Cocainæ) and **suppositories.**

Incompatibles. Alkalis, Borax and Alkaloidal reagents.

Cocainæ Hydrochloridum, gr. $\frac{1}{5}$—gr. ss (12 to 30 mgm.) Solubility—Water, 2 in 1.

Used in **solutions** as a local anæsthetic; also as a

hypodermic injection (Injectio Cocainæ Hypodermica, ℥ ij—℥ v) and in the form of **discs** (Lamellæ Cocainæ). Often prescribed in **lozenges** (Trochiscus Krameriæ et Cocainæ), **pastilles,** and compressed **tablets.**

Incompatibles. Alkalis, Borax and Alkaloidal reagents.

Codeina, gr. ¼—gr. ij (15 to 120 mgm.) Solubility—Water, 1 in 80; Alcohol, 1 in 2.

Codeinæ Phosphas, gr. ¼—gr. ij (15 to 120 mgm.) Solubility—Water, 1 in 4.

Given in **pills** and **mixtures** (Syrupus Codeinæ ʒss—ʒij); occasionally it is administered in **pastilles.**

Incompatibles. Fixed Alkalis and Alkaloidal reagents.

Colchici Cormus, gr. ij—gr. v (1 to 3 dgm.)

Colchici Semina.

Prescribed in **pills** (Extractum Colchici, gr. ¼—gr. j) and **mixtures** (Tinctura Colchici Seminum, ℥ v—℥ xv; Vinum Colchici, ℥ x—℥ xxx).

Colocynthidis Pulpa.

Is given in **pills** (Extractum Colocynthidis Compositum, gr. ij—gr. viij; Pilula Colocynthidis Composita, gr. iv—gr. viij; Pilula Colocynthidis et Hyoscyami, gr. iv—gr. viij).

Condurango Cortex.

It is used in **mixtures** (Extractum Condurango Liquidum, B.P.C., ℥ x—℥ lx).

Conii Folia.

Conii Fructus.

Prescribed in **mixtures** (Succus Conii, ℥j—℥ij); Tinctura Conii, ℥ss—℥j) and **ointments** (Unguentum Conii).

Incompatibles. Caustic Alkalis, Tannic Acid and Astringent Preparations.

Convallaria.

Administered in **mixtures** (Tinctura Convallariæ, B.P.C., ♏ v—♏ xx).

Copaiba, ℥ss—℥j (2 to 4 c.c.)

It should be prescribed in **mixtures** as an emulsion with not less than an equal quantity of mucilage of acacia or its equivalent of the powdered gum. It may also be given in gelatin or membranous **capsules.** Sometimes it is made into a **paste** with cubebs, syrup and other ingredients. The Volatile Oil of Copaiba (Oleum Copaibæ, ♏ v—♏ xx) may likewise be administered in an **emulsion.**

Coriandri Fructus.

May be given in **pills** (Oleum Coriandri, ♏ ss—♏ iij),

Coto.

Prescribed in **mixtures** (Tinctura Coto, B.P.C., ♏ x—♏ xxx).

Creosotum, ♏ j—♏ v (0·05 to 0·3 c.c.) Solubility—Water, 1 in 150; Alcohol, freely soluble.

Given in **mixtures** (Mistura Creosoti, ℥ss—℥j), **capsules, pills,** which may be massed with curd soap

and liquorice powder, **lotions** and **ointments** (Unguentum Creosoti). Occasionally it is used as an **inhalation.**

Incompatible. Silver Salts.

Creta Præparata, gr. x—gr. lx (6 to 40 dgm.) Insoluble in Water.

Given in **mixtures** (Mistura Cretæ, ℥ss—℥j; Pulvis Cretæ Aromaticus, gr. x—gr. lx; Pulvis Cretæ Aromaticus cum Opio, gr. x—gr. xl), in which it is suspended with acacia or tragacanth.

Incompatibles. Acids and Sulphates.

Cubebæ Fructus, gr. xxx—gr. lx (2 to 4 grm.)

Prescribed in **powders,** which are given in wafer paper, or in **cachets.** Occasionally given in **mixtures** (Tinctura Cubebæ, ℥ss—℥j). More generally the powdered drug is made into a **confection** with copaiba, syrup and flavouring agents. The oil of cubebs (Oleum Cubebæ, ♏v—♏xx) may be given in an **emulsion** made with mucilage of acacia, or in **capsules.** Cubeb **lozenges** and **cigarettes** are sometimes used.

Cupri Sulphas. As an astringent, gr. ss—gr. ij (30 to 120 mgm.); as an emetic, gr. v—gr. x (3 to 6 dgm.) Solubility—Water, 1 in $3\frac{1}{2}$.

Adminstered internally in the form of **pills;** externally in **lotions, injections** and **collyria.** The solid drug is used as a mild **caustic.**

Incompatibles. Alkalis and their Carbonates, Sulphides, Iodides, Vegetable Astringents.

Curara.

Only administered in the form of a **hypodermic injection** (Injectio Curaræ Hypodermica, B.P.C., ℥j—℥vj).

Cuspariæ Cortex.

Used in **mixtures** (Infusum Cuspariæ, ℥j—℥ij; Liquor Cuspariæ Concentratus, ʒss—ʒj).

Cusso, ℥¼—℥ss (7 to 14 grm.)

Given as a **draught** by mixing the dose with about eight ounces of warm water, infusing for fifteen minutes, and then drinking the mixture at short intervals.

Damiana.

Prescribed in **mixtures** (Extractum Damianæ Liquidum, B.P.C. ʒss—ʒj). A semi-solid extract is sometimes used in **pills.**

Digitalis Folia, gr. ss—gr. ij (30 to 120 mgm.)

Most frequently prescribed in **mixtures** (Infusum Digitalis, ʒij—ʒiv; Tinctura Digitalis, ℥v—℥xv; Infusum Digitalis Concentratum, B.P.C., ℥xv—℥xxx; Succus Digitalis, B.P.C. ℥v—℥x). The powder is occasionally given in **pills.**

Incompatibles. Tannic Acid and Astringents, Alkalis and their Carbonates, Iodides, Iron Salts, Lead Acetate and Preparations of Cinchona.

Elaterinum, gr. $\frac{1}{40}$—gr. $\frac{1}{10}$ (2 to 6 mgm.)

Elaterium, gr. $\frac{1}{10}$—gr. ss (6 to 30 mgm.)

Either given in **powders** or in **pills** (Pulvis Elaterini Compositus, gr. j—gr. iv).

Ergota, gr. xx—gr. lx (12 to 40 dgm.)

May be administered in **mixtures** (Extractum Ergotæ Liquidum, ℥x—℥xxx; Infusum Ergotæ, ℥j—℥ij; Tinctura Ergotæ Ammoniata, ℥ss—℥j), or **pills** (Extractum Ergotæ, gr. ij—gr. viij). It is also frequently used as a **hypodermic injection** (Injectio Ergotæ Hypodermica, ℥iij—℥x).

Incompatibles. Metallic Salts and Astringents.

Ethyl Nitris.

Given in **mixtures** (Spiritus Ætheris Nitrosi ℥xx—℥xl for repeated doses, ℥lx—℥xc for a single dose; Liquor Ethyl Nitritis, ℥xx—℥lx).

Incompatibles. Iodides, Bromides, Ferrous Sulphate, Tannic Acid, Gallic Acid, Phenazone and Salicylates.

Eucalypti Gummi, gr. ij—gr. v (1 to 3 dgm.)

Used in **mixtures** (Extractum Eucalypti Gummi Liquidum, B.P.C., ℥xxx—℥lx), **pills** and **lozenges** (Trochiscus Eucalypti Gummi).

Euonymi Cortex.

Prescribed in **pills** and **tablets** (Extractum Euonymi Siccum, gr. j—gr. ij); occasionally in **mixtures** (Tinctura Euonymi, B.P.C., ℥x—℥xl).

Euphorbia Pilulifera.

Generally administered in **mixtures** (Tinctura Euphorbiæ Piluliferæ, B.P.C., ℥x—℥xxx).

Fel Bovinum Purificatum, gr. v—gr. xv (3 to 10 dgm.)

Invariably given in **pills.**

Ferri Arsenas, gr. $\frac{1}{16}$—gr. $\frac{1}{4}$ (4 to 16 mgm.)

Prescribed in **pills.**

Ferri Bromidum.

It is usually administered in a **syrup** (Syrupus Ferri Bromidi, B.P.C., ℥ss—℥j; Syrupus Ferri Bromidi cum Quinina, B.P.C., ℥ss—℥j; Syrupus Ferri Bromidi cum Quinina et Strychnina, B.P.C. ℥ss—℥j).

Ferri Carbonas.

Given in the form of **mixture** (Mistura Ferri Composita, ℥ss—℥j), **pills** (Pilula Ferri, gr. v—gr. xv), **powders** and **cachets** (Ferri Carbonas Saccharatus, gr. x—gr. xxx).

Incompatibles. Acids and Acid Salts, Tannic Acid and Astringents.

Ferri et Ammonii Citras, gr. v—gr. x (3 to 7 dgm.)

Solubility—Water, 2 in 1.

Prescribed in **mixtures;** also as a **wine** (Vinum Ferri Citratis, ℥j—℥iv).

Incompatibles. Fixed Caustic Alkalis, Mineral Acids and Vegetable Astringents.

Ferri et Quininæ Citras, gr. v—gr. x (3 to 7 dgm.)

Solubility—Water, 2 in 1.

Generally given in **mixtures;** occasionally in **pills** massed with dilute alcohol.

Incompatibles. Fixed Caustic Alkalis, Mineral Acids, Vegetable Astringents and Potassium Citrate.

Ferri Hypophosphis.

Prescribed in **mixtures** (Liquor Ferri Hypophosphitis Fortis, B.P.C., ♏x—♏xxx; Liquor Hypophosphitum

Compositus, B.P.C., ʒss—ʒij; Syrupus Ferri Hypophosphitis, B.P.C., ʒss—ʒij; Syrupus Hypophosphitum Compositus, B.P.C., ʒss—ʒij).

Ferri Iodidum.

Administered in **mixtures** (Syrupus Ferri Iodidi, ʒss—ʒj); occasionally in **pills.**

Incompatibles. Alkalis and their Carbonates, Vegetable Astringents.

Ferri Perchloridum.

Given in **mixtures** (Liquor Ferri Perchloridi, ♏ v—♏ xv; Tinctura Ferri Perchloridi, ♏ v—♏ xv).

Incompatibles. Alkalis and their Carbonates, Vegetable Astringents and Mucilage of Acacia.

Ferri Phosphas, gr. v—gr. x (3 to 7 dgm.) Insoluble in Water.

Given in **pills, powders** and **cachets;** also in the form of **acid syrups** (Syrupus Ferri Phosphatis, ʒss—ʒj; Syrupus Ferri Phosphatis cum Quinina et Strychnina, ʒss—ʒj; Syrupus Ferri Phosphatis Compositus, B.P.C., ʒss—ʒij).

Incompatibles. Alkalis and their Carbonates, Vegetable Astringents.

Ferri Sulphas, gr. j—gr. v (6 to 30 cgm.) Solubility—Water, 1 in 2.

Used in **mixtures, lotions, injections,** and **pills** (Ferri Sulphas Exsiccatus, gr. ss—gr. iij).

Incompatibles. Alkalis and their Carbonates, Vegetable Astringents and Soluble Phosphates.

Ferrum Redactum, gr. j—gr. v (6 to 30 cgm.)

Prescribed in **pills, powders, cachets** and **lozenges** (Trochiscus Ferri Redacti).

Ferrum Tartaratum, gr. v—gr. x (3 to 7 dgm.)

Solubility—Water, 1 in 1.

Administered in **mixtures.**

Incompatibles. Fixed Alkalis and their Carbonates, Mineral Acids, Vegetable Astringents.

Filix Mas.

The liquid extract (Extractum Filicis Liquidum, ♏xlv—♏xc) is sometimes given in **capsules,** but more generally in **draught** emulsified with not less than an equal quantity of mucilage, or half the quantity of powdered acacia and some flavouring agent.

Fœniculi Fructus.

Given in **mixtures** (Aqua Fœniculi) and in a **powder** (Pulvis Glycyrrhizæ Compositus, gr. lx—gr. cxx).

Fucus Vesiculosus.

Prescribed in **pills** (Extractum Fuci Vesiculosi, B.P.C., gr. iij—gr. x) and **mixtures** (Extractum Fuci Vesiculosi Liquidum, B.P.C., ʒj—ʒij).

Galbanum, gr. v—gr. xv (3 to 10 dgm.)

Generally given in **pills** (Pilula Galbani Composita. gr. iv—gr. viij).

Incompatible. Carbolic Acid.

Galla.

Used in **ointments** (Unguentum Gallæ; Unguentum Gallæ cum Opio), and **suppositories.**

Gelsemii Radix.

Given in **mixtures** (Tinctura Gelsemii, ℥ v—℥ xv).

Gentianæ Radix.

Administered in **pills** (Extractum Gentianæ, gr. ij—gr. viij), and **mixtures** (Infusum Gentianæ Compositum, ʒss—ʒj; Tinctura Gentianæ Composita, ʒss—ʒj; Infusum Gentianæ Compositum Concentratum, B.P.C., ʒss—ʒj).

Incompatibles. Iron Salts, Alkalis.

Glusidum. Solubility—Water, 1 in 400.

Used as a substitute for Sugar (Elixir Glusidi, B.P.C. ℥ v—℥ xx).

Glycerinum, ʒj—ʒij (4 to 8 c.c.)

Used in **mixtures, lotions, applications, injections, ointments** and **suppositories** (Suppositoria Glycerini).

Incompatibles. Potassium Chlorate, Potassium Permanganate.

Glycyrrhizæ Radix.

Given in **mixtures** (Extractum Glycyrrhizæ Liquidum ʒss—ʒj), **pills** (Extractum Glycyrrhizæ), and as a **powder** (Pulvis Glycyrrhizæ Compositus, gr. lx—gr. cxx).

Granati Cortex.

Prescribed in **mixtures** (Decoctum Granati Corticis, ʒss—ʒij).

Incompatibles. Alkalis, Metallic Salts and Lime Water.

Guaiaci Resina, gr. v—gr. xv (3 to 10 dgm.)

Ordered in **mixtures** (Mistura Guaiaci, ʒss—ʒj;

Tinctura Guaiaci Ammoniata, ℥ss—℥j; Tinctura Guaiaci, B.P.C., ℥ss—℥j), **pills, powders** and **lozenges** (Trochiscus Guaiaci Resinæ). Mucilage of Acacia should be used for suspending the tincture in a mixture.

Incompatibles. Oxidising agents, as Hydrogen Peroxide and Spirit of Nitrous Ether; also Mineral Acids.

Guarana, gr. x—gr. lx (6 to 40 dgm.)

Administered in the form of **powder** and in **mixtures** (Elixir Guaranæ, B.P.C. ℥ss—℥ij).

Hæmatoxyli Lignum.

Given in **mixtures** (Decoctum Hæmatoxyli, ℥ss—℥ij; Extractum Hæmatoxyli Liquidum, B.P.C. ℥ss—℥ij).

Incompatibles. Lime Water, Mineral Acids and Metallic Salts.

Hamamelis.

Used in **mixtures** (Tinctura Hamamelidis, ℥ss—℥j; Extractum Hamamelidis Liquidum, ♏ v—♏ xv), **lotions, injections** (Liquor Hamamelidis), and in **ointments** (Unguentum Hamamelidis). A powdered resinoid substance, Hamamelin, is administered in **suppositories.**

Hemidesmi Radix.

Is given in **mixtures** (Syrupus Hemidesmi, ℥ss—℥j).

Homatropinæ Hydrobromidum, gr. $\frac{1}{80}$—gr. $\frac{1}{20}$ (0.8 to 3 mgm.) Solubility—Water, 1 in 6.

Used as an **application** to the eyes either in solution or in the form of **discs** (Lamellæ Homatropinæ, gr. $\frac{1}{100}$ in each).

Incompatibles. Alkaloidal precipitants and Mercuric Chloride.

Hydrargyri Iodidum Rubrum, gr. $\frac{1}{32}$—gr. $\frac{1}{16}$ (2 to 4 mgm.)

May be given in **pills** or in a **mixture,** solution being effected by means of potassium iodide; this is often done by prescribing mercuric chloride with an excess of potassium iodide. Sometimes it is administered in the form of Donovan's Solution (Liquor Arsenii et Hydrargyri Iodidi, ♏v—♏xx). Externally it is used as an **ointment** (Unguentum Hydrargyri Iodidi Rubri).

Incompatibles. Alkalis.

Hydrargyri Nitras.

Used as an **application,** in **lotions, gargles, injections** (Liquor Hydrargyri Nitratis Acidus) and in **ointments** (Unguentum Hydrargyri Nitratis; Unguentum Hydrargyri Nitratis Dilutum).

Incompatibles. Reducing Agents.

Hydrargyri Oleas.

Prescribed as an **ointment** (Unguentum Hydrargyri Oleatis).

Hydrargyri Oxidum Flavum.
Hydrargyri Oxidum Rubrum.

They are used in **ointments** (Unguentum Hydrargyri Oxidi Flavi, Unguentum Hydrargyri Oxidi Rubri).

Hydrargyri Perchloridum, gr. $\frac{1}{32}$—gr. $\frac{1}{16}$ (2 to 4 mgm.)

Solubility—Water, 1 in 16; Alcohol, 1 in 3; Ether, 1 to 4; Glycerin, 1 in 2.

Internally it is given in **pills** and **mixtures** (Liquor

Hydrargyri Perchloridi, ℥ss—℥j). It is also used in **gargles, lotions** (Lotio Hydrargyri Flava), **collyria, injections, ointments,** and as a **hypodermic injection.**

Incompatibles. Alkalis and their Carbonates. Alkaloids, Tannic Acid and Vegetable Astringents, Potassium Iodide, Silver Nitrate, Soluble Salts of Lead, Sulphides, Hypophosphites, Lime Water, Tartarated Antimony, Albumen, Soap, and Sulphurous Acid.

Hydrargyri Subchloridum, gr. ss—gr. v (3 to 30 cgm).

Administered in **powders** and **pills** (Pilula Hydrargyri Subchloridi Composita, gr. iv—gr. viij). It is also used as a **lotion** (Lotio Hydrargyri Nigra), an **injection,** an **ointment** (Unguentum Hydrargyri Subchloridi), as an **application** in the form of powder, and for **fumigating** the body.

Incompatibles. Alkalis and their Chlorides, Bromides, Iodides, Hydrocyanic Acid, Lime Water, Soap, and Organic Acids.

Hydrargyrum.

Given internally in **powders, cachets** (Hydrargyrum cum Creta, gr. j—gr. v), and **pills** (Pilula Hydrargyri, gr. iv—gr. viij). Externally it is used in the form of **plaster** (Emplastrum Hydrargyri ; Emplastrum Ammoniaci cum Hydrargyro), **liniment** (Linimentum Hydrargyri), **ointment** (Unguentum Hydrargyri ; Unguentum Hydrargyri Compositum ; Unguentum Hydrargyri Mitius, B.P.C.), and **suppositories.**

Hydrargyrum Ammoniatum.

Only used in **ointments** (Unguentum Hydrargyri Ammoniati).

Hydrastis Rhizoma.

Prescribed in **pills** (Hydrastinum, B.P.C., gr. ss—gr. ij) and **mixtures** (Extractum Hydrastis Liquidum ℥v—℥xv, Tinctura Hydrastis, ʒss—ʒj).

Hydrogenii Peroxidum.

Used in **mixtures, gargles, douches, sprays** and **lotions** (Liquor Hydrogenii Peroxidi, ʒss—ʒij).

Incompatibility. It is so unstable that it should be only mixed with water or well diluted glycerin.

Hyoscinæ Hydrobromidum, gr. $\frac{1}{200}$—gr. $\frac{1}{100}$ (0·3 to 0·6 mgm.) Solubility—Water, 1 in 1.

Administered in a **mixture** or as a **hypodermic injection.** Also used in solution as **eye-drops.**

Incompatibles. Alkaloidal precipitants and Mercuric Chloride.

Hyoscyami Folia.

Given in **pills** (Extractum Hyoscyami Viride, gr. ij—gr. viij) and **mixtures** (Succus Hyoscyami ʒss—ʒj; Tinctura Hyoscyami ʒss—ʒj).

Incompatibles. Caustic Alkalis, Silver Nitrate, Lead Acetate, Organic Acids.

Hyoscyaminæ Sulphas, gr. $\frac{1}{200}$—gr. $\frac{1}{100}$ (0·3 to 0·6 mgm.) Solubility—Water, 2 in 1.

Given internally in a **mixture** or as a **hypodermic injection.** Used in solution as an **application** to the eyes.

Incompatibles. Alkaloidal precipitants and Mercuric Chloride.

Iodoformum, gr. ss—gr. iij (3 to 20 cgm.) Solubility—Ether, 1 in 5; Chloroform, 1 in 14.

Used externally as a **dusting powder,** an **ointment** (Unguentum Iodoformi), a **suppository,** an **application** formed by dissolving in ether, chloroform, or collodion, and as an **insufflation.** Internally it should be given in **pills** massed with compound tragacanth powder and glucose.

Incompatibles. Mercurous Chloride.

Iodum. Solubility—Alcohol, 1 in 12. Soluble in a Solution of Potassium Iodide.

Occasionally given internally in **mixtures** (Tinctura Iodi ♏ij—♏v). For external application it is used as a **pigment** (Tinctura Iodi, Liquor Iodi Fortis, Tinctura Iodi Decolorata B.P.C.), a **gargle,** an **inhalation** and an **ointment** (Unguentum Iodi).

Incompatibles. Alkalis, Alkaloids, Metallic Salts, Mineral Acids, Ammonia, Tragacanth, Starch.

Ipecacuanhæ Radix, as an expectorant gr. ¼—gr. ij (1·5 to 12 cgm.); as an emetic gr. xv—gr. xxx (1 to 2 grm.)

Given in **mixtures** (Acetum Ipecacuanhæ, ♏x—♏xxx; Extractum Ipecacuanhæ Liquidum, as an expectorant, ♏ss—♏ij, as an emetic, ♏xv—♏xx; Vinum Ipecacuanhæ, as an expectorant, ♏x—♏xxx, as an emetic, ℥iv—℥vj; Syrupus Ipecacuanhæ Aceticus, B.P.C., ℥¼—℥ij) **powders, cachets, tablets** (Pulvis Ipecacuanhæ Compositus, gr. v—gr. xv), **pills** (Pilula Ipecacuanhæ cum Scilla, gr. iv—gr. viij) and **lozenges**

(Trochiscus Ipecacuanhæ; Trochiscus Ipecacuanhæ et Morphinæ).

Incompatibles. Organic Acids, Astringent preparations, Salts of Lead and Mercury. The acid preparations of the drug should not be ordered with Alkalis or their Carbonates.

Iridin, B.P.C., gr. j—gr. iij (6 to 20 cgm.)

Given in **pills.**

Jaborandi Folia.

Used in **mixtures** (Extractum Jaborandi Liquidum, ♏ v—♏ xv; Tinctura Jaborandi, ʒss—ʒj).

Jalapa, gr. v—gr. xx (3 to 12 dgm.)

Given in **mixtures** (Tinctura Jalapæ ʒss—ʒj), **powders, cachets** (Pulvis Jalapæ Compositus gr. xx—gr. lx; Pulvis Scammonii Compositus gr. x—gr. xx), and **pills** (Jalapæ Resinæ gr. ij—gr. v.)

Kino, gr. v—gr. xx (3 to 12 dgm.)

Prescribed in **mixtures** (Tinctura Kino, ʒss—ʒj), **gargles** and **mouth washes;** also in **powders** (Pulvis Kino Compositus, gr. v—gr. xx), **cachets** and **lozenges.**

Incompatibles. Alkalis and their Carbonates, Mineral Acids, Metallic Salts and Gelatin.

Kola.

Given in **mixtures** (Extractum Kolæ Liquidum, B.P.C., ♏ x—♏ xx).

Krameriæ Radix.

Used in **mixtures** (Infusum Krameriæ, ℥ss—℥j;

Liquor Krameriæ Concentratus, ʒss—ʒj; Tinctura Krameriæ, ʒss—ʒj), **gargles, injections, mouth-washes, pills** (Extractum Krameriæ, gr. v—gr. xv), **suppositories** and **lozenges** (Trochiscus Krameriæ; Trochiscus Krameriæ et Cocainæ.

Incompatibles. Alkalis, Salts of Iron and Lead, Gelatin, and Lime Water.

Laurocerasi Folia.

Administered in **mixtures** (Aqua Laurocerasi, ʒss—ʒij) and **lotions.**

Incompatibles. The Salts of Iron, Copper and Silver, Mercuric Oxide, Sulphides, and Morphine.

Limonis Cortex.

Given in **mixtures** (Tinctura Limonis, ʒss—ʒj, Syrupus Limonis, ʒss—ʒj, Oleum Limonis, ♏ ss—♏ iij).

Limonis Succus.

Given in **mixtures** (Syrupus Limonis, ʒss—ʒj). Sometimes used as the acid constituent of an effervescing Mixture; one fluid ounce is equivalent to 30 or 40 grains of Citric Acid.

Incompatibles. Alkalis and their Carbonates, Acetates, Salicylates, Sulphides, and Potassium Tartrate.

Linum.

The seed is used to make an extemporaneous **infusion** and the bruised seed (Linum Contusum) for making **poultices.** The oil (Oleum Lini) is used for making an **application**—Carron Oil—with Lime Water.

Lithii Carbonas, gr. ij—gr. v (1 to 3 dgm.) Solubility—Water, 1 in 70.

Given in **mixtures, powders, cachets, tablets** and in solution in aërated water—so-called **Lithia Water.**

Incompatibles. Acids.

Lithii Citras, gr. v—gr. x (3 to 6 dgm). Solubility—Water, 1 in 2.

Prescribed in **mixtures** or as an effervescing **powder** (Lithii Citras Effervescens, gr. lx—gr. cxx).

Lobelia.

Administered in **mixtures** (Tinctura Lobeliæ Ætherea, ♏v—♏xv; Tinctura Lobeliæ, B.P.C., ♏x—♏xxx).

Lupulinum, gr. ij—gr. v (1 to 3 dgm.)

Given in **pills** or **cachets.**

Lupulus.

Prescribed in **mixtures** (Infusum Lupuli, ℥j—℥ij: Tinctura Lupuli, ʒss—ʒj).

Magnesia Levis.
Magnesia Ponderosa.
Magnesii Carbonas Levis.
Magnesii Carbonas Ponderosa.

For repeated administration, gr. v—gr. xxx (0·5 to 2 grm.); for a single dose, gr. xxx—gr. lx (2 to 4 grm.)

Given in **mixtures** or **cachets** (Pulvis Rhei Compositus, gr. xx—gr. lx). An official solution (Liquor Magnesii Carbonatis, ℥j—℥ij) is sometimes used.

Incompatibles. Acids.

Magnesii Sulphas, for repeated administration (gr. xxx—gr. cxx (2 to 8 grm.); for a single dose, ʒij—ʒiv (7 to 14 grm.) Solubility—Water, 1 in 1; insoluble in Alcohol.

Generally prescribed in **mixtures,** which should not contain large quantities of tinctures lest the sulphate should be thrown out of solution. Also used in the form of an **effervescing powder** (Magnesii Sulphas Effervescens—for repeated doses, ʒj—ʒiv; for a single dose, ℥ss—ʒj).

Incompatibles. Alkalis and their Carbonates, Tartarated Soda, Lime Water, Lead Acetate and Soluble Phosphates.

Malti, Extractum, B.P.C., ʒj—ʒiv (4 to 14 grm.)

Given alone or in combination with Cod-Liver Oil (Extractum Malti cum Oleo Morrhuæ, ʒj—ʒiv).

Menthol, gr. ss—gr. ij (3 to 12 cgm.) Solubility—Alcohol, 5 in 1; Chloroform, 4 in 1.

For external use it is used in **cones,** in **solution** in chloroform or alcohol, in a **plaster** (Emplastrum Menthol) and in **ointments.** An alcoholic **solution** may be administered internally by dropping it upon sugar. It is used as a **spray, inhalation** and **insufflation.**

Incompatibles. Camphor, Chloral Hydrate, Carbolic Acid, Thymol.

Morphinæ Acetas, gr. $\frac{1}{8}$—gr. ss (8 to 30 mgm). Solubility—Water, 1 in $2\frac{1}{2}$.

Morphinæ Hydrochloridum, gr. $\frac{1}{8}$—gr. ss (8 to 30 mgm.) Solubility—Water, 1 in 24.

Morphinæ Tartras, gr. $\frac{1}{8}$—gr. ss (8 to 30 mgm.) Solubility—Water, 1 in 11.

May be given in **pills,** but they are usually given in solution in **mixtures** (Liquor Morphinæ Acetatis, ℥ x—℥ lx; Liquor Morphinæ Hydrochloridi, ℥ x—℥ lx; Liquor Morphinæ Tartratis, ℥ x—℥ lx; Tinctura Chloroformi et Morphinæ, ℥ v—℥ xv). They are also used in **suppositories** (Suppositoria Morphinæ) and **lozenges** (Trochiscus Morphinæ; Trochiscus Morphinæ et Ipecacuanhæ). One of the most commonly used preparations is the **hypodermic injection** (Injectio Morphinæ Hypodermica, ℥ ij—℥ v), which is made from the Tartrate because it is a more stable salt than the Acetate.

Incompatibles. Alkaloidal precipitants, Alkalis and their Carbonates, Vegetable Astringents, Tannic Acid.

Moschus, gr. v—gr. x (3 to 6 dgm.)

Prescribed in **mixtures** with the aid of a suspending agent, or in **pills.**

Myristica.

Given in **mixtures** (Spiritus Myristicæ, ℥ v—℥ xx) and **pills** (Oleum Myristicæ, ℥ ss—℥ iij).

Myrrha.

Used in **mixtures, gargles, mouth washes** (Tinctura Myrrhæ, ʒss—ʒj) and **pills** (Pilula Aloes et Myrrhæ, gr. iv—gr. viij; Pilula Galbani Composita, gr. iv—gr. viij; Pilula Rhei Composita, gr. iv—gr. viij).

Naphthol (β-Naphthol), gr. iij—gr. x (2 to 6 dgm.)

Given in **pills** or **cachets**; it is also prescribed as an **ointment.**

Incompatibles. Camphor, Menthol, Carbolic Acid.

Nux Vomica, gr. j—gr. iv (6 to 25 cgm.)

Given in **mixtures** (Tinctura Nucis Vomicæ, ♏ v—♏ xv; Extractum Nucis Vomicæ Liquidum, ♏ j—♏ iij), and **pills** (Extractum Nucis Vomicæ, gr. ¼—gr. j).

Incompatibles. Alkaloidal precipitants, Alkalis, Iodides.

Oleum Amygdalæ.

Prescribed in **mixtures** as an emulsion, and in **liniments** (Linimentum Ammoniæ) and **ointments** (Unguentum Aquæ Rosæ; Unguentum Cetacei).

Oleum Cadinum.

Used in **ointments.**

Oleum Cajuputi, ♏ ss—♏ iij (0·03 to 0·2 c.c.)

Given in **pills** or **mixtures** (Spiritus Cajuputi, ♏ v—♏ xx). It is also used in **liniments** (Linimentum Crotonis).

Oleum Crotonis, ♏ ss—♏ j (0·03 to 0·06 c.c.)

Given internally as a **pill** massed with compound tragacanth powder and soap; it may be given to an unconscious patient by mixing it with butter and putting it upon the tongue. Used externally as a **liniment** (Linimentum Crotonis).

Oleum Eucalypti, ♏ ss—♏ iij (0·03 to 0·2 c.c.)

Given internally by dropping it upon sugar or by

making it into a **mixture** emulsified with gum acacia. A tincture made from the leaves is prescribed in **mixtures** (Tinctura Eucalypti, B.P.C. ℥xv—℥ij). The oil is also used as an **inhalation** or **spray** and in **ointments** (Unguentum Eucalypti).

Oleum Juniperi, ℥ss—℥iij (0·03 to 0·2 c.c.)

Prescribed in **mixtures** (Spiritus Juniperi, ℥xx—℥lx).

Oleum Lavandulæ, ℥ss—℥iij (0·03 to 0·2 c.c.)

Given internally in **mixtures** (Spiritus Lavandulæ, ℥v—℥xx; Tinctura Lavandulæ Composita, ʒss—ʒj). It is used in **liniments** and **ointments.**

Oleum Menthæ Piperitæ, ℥ss—℥iij (0·03 to 0·2 c.c.)

Administered in **pills** and **mixtures** (Aqua Menthæ Piperitæ; Spiritus Menthæ Piperitæ, ℥v—℥xx).

Oleum Menthæ Viridis, ℥ss—℥iij (0·03 to 0·2 c.c.)

Given in **pills** and **mixtures** (Aqua Menthæ Viridis).

Oleum Morrhuæ, ʒj—ʒiv (4 to 15 c.c.)

Given alone or in flexible gelatin **capsules.** It is now very commonly taken combined with extract of malt (Extractum Malti cum Oleo Morrhuæ, B.P.C., ʒj—ʒiv) or as an **emulsion** made with the yolk of egg (Emulsio Olei Morrhuæ, B.P.C., ʒij—ʒviij).

Oleum Olivæ.

Enters into the composition of a number of **liniments** (Linimentum Ammoniæ, Linimentum Calcis, Linimentum Camphoræ) **plasters** and **ointments.**

Oleum Pini.

May be given internally by dropping it on sugar. It is used as a **spray** and as an **inhalation.**

Oleum Ricini, ʒj—ʒviij (4 to 30 c.c.)

It is given in flexible **capsules** or as an emulsified **mixture** (Mistura Olei Ricini, ℥j—℥ij). Occasionally it is used as a **liniment,** combined with alcohol, for the abdomen or for the scalp,

Oleum Rosmarini, ♏ ss—♏ iij (0·03 to 0·2 c.c.)

Used in **mixtures** (Spiritus Rosmarini; Tinctura Lavandulæ Compositæ, ʒss—ʒj), **liniments** (Linimentum Saponis) and **lotions.**

Oleum Santali, ♏ v—♏ xxx (0·3 to 2·0 c.c.)

Administered in flexible **capsules** or in a **mixture** emulsified with gum acacia.

Oleum Terebinthinæ, ♏ ij—♏ x (0·1 to 0·6 c.c.) as an anthelmintic, ʒiij—ʒiv (12 to 16 c.c.)

It may be prescribed for internal use either in the form of **capsules** or as a **mixture** emulsified with gum acacia. It is also used as an **inhalation,** an **enema** and in **liniments** (Linimentum Terebinthinæ, Linimentum Terebinthinæ Aceticum).

Opium, gr. ss—gr. ij (3 to 12 cgm.)

Given in **pills** (Extractum Opii, gr. ¼—gr. j; Pilula Plumbi cum Opio, gr. ij—gr. iv; Pilula Saponis Composita, gr. ij—gr. iv; Pilula Ipecacuanhæ cum Scilla, gr. iv—gr. viij), **powders** (Pulvis Cretæ Aromaticus cum

Opio, gr. x—gr. xl; Pulvis Ipecacuanhæ Compositus, gr. v—gr. xv; Pulvis Kino Compositus, gr. v—gr. xx; Pulvis Opii Compositus, gr. ij—gr. x), **mixtures** (Tinctura Opii, ♏v—♏xv for repeated doses, ♏xx—♏xxx for a single dose; Tinctura Opii Ammoniata, ʒss—ʒj; Tinctura Camphoræ Compositæ, ʒss—ʒi; Extractum Opii Liquidum, ♏v—♏xxx). It is used in **liniments** (Linimentum Opii; Linimentum Opii Ammoniatum, B.P.C.), **plasters** (Emplastrum Opii), **collyria, lotions, injections, enemas** and **suppositories** (Suppositoria Plumbi Composita).

Incompatibles. Alkaline Carbonates, Metallic Salts, Iodine, Tannic Acid, Vegetable Astringents and other Alkaloidal precipitants.

Pancreas.

A **solution** (Liquor Pancreatis) is used for peptonising various articles of food.

Papaveris Capsulæ.

Are used for making a decoction which is used as an **application.**

Paraldehydum, ʒss—ʒij (2 to 8 c.c.) Solubility—Water, 1 in 10.

Given in **capsules,** or in **mixtures** made by dissolving it in water and adding some flavouring syrup.

Pareiræ Radix.

Administered in **mixtures** (Extractum Pareiræ Liquidum, ʒss—ʒij).

Pepsinum, gr. v—gr. x (3 to 6 dgm.) Fairly soluble in Water.

Given in **mixtures** (Glycerinum Pepsini, ʒj—ʒij), **powders, cachets, capsules** and **tablets.**

Incompatibles. Alkalis and Alkaline Salts, Alcohol in excess.

Petrolei cum Hypophosphitibus, Emulsio, B.P.C., ʒj—ʒiv.

Phenacetinum, gr. v—gr. x (3 to 6 dgm.) Solubility—Slightly in Water; Alcohol, 1 in 20.

It is best administered in **cachets** or as an effervescing **powder** (Phenacetinum cum Caffeina Effervescens, B.P.C., gr. lx—gr. cxx).

Phenazonum, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 1; Alcohol, 1 in $1\frac{1}{2}$.

Given in **draughts, powders, cachets and capsules.** A convenient form is the effervescing **powder** (Phenazonum Effervescens, B.P.C., gr. lx—gr. cxx).

Incompatibles. Acids, Alkalis, Astringent vegetable preparations, Tannic Acid, Carbolic Acid, Chloral Hydrate, Salts of Iron, Mercuric Chloride, Salicylates, and Spirit of Nitrous Ether.

Phosphorus, gr. $\frac{1}{100}$—gr. $\frac{1}{20}$ (0·5 to 3 mgm.)

May be administered in **solution** (Oleum Phosphoratum, ♏j—♏v; Elixir Phosphori, B.P.C., ♏xv—♏lx; Tinctura Phosphori Composita, B.P.C., ♏iij—♏xij) or in **pills** (Pilula Phosphori, gr. j—gr. ij).

Physostigmatis Semina.

Given in **pills** (Extractum Physostigmatis, gr. $\frac{1}{4}$—gr. j), and **mixtures** (Tinctura Physostigmatis, B.P.C. ℥v—℥xv).

Physostigminæ Sulphas, gr. $\frac{1}{60}$—gr. $\frac{1}{20}$ (1 to 3 mgm.)

Readily soluble in Water.

Used in ophthalmic operations in the form of **discs** (Lamellæ Physostigminæ, gr. $\frac{1}{1000}$) and as a **solution** having a strength of two or four grains to the ounce of water.

Picrotoxinum, gr. $\frac{1}{100}$—gr. $\frac{1}{25}$ (0·5 to 2·5 mgm.)

Solubility—Water, 1 in 330.

May be given in **pills** massed with sugar of milk and glucose.

Pilocarpinæ Nitras, gr. $\frac{1}{20}$—gr. ss (3 to 30 mgm.)

Solubility—Water, 1 in 9.

It may be administered in **pills** made with sugar of milk and glycerin of tragacanth or glucose; more generally it is given as a **hypodermic injection.**

Incompatibles. Alkaloidal precipitants.

Pimenta.

Used in **mixtures** (Aqua Pimentæ and **pills** (Oleum Pimentæ, ℥ss—℥iij).

Piper Nigrum.

Given in an **electuary** (Confectio Piperis, gr. lx—gr. cxx).

Pix Carbonis Præparata.

Used in **lotions** (Liquor Picis Carbonis) and **ointments.**

Pix Liquida.

Given in **pills** massed with liquorice powder or lycopodium, **capsules** or as a **syrup** (Syrupus Picis Liquidæ, B.P.C., ʒj—ʒij). Externally it is used as an **ointment** (Unguentum Picis Liquidæ).

Plumbi Acetas, gr. j—gr. v (0·5 to 3 dgm.)
Solubility—Water, 1 in 3.

Prescribed in **pills** (Piluli Plumbi cum Opio, gr. ij—gr. iv) for internal use. It is also ordered in **lotions** and **collyria,** which must be dispensed with distilled water, **suppositories** (Suppositoria Plumbi Composita) and **ointments** (Unguentum Plumbi Acetatis).

Incompatibles. Acids, Alkalis, Carbonates, Sulphates, Chlorides, Iodides, Phosphates, Tartrates, Citrates, Tannic Acid and Albumen.

Plumbi Carbonas.

Generally prescribed as an **ointment** (Unguentum Plumbi Carbonatis).

Plumbi Iodidum.

Used in the form of **plaster** (Emplastrum Plumbi Iodidi), **ointment** (Unguentum Plumbi Iodidi), **suppositories** and **pessaries.**

Plumbi Oxidum.

Used for making a **plaster** (Emplastrum Plumbi).

Plumbi Subacetas.

Largely employed in **lotions** (Liquor Plumbi Subacetatis Fortis; Liquor Plumbi Subacetatis dilutus; Glycerinum Plumbi Subacetatis). It is also used in **ointments** (Unguentum Glycerini Plumbi Subacetatis).

Incompatibles. The same as for Plumbi Acetas with the addition of Mucilage of Acacia.

Podophylli Rhizoma.

Given in **pills, tablets** (Podophylli Resina, gr. ¼—gr. j) and **mixtures** (Tinctura Podophylli, ♏v—♏xv).

Potassa Caustica. Solubility—Water, 2 in 1; Alcohol, 1 in 4.

Used in **mixtures,** largely diluted, and **lotions** (Liquor Potassæ, ♏x—♏xxx).

Incompatibles. Acids, Acid Salts, Salts of the Metals, Salts of Ammonium, Preparations of Gentian, Hyoscyamus, Belladonna, Stramonium, and all Preparations containing Alkaloids.

Potassa Sulphurata. Solubility—Water, 1 in 2.

Occasionally prescribed in solution as a **lotion** or a **bath;** also used in **ointments.**

Incompatibles. Acids.

Potassii Acetas, gr. x—gr. lx (6 to 40 dgm.) Solubility—Water, 2 in 1.

Administered in **mixtures.**

Incompatibles. Mineral Acids, Tartaric Acid, Salicylic Acid and Preparations of Ferric Salts.

Potassii Bicarbonas, gr. v—gr. xxx (3 to 20 dgm.) Solubility—Water, 1 in 4.

Given in **mixtures,** and used in effervescing **draughts.**

Twenty parts neutralise 14 parts of Citric Acid and 15 parts of Tartaric Acid.

Incompatibles. Acids, Acid Salts, Salts of the

heavy Metals. Hot water should not be used to dissolve it because it becomes converted into the normal carbonate.

Potassii Bichromas, gr. $\frac{1}{10}$—gr. $\frac{1}{5}$ (6 to 12 mgm.)
Solubility—Water, 1 in 10.

Occasionally given internally in the form of **pills** massed with kaolin ointment.

Incompatibles. Organic substances.

Potassii Bromidum, gr. v—gr. xxx (3 to 20 dgm.)
Solubility—Water, 1 in 2.

Given in **mixtures.**

Incompatibles. Mineral Acids, Acid Salts, Metallic Salts, Chlorine Water, Spirit of Nitrous Ether, Solutions of Alkaloids.

Potassii Carbonas, gr. v.—gr. xx (3 to 12 dgm.)
Solubility—Water, 1 in 1.

Externally it is used in **lotions.**

Incompatibles. Acids, Acid Salts and Salts of the heavy Metals.

Potassii Chloras, gr. v—gr. xv (3 to 10 dgm.) Solubility—Water, 1 in 16.

Used in **mixtures, gargles, injections,** and **douches.** It is also used as a **mouth wash** and in **lozenges** (Trochiscus Potassii Chloratis).

Incompatibles. Mineral and Organic Acids, Antimony Sulphide, Charcoal, Tannic Acid, Glycerin, Sugar, Sulphur, Tartaric Acid, Hypophosphites, Ferrous Iodide, Potassium Iodide and many organic substances. It should not be heated, or triturated with any other substance as it is liable to explode.

Potassii Citras, gr. x—gr. xl (6 to 26 dgm.) Solubility—Water, $1\frac{1}{2}$ in 1.

Ordered in **mixtures.**

Incompatibles. Mineral Acids.

Potassii Iodidum, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 1.

Prescribed in **mixtures, liniments** (Linimentum Potassii Iodidi cum Sapone) and **ointments** (Unguentum Potassii Iodidi).

Incompatibles. Mineral Acids, Acid Salts, Salts of Bismuth, Lead, Mercury and Silver, Potassium Chlorate, Spirit of Nitrous Ether, Tincture of Perchloride of Iron.

Potassii Nitras, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 4.

Used in **mixtures** and **gargles.**

Potassii Permanganas, gr. j—gr. iij (6 to 20 cgm.) Solubility—Water, 1 in 20.

For external use it is prescribed as a **gargle, injection, douche, lotion** and **mouth wash** (Liquor Potassii Permanganatis, ℥ij—℥iv). For internal use it is given in **pills** massed with kaolin ointment.

Incompatibles. Alcohol, Glycerin, Ammonia and Ammonium Salts, Alkaloids, Sulphur, Charcoal and all organic substances. Its solutions should be stored in glass stoppered vessels.

Potassii Sulphas, gr. x—gr. xl (6 to 26 dgm.) Solubility—Water, 1 in 10.

May be ordered in **mixtures, pills** (Pilula Colocynthidis Composita, gr. iv—gr. viij) or **powders** (Pulvis Ipecacuanhæ Compositus, gr. v—gr. xv).

Potassii Tartras, gr. xxx—gr. ccxl (2 to 16 grm.) Solubility—Water, 1 in 1.

Generally dispensed as a **powder** in bulk with directions for the dose to be taken in water.

Incompatibles. Mineral Acids, Acetic Acid.

Potassii Tartras Acidus, gr. xx—gr. lx (12 to 40 dgm.) Solubility—Water, 1 in 200.

Given in **powders** (Pulvis Jalapæ Compositus, gr. xx—gr. lx), **lozenges** (Trochiscus Sulphuris) and **confections** (Confectio Sulphuris, gr. lx—gr. cxx).

Pruni Virginianæ Cortex.

Ordered in **mixtures** (Syrupus Pruni Virginianæ, ʒss—ʒj; Tinctura Pruni Virginianæ, ʒss—ʒj).

Pulsatilla.

Given in **mixtures** (Tinctura Pulsatillæ, B.P.C., ♏ j—♏ v or more).

Pyrethri Radix.

The tincture is used as an **application,** and when diluted, as a **mouth wash** (Tinctura Pyrethri).

Quassiæ Lignum.

Administered in **mixtures,** which may also contain preparations of iron (Infusum Quassiæ, ℥ss—℥j; Liquor Quassiæ Concentratus, ʒss—ʒj; Tinctura Quassiæ, ʒss—ʒj).

Quillaiæ Cortex.

May be prescribed in **mixtures** (Tinctura Quillaiæ, ʒss—ʒj).

Quininæ Hydrochloridum, gr. j—gr. x (6 to 60 cgm.) Solubility—Water, 1 in 35.

Quininæ Hydrochloridum Acidum, gr. j—gr. x (6 to 60 cgm.) Solubility—Water, 1 in 1.

Quininæ Sulphas, gr. j—gr. x (6 to 60 cgm.) Solubility—Water, 1 in 800.

Quinine Salts are given in **mixtures** (Tinctura Quininæ, ʒss—ʒj), **pills** (Pilula Quininæ Sulphatis, gr. ij—gr. viij), **cachets, powders** and as a **hypodermic injection,** for which the Acid Hydrochloride is suitable because of its ready solubility in water Quinine is also administered as a **wine** (Vinum Quininæ, ℥ss—℥j) and as an **ammoniated tincture** (Tinctura Quininæ Ammoniata, ʒss—ʒj), of which the dose may be directed to be taken in Carbonated Water or Soda Water with which it forms a clear solution. Small quantities of the Sulphate are usually given in **mixtures** in solution formed with the aid of at least an equal quantity of Dilute Sulphuric or Hydrochloric Acid. If the latter acid is used the well-known fluorescence is suppressed. Acids appear to intensify the bitterness of Quinine, therefore when moderate quantities are required in mixtures the Sulphate should be finely triturated and suspended in the water.

Incompatibles. Alkalis and their Carbonates, Iodine, Iodides, Tannic Acid and Vegetable Astringents,

Rhei Radix, gr. iij—gr. x (2 to 6 dgm.) for repeated doses, gr. xv—gr. xxx (1 to 2 grm.) for a single dose.

Given in **mixtures** (Infusum Rhei, ℥ss—℥j; Elixir Rhei, B.P.C., ʒj—ʒiij; Liquor Rhei Concentratus,

ʒss—ʒj; Syrupus Rhei, ʒss—ʒij; Tinctura Rhei Composita, ʒss—ʒj), **pills** (Extractum Rhei, gr. ij—gr. viij; Pilula Rhei Composita, gr. iv—gr. viij), **powders** (Pulvis Rhei Compositus, gr. xx—gr. lx), **cachets** and **capsules.**

Salicinum, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 28.

Administered in **mixtures, pills, powders, cachets** and **capsules.**

Salol, gr. v—gr. xv (3 to 10 dgm.) Almost insoluble in Water.

It may be suspended in **mixtures** with compound tragacanth powder, or given in **powders.**

Incompatibles. Alkalis.

Santoninum, gr. ij—gr. v (1 to 3 dgm.) Almost insoluble in Water.

Given in **powders, cachets** and **lozenges** (Trochiscus Santonini).

Sapo Mollis. Solubility—Water, 1 in 4; Alcohol, 1 in 1.

Used in solution in alcohol as a **liniment** (Linimentum Saponis).

Incompatibles. Acids and Acid Salts.

Sarsæ Radix.

Given in **mixtures** (Extractum Sarsæ Liquidum, ʒij—ʒiv; Liquor Sarsæ Compositus Concentratus, ʒij—ʒviij).

Scammoniæ Resina, gr. iij—gr. viij (2 to 5 dgm.)

Prescribed in **pills** (Pilula Scammonii Composita, gr. iv—gr. viij), **powders** (Pulvis Scammonii Compositus, gr. x—gr. xx), and **cachets.**

Scammonium, gr. v—gr. x (3 to 6 dgm.)

Usually given in **powders** or **cachets.**

Scilla, gr. j—gr. iij (6 to 20 cgm.)

Used in making **mixtures** (Acetum Scillæ, ♏x—♏xxx; Oxymel Scillæ, ʒss—ʒj; Syrupus Scillæ, ʒss—ʒj; Tinctura Scillæ, ♏v—♏xv) and **pills** (Pilula Scillæ Composita, gr. iv—gr. viij; Pilula Ipecacuanhæ cum Scilla, gr. iv—gr. viij).

Incompatibles. The Vinegar, Oxymel and Syrup must not be prescribed with Alkalis and their Carbonates because of the free Acetic Acid they contain.

Scoparii Cacumina.

Given in **mixtures** (Infusum Scoparii, ℥j—℥ij; Succus Scoparii, ʒj—ʒij).

Senegæ Radix.

Administered in **mixtures** (Infusum Senegæ, ℥ss—℥j; Liquor Senegæ Concentratus, ʒss—ʒj; Tinctura Senegæ, ʒss—ʒj).

Senna.

Prescribed in **mixtures** (Elixir Sennæ, B.P.C., ʒj—ʒiij; Extractum Sennæ Leguminorum Liquidum, B.P.C., ʒj; Infusum Sennæ, ℥ss—℥ij; Liquor Sennæ Concentratus, ʒss—ʒj; Mistura Sennæ Composita, as a draught, ℥j—℥ij; Tinctura Sennæ Composita, ʒss—ʒj

for repeated doses, ʒij—ʒiv for a single dose; Syrupus Sennæ, ʒss—ʒij), **confections** (Confectio Sennæ, gr. lx —gr. cxx), and as a **powder** (Pulvis Glycyrrhizæ Compositus, gr. lx—gr. cxx).

Serpentariæ Rhizoma.

Given in **mixtures** (Infusum Serpentariæ, ℥ss—℥j; Liquor Serpentariæ Concentratus, ʒss—ʒj; Tinctura Serpentariæ, ʒss—ʒj).

Sinapis.

Sinapis, Oleum, Volatile.

Used externally as **mustard leaves** (Charta Sinapis) and in a **liniment** (Linimentum Sinapis).

Soda Chlorinata.

Used as a **gargle** and a **lotion.** It is also administered internally in **mixtures** (Liquor Sodæ Chlorinatæ, ♏x—♏xx).

Incompatability. The solution is so unstable that it should only be diluted with water or glycerin.

Soda Tartarata, gr. cxx—gr. ccxl (8 to 16 grm.)
Solubility—Water, 1 in 1½.

Generally given in the form of **seidlitz powders** (Pulvis Sodæ Tartaratæ Effervescens).

Sodii Arsenas, gr. $\frac{1}{40}$—gr. $\frac{1}{10}$ (2 to 6 mgm.)
Solubility—Water, 1 in 6.

Given in **mixtures** (Liquor Sodii Arsenatis, ♏ij—♏viij) and **pills.**

Incompatibles. Metallic Salts.

Sodii Benzoas, gr. v—gr. xxx (3 to 20 dgm.) Solubility—Water, 1 in 2.

Prescribed in **mixtures** and **cachets.**

Incompatibles. Acids, Ferric Salts.

Sodii Bicarbonas, gr. v—gr. xxx (3 to 20 dgm.) Solubility—Water, 1 in 11.

Given in **mixtures, cachets, tablets, powders** and **lozenges** (Trochiscus Sodii Bicarbonatis).

Twenty parts neutralise 16·7 parts of Citric Acid and 17·8 parts of Tartaric Acid.

Incompatibles. Acids, Acid Salts, Salts of the heavy Metals, Hot Water.

Sodii Bromidum, gr. v—gr. xxx (3 to 20 dgm.) Solubility—Water, 1 in 1¼.

Prescribed in **mixtures.**

Incompatibles. Mineral Acids, Acid Salts, Metallic Salts, Chlorine Water, Spirit of Nitrous Ether, Solutions of Alkaloids.

Sodii Carbonas, gr. v—gr. xxx (3 to 20 dgm.) Solubility—Water, 1 in 2.

Used externally as a **lotion.** The dried salt may be administered in **pills** (Sodii Carbonas Exsiccatus, gr. iij—gr. x).

Incompatibles. Acids, Acid Salts and Salts of the heavy Metals.

Sodii Citro-Tartras Effervescens, gr. lx—gr. cxx (4 to 8 grm.)

Dispensed as a granular **powder.**

Sodii Ethylas.

Used as an **application** in the form of an alcoholic solution (Liquor Sodii Ethylatis].

Incompatibility. The solution decomposes on the addition of water.

Sodii Hypophosphis, gr. iij—gr. x (2 to 6 dgm.) Solubility—Water, 1 in 1.

Given in **mixtures** (Syrupus Sodii Hypophosphitis, B.P.C., ℥j—℥iv).

Incompatibles. Chlorates, Nitrates, Permanganates, Iodides and Mercuric Chloride.

Sodii Iodidum, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 2 in $1\frac{1}{4}$.

Administered in **mixtures.**

Incompatibles. *See* Potassii Iodidum.

Sodii Nitris, gr. j—gr. ij (6 to 12 cgm.) Solubility—Water, 1 in 1.

May be given in **mixtures** or in **tablets.**

Incompatibles. Acids, Potassium Iodide, Ferric Salts, Gallic Acid, Tannic Acid, Vegetable Matters and all oxidising agents.

Sodii Phosphas, gr. xxx—gr. cxx (2 to 8 grm.) for repeated doses, up to ℥ss (14 grm.) for a single dose. Solubility—Water, 1 in 6.

Prescribed in **mixtures** or as an **effervescing powder** (Sodii Phosphas Effervescens, gr. lx—gr. cxx for repeated doses, up to ℥ss for a single dose),

Incompatibles. Alkaloids and Metallic Salts.

Sodii Salicylas, gr. x—g. xxx (6 to 20 dgm.) Solubility—Water, 1 in 1.

Usually administered in **mixtures** and occasionally in **powders, cachets** and **tablets.**

Incompatibles. Acids, Salts of Iron, Ammonia and its preparations, Salts of Quinine and Spirit of Nitrous Ether.

Sodii Sulphas, gr. xxx—gr. cxx (2 to 8 grm.) for repeated doses, up to ℥ss (14 grm.) for a single dose. Solubility—Water, 1 in 3.

Occasionally given in **mixtures,** but more commonly in the form of an **effervescing powder** (Sodii Sulphas Effervescens, gr. lx—gr. cxx for repeated doses, up to ℥ss for a single dose: Pulvis Salis Carolini Factitii Effervescens, B.P.C., gr. lx—gr. cxx).

Incompatibles. Salts of Lead, Silver and Calcium.

Sodii Sulphis, gr. v—gr. xx (3 to 12 dgm.) Solubility—Water, 1 in 1⅓.

Given in **mixtures.**

Incompatibles. Acids, Acid Salts, Iodine, Vegetable Substances.

Sodii Sulphocarbolas, gr. v—gr. xv (3 to 10 dgm.) Solubility—Water, 1 in 6.

Used in **mixtures, lotions** and **douches.**

Incompatibles, Acids, Ferric Salts.

Staphisagriæ Semina.

Used as an **ointment** (Unguentum Staphisagriæ).

Stramonii Folia.

Given in **mixtures** (Tinctura Stramonii, ♏ v—♏ xv). A common constituent of **asthma powders.**

Stramonii Semina.

Prescribed in **pills** (Extractum Stramonii, gr. $\frac{1}{4}$—gr. j).

Strophanthi Semina.

Administered in **pills** (Extractum Strophanthi, gr. $\frac{1}{4}$—gr. j) and **mixtures** (Tinctura Strophanthi, ℥ v—℥ xv).

Incompatibilty. The tincture is gradually decomposed in an aqueous mixture. Acids, Tannic Acid.

Strychnina, gr. $\frac{1}{60}$—gr. $\frac{1}{15}$ (1 to 4 mgm.) Almost insoluble in Water.

Strychninæ Hydrochloridum, gr. $\frac{1}{60}$—gr. $\frac{1}{15}$ (1 to 4 mgm.) Solubility—Water, 1 in 35.

Given in **pills** and **mixtures** (Liquor Strychninæ Hydrochloridi, ℥ ij—℥ viij). Occasionally used in **hypodermic injections.**

Incompatibles. Vegetable Astringents, Alkalis and their Carbonates, Iodine, Iodides, Bromides and other Alkaloidal precipitants.

Sulphonal, gr. x—gr. xxx (6 to 20 dgm). Solubility—Water, 1 in 450; Alcohol, 1 in 50.

Ordered in **powders, cachets, capsules, tablets** and in **mixtures.** In the latter case it must be suspended with some agent such as compound tragacanth powder.

Sulphur Præcipitatum, gr. xx—gr. lx (1 to 4 grm.)

Used in **ointments, lotions** and **lozenges** (Trochiscus Sulphuris).

Sulphur Sublimatum, gr. xx—gr. lx (1 to 4 grm.)

Prescribed in **confections** (Confectio Sulphuris, gr. lx—gr. cxx), **ointments** (Unguentum Sulphuris) and **powders** (Pulvis Glycyrrhizæ Compositus, gr. lx—gr. cxx).

Sulphuris Iodidum.

Only used in an **ointment** (Unguentum Sulphuris Iodidi).

Sumbul Radix.

Given in **mixtures** (Tinctura Sumbul, ʒss—ʒj).

Syrupus Glycerophosphatum Compositus, B.P.C., ʒj—ʒij (3 to 7 c.c.)

Taraxaci Radix.

Administered in **pills** (Extractum Taraxaci, gr. v—gr. xv) and **mixtures** (Extractum Taraxaci Liquidum, ʒss—ʒj ; Succus Taraxaci, ʒj—ʒij).

Terebenum, ♏ v—♏ xv (0·3 to 1·0 c.c.)

May be given in a **mixture** emulsified with gum acacia, or in **capsules.** It is often administered on a piece of loaf sugar.

Thymol, gr. ss—gr. ij (3 to 12 cgm.) Solubility—Alcohol, 1 in ½.

Used as an **ointment, spray** and **inhalation.** It may be administered internally in **pills.**

Incompatibles. Camphor, Chloral Hydrate, Menthol, Carbolic Acid,

Thyroideum.

Given in the form of **powder** (Thyroideum Siccum, gr. iij—gr. x), **tablets, cachets, capsules** or in **solution** (Liquor Thyroidei, ♏ v—♏ xv).

Tinctura Antiperiodica, B.P.C., ʒj—ʒiv (4 to 16 c.c.)

Given in **mixtures.**

Tinctura Carminativa, B.P.C., ℥ ij—℥ x (0·15 to 0·6 c.c.)

Given in **mixtures.**

Tragacantha.

Used as a dispensing agent (Glycerinum Tragacanthæ; Mucilago Tragacanthæ; Pulvis Tragacanthæ Compositus, gr. xx—gr. lx).

Trinitrinum.

Administered in **solution** (Liquor Trinitrini, ℥ ss—℥ ij) on sugar, or in **tablets** (Tabellæ Trinitrini, j vel ij).

Uvæ Ursi Folia.

Prescribed in **mixtures** (Infusum Uvæ Ursi, ʒss—ʒj).

Valerianæ Rhizoma.

Given in **mixtures** (Tinctura Valerianæ Ammoniata, ʒss—ʒj; Tinctura Valerianæ, B.P.C., ʒj—ʒij) for which Orange Flower Water is a good vehicle because it greatly mitigates the disagreeable odour of the drug.

Veratri Viridis Rhizoma.

Ordered in **mixtures** (Tinctura Veratri Viridis, B.P.C., ℥ v—℥ xv).

Veratrina.

Used in an **ointment** (Unguentum Veratrinæ).

Zinci Acetas, gr. j—gr. ij (6 to 12 cgm.) Solubility—Water, 1 in $2\frac{1}{2}$.

Given in **pills,** and used in the form of **lotion.**

Incompatibles. Alkalis and their Carbonates, Mineral Acids, Phosphates.

Zinci Chloridum.

Used as a **lotion** (Liquor Zinci Chloridi), in the form of **caustic points** and as a **caustic paste** with wheaten flour and glycerin.

Incompatibles. *See* Zinci Acetas. Upon dissolving the solid salt in distilled water a small quantity of oxychloride is precipitated, but this can be redissolved on the addition of a small portion of diluted hydrochloric acid.

Zinci Oxidum, gr. iij—gr. x (2 to 6 dgm.)

Prescribed in **pills;** as a **dusting powder** mixed with other dessicating substances, and in **ointments** (Unguentum Zinci).

Zinci Sulphas, gr. j—gr. iij (6 to 20 cgm.), as a tonic; gr. x—gr. xxx (6 to 20 dgm), as an emetic. Solubility—Water, 1 in 1.

Ordered in **pills, lotions, collyria** and **injections.**

Incompatibles. *See* Zinci Acetas. The Soluble Salts of Lead.

Zinci Sulphocarbolas. Solubility—Water, 1 in 2.

Used in **douches, injections, lotions** and as a **spray.**

Incompatibles. *See* Zinci Acetas.

Zinci Valerianas, gr. j—gr. iij 6 to 20 dgm.)

Given in **pills** massed with a minute quantity of powdered liquorice and glycerin of tragacanth.

Incompatibles. Acids, Alkalis and their Carbonates, Metallic Salts, Tannic Acid and Vegetable Astringents.

Zingiber.

Given in **mixtures** (Syrupus Zingiberis, ʒss—ʒj; Tinctura Zingiberis, ʒss—ʒj; Tinctura Zingiberis Fortior, B.P.C., ♏v—♏xx), **powders** (Pulvis Cinnamomi Compositus, gr. x—gr. xl; Pulvis Jalapæ Compositus, gr. xx—gr. lx; Pulvis Rhei Compositus, gr. xx—gr. lx), **cachets** and **pills** (Pilula Aloes et Ferri, gr. iv—gr. viij; Pilula Cambogiæ Composita, gr. iv—gr. viii).

REACTIONS OF SOME OF THE CHIEF PHARMACOPŒIAL CHEMICALS, WITH TESTS FOR THEIR PRINCIPAL IMPURITIES, WHICH SHOULD BE PERFORMED BY THE STUDENT.

Acaciæ Gummi.

Aqueous solution gives an opaque precipitate with *lead subacetate,* and a translucent one with *borax.*

Impurities. Starch (blue with *iodine*); dextrin (brown with *iodine*); tannin (bluish-black with *ferric chloride.*)

Acetanilidum.

On boiling with solution of *ferric chloride* gives a reddish-brown colour almost entirely discharged by *hydrochloric acid.* Heated with *caustic potash* until the odour of aniline is evolved, and then gently heated with a few drops of *chloroform,* gives off the disagreeable odour of phenyl-isonitrile. Aqueous solution gives a yellowish-white precipitate with *bromine* water.

Impurities. Free acid (aqueous solution should not affect *litmus*); phenazone and salts of aniline (give colour reactions with *ferric chloride* in the cold).

Acidum Aceticum.

Neutralised with *sodiam hydroxide* gives a red colour with *ferric chloride,* which turns yellow on adding *hydrochloric acid.*

Impurities. Formates (when exactly neutralised with *ammonia* darken in colour upon warming with

solution of *silver nitrate*); empyreumatic matter (2 cubic centimetres of the acid diluted with 10 c.c. of water should not immediately discharge the colour of one drop of solution of *potassium permanganate*); sulphurous acid (*hydrochloric acid* and *zinc* liberate hydrogen sulphide); hydrochloric acid (*silver nitrate* gives a precipitate soluble in *ammonia* and insoluble in *nitric acid*); sulphuric acid (*barium chloride* gives a precipitate insoluble in *hydrochloric acid*); lead and copper (acidulated with *hydrochloric acid* a dark precipitate is given with *sulphuretted hydrogen*).

Acidum Boricum.

Solution in alcohol acidulated with a little *sulphuric acid* burns with a green-coloured flame. The solution in water, acidulated with *hydrochloric acid*, when applied to turmeric paper and dried, produces a brownish-red colour which becomes greenish-black upon applying solution of *potassium hydroxide.*

Impurities. Borax (communicates a persistent yellow colour to the Bunsen flame); sulphates (give a precipitate insoluble in *hydrochloric acid*); chlorides (give a precipitate with *silver nitrate* which is soluble in *ammonia*, but insoluble in *nitric acid*); lead and copper (solution acidulated with *hydrochloric acid* would give dark precipitate with *sulphuretted hydrogen*).

Acidum Carbolicum.

It coagulates a solution of *albumen* and *collodion.* Gives a purple colour with *ferric chloride*, and a white precipitate with excess of *bromine* water.

Impurity. Cresol (one volume of the acid liquefied

with 10 per cent. of water should yield a clear solution with one volume of *glycerin* when a further three volumes of water are added).

Acidum Citricum.

When neutralised its solution gives a white precipitate with *calcium chloride* upon heating, soluble in *ammonium chloride*, but insoluble in *potassium hydroxide*.

Impurities. Lead (metallic particles may be seen; 10 grammes dissolved in 20 c.c. of water, almost neutralised with *ammonia*, when made up to 100 c.c. with aqueous solution of *sulphuretted hydrogen* would give a darkening in colour after five minutes); tartaric acid (the aqueous solution with one drop of solution of *ferrous sulphate*, and a few drops of solution of *hydrogen peroxide*, and finally an excess of *potassium hydroxide* solution, gives a violet or purple coloration).

Acidum Gallicum.

Is distinguished from tannic acid by not precipitating solutions of *isinglass*, *albumen*, and *tartarated antimony*.

Acidum Hydrochloricum.

Impurities. Lead and Copper (when diluted give a precipitate with *sulphuretted hydrogen*); iron (neutralised it gives a precipitate with *ammonium hydrosulphide*); arsenium (diluted and boiled with bright *copper foil* it darkens the surface of the foil from which the arsenium may be volatilised as arsenious acid by heating in a dry, open tube); free chlorine (produces a blue colour upon the addition of *potassium iodide* and *mucilage of starch* to the well-diluted acid).

Acidum Phosphoricum.

When it is neutralised solution of *ammonio-nitrate of silver* gives a light-yellow precipitate soluble in *ammonia* and cold dilute *nitric acid;* solution of *ammonio-sulphate of magnesium* gives a white crystalline precipitate; and *ammonium molybdate* with much *nitric acid* produces a yellow precipitate on warming.

Impurities.—Lead, copper, arsenium (when well diluted give preceipitates on treating with *sulphuretted hydrogen*); metaphosphoric acid (diluted with five or six volumes of water gives a precipitate with solution of *albumen*); phosphorous acid (diluted and mixed with an equal volume of test solution of *mercuric chloride* and heated gives a precipitate of insoluble mercurous chloride).

Acidum Salicylicum.

It will dissolve in solutions of *borax, ammonium citrate* and *acetate,* and *sodium phosphate.* The aqueous solution gives a violet colour with *ferric chloride.*

Impurities. Phenol (a little of the acid dissolved in an excess of a cold solution of *sodium carbonate,* and the mixture shaken with an equal quantity of *ether,* and the ethereal solution separated and allowed to evaporate spontaneously, the residue would smell of phenol).

Acidum Sulphuricum.

A dilute solution gives a white precipitate with *barium chloride* which is insoluble in dilute *hydrochloric acid.*

Impurities. Selenium (*hydrochloric acid* with some *sodium sulphite* in solution, if carefully poured upon an equal volume of the sulphuric acid, would cause a

red coloration at the junction of the liquids and a red precipitate of selenium on warming). Arsenium (should be tested for in a Marsh's Arsenic Apparatus).

Acidum Tannicum.

The aqueous solution yields precipitates with *isinglass, albumen,* and *tartarated antimony.*

Acidum Tartaricum.

A neutralised solution gives a white precipitate with *calcium chloride,* soluble in *acetic acid* and in a strong solution of *potassium hydroxide,* from which it is again thrown down on boiling.

Impurities.—Lead (see Acidum Citricum). Oxalic acid (*calcium chloride* precipitate is insoluble in *acetic acid,* but soluble in *hydrochloric acid*). Calcium salts (solution gives a precipitate with *ammonium oxalate* insoluble in *acetic acid*). Iron (a neutral solution yields a black precipitate with *ammonium hydrosulphide* after removal of any lead which may be present),

Æther.

Impurities. Alcohol (100 volumes shaken with an equal volume of water would be reduced to less than 90 volumes if an excess were present). Aldehyde (*potassium hydroxide* produces a yellow colour). Free acid (reddens blue *litmus* paper). Water [in purified ether] (separates on mixing with an equal quantity of *carbon bisulphide*). Hydrogen Peroxide [in purified ether] (gives a blue colour on agitating the ether with half its volume of a dilute solution of *potassium bichromate* acidulated with *sulphuric acid*).

Apomorphinæ Hydrochloridum.

Sodium bicarbonate throws down a precipitate becoming green on standing; the precipitate forms a solution which is purple with *ether*, violet with *chloroform*, and bluish-green with *alcohol*.

Atropina.

The solution in *alcohol* gives a yellow precipitate with *mercuric chloride* which becomes red on warming. The precipitate it gives with *auric chloride* is citron yellow, and when this is recrystallised from *water* acidulated with *hydrochloric acid* it is minutely crystalline.

Bismuthi Subnitras.

Impurities. Free acid (water shaken with the salt would redden *litmus* paper); calcium phosphate (one gramme dissolved in *nitric acid* is mixed with two grammes of *citric acid* and enough ammonia to make the solution alkaline, if no precipitate or opalescence appears upon boiling while the mixture is slightly alkaline, it is free from this impurity); lead, iron, and copper (a solution in hot dilute nitric acid would give in the case of lead a white precipitate with dilute *sulphuric acid*, a blue precipitate with *ferrocyanide of potassium* in the case of iron, and in the case of copper a blue colour with excess of *ammonia*).

Butyl-Chloral Hydras.

It does not yield chloroform when heated with a solution of *potassium hydroxide*.

Caffeina.

When added to a crystal of *potassium chlorate* and

a few drops of *hydrochloric acid*, and the mixture evaporated to dryness in a porcelain dish, it leaves a reddish residue which becomes purple when moistened with *ammonia*. Tannic acid gives a precipitate which is soluble in excess of the reagent.

Chloral Hydras.

Heated with a solution of *potassium hydroxide* it yields chloroform.

Impurities. Chlorides (solution would give a precipitate with *silver nitrate*); chloral alcoholate (one gramme of chloral hydrate is warmed with 6 c.c. of water and 0·5 c.c. of solution of *potassium hydroxide* and the mixture filtered; sufficient *iodine* is added to the filtrate to give a deep brown colour; it is set aside for one hour and a precipitate of iodoform is obtained if any alcoholate is present); organic impurities (a solution in *chloroform* mixed with *sulphuric acid* would give a coloration).

Chloroformum.

Impurities. Free acid (water shaken for five minutes with half its volume of chloroform would be acid to *litmus* paper); chlorine (the watery solution would liberate iodine from *potassium* or *cadmium* iodide); chlorides (the watery solution would give a precipitate with *silver nitrate*); organic impurities (their absence is shown by shaking *sulphuric acid* with ten times its volume of chloroform and putting aside for fifteen minutes when both the acid and chloroform should be quite transparent and almost colourless).

Cocainæ Hydrochloridum.

Moistened with *nitric acid* and evaporated to dryness, upon the addition of a drop of the alcoholic solution of *potassium hydroxide* an odour resembling peppermint is produced. A solution containing not less than one per cent., gives with excess of solution of *potassium permanganate* a copious red precipitate which does not change colour within an hour.

Impurities. Other coca alkaloids (would cause the precipitate formed with *potassium permanganate* to become decolorised within the hour).

Codeina.

When dissolved in excess of *sulphuric acid* it forms a clear solution which, when gently warmed on a water bath with two drops of a solution of *ammonium molybdate*, or with a trace of *ferric chloride*, yields a bluish-black colour becoming bright scarlet and orange on the addition of dilute *nitric acid.* A saturated solution in water acidulated with *hydrochloric acid* becomes dull green, and not blue on the addition of *ferric chloride.*

Creosotum.

A half-per-cent. solution in water gives a green colour with *ferric chloride.* It mixes with an equal volume of *collodion* without causing gelatinisation.

Ferri Phosphas.

Impurity. Arsenium (the hydrochloric acid solution boiled with a piece of bright *copper foil* would deposit a grey film upon it, which, when carefully dried and heated in a dry, open tube, would give a sublimate of arsenious oxide).

Glusidum.

On evaporating a solution of it made with excess of solution of *potassium hydroxide*, and partially fusing the residue for a few minutes, cooling, dissolving in water; faintly acidulating with *hydrochloric acid*, and adding a little *ferric chloride*, a red-brown or purple colour is produced due to the potassium salicylate which has been formed.

Glycerinum.

Impurities. Water (the specific gravity would be less than 1·26); free acid (would redden *litmus* paper), sugar (would yield a red precipitate when boiled with excess of solution of *potassio-cupric tartrate*); fats and oils (give a rancid odour when boiled with dilute *sulphuric acid*); chlorides (give with *silver nitrate* in aqueous solution a white precipitate soluble in *ammonia*); sulphates (a white precipitate with *barium chloride* insoluble in *hydrochloric acid*); calcium salts (yield a white precipitate with *ammonium oxalate*, insoluble in *acetic acid*); metals (give a dark precipitate upon treating with *ammonium hydrosulphide*); arsenium (2 c.c. diluted with 5 c.c. of a mixture of one part *hydrochloric acid* and 7 parts of water, one gramme of pure zinc being added to the mixture in a test tube, the mouth of which must be covered with a piece of white filter paper bearing a dried drop of solution of *mercuric chloride*, would give a yellow stain in fifteen minutes if the limit of arsenium were exceeded).

Hydrargyri Subchloridum.

It is blackened upon treating with solution of *potassium*

hydroxide, and the filtered solution gives the reactions for chlorides. Volatilises when heated.

Impurities. Mercuric chloride (is dissolved out by warm ether and is left as a residue upon evaporating the solvent; treated with water, the filtered solution reduces *stannous chloride*); ammoniated mercury (evolves ammonia when warmed with solution of *potassium hydroxide*).

Hydrargyrum cum Creta.

Partly dissolves with effervescence in dilute *hydrochloric acid*, leaving a residue of finely divided mercury.

Impurities. Mercuric compounds (the *hydrochloric acid* solution would give a white or grey precipitate with *stannous chloride*).

Magnesii Sulphas.

In the presence of an excess of *ammonium chloride* and *ammonia* the solution of *sodium phosphate* yields a white crystalline precipitate.

Impurities (or substitutes). Zinc sulphate (in the presence of excess of *ammonium chloride* and *ammonia* it gives a white precipitate with *ammonium hydrosulphide*); calcium salts (give a precipitate with *ammonium oxalate*); iron (with an excess of *ammonium chloride* and *ammonia*, it gives a black precipitate with *ammonium hydrosulphide*); oxalic acid (is acid to *test paper;* its neutralised solution gives a white precipitate with *calcium chloride* which is insoluble in *acetic acid*, but soluble in *hydrochloric acid*).

Morphinæ Hydrochloridum.

Moistened with *nitric acid* it gives an orange-red colour; with *ferric chloride* a blue colour. Heated on a water-bath for ten or fifteen minutes with a few drops of *sulphuric acid*, cooled and treated with a few drops of dilute *nitric acid*, it gives a violet colour quickly becoming blood-red.

Phenacetinum.

When 0·1 gramme is boiled with 2 c.c. of *hydrochloric acid* for half a minute a liquid is obtained which, diluted with ten times its volume of water, cooled, and filtered, gives a deep red coloration on being treated with one drop of solution of *chromic acid*.

Impurities. Acetanilide (gives a precipitate with *bromine* water); paraphenetidin (0·3 gramme of phenacetin with 1 c.c. *alcohol* [90%] should not acquire a red tint when diluted with 3 c.c. of water and boiled with one drop of volumetric solution of *iodine* if paraphenetidin is absent).

Phenazonum.

12 c.c. of a one per cent. solution of it mixed with 0·1 gramme *sodium nitrite* turns green on the addition of 1 c.c. dilute *sulphuric acid*. *Ferric chloride* produces in very dilute solutions a deep-red colour which is almost discharged by excess of dilute *sulphuric acid*.

Potassii Bromidum.

It is distinguished from the iodide by treating a

solution with *chlorine* water, which sets free the bromine; this is soluble in *carbon bisulphide* or *chloroform* with a reddish colour.

Potassii Iodidum.

The iodine liberated by *chlorine* water is soluble in *carbon bisulphide* with a violet colour.

Impurities. Iodate (if present in the iodide a solution of *tartaric acid* would liberate iodine which could be identified by means of *mucilage of starch*); carbonates (effervesce on the addition of *acetic acid* when warmed).

Quininæ Sulphas.

A dilute solution to which *bromine* water has been added drop by drop until it assumes a yellow tint, gives a green colour on the addition of *ammonia;* if a little *potassium ferrocyanide* is added before the *ammonia* an evanescent red colour is produced.

Salicinum.

Heated with a small quantity of *potassium bichromate* and *sulphuric acid*, and some water, it yields salicylic aldehyde, having the odour of meadow-sweet. It is coloured red by *sulphuric acid.*

Salol.

An alcoholic solution gives a white precipitate with *bromine* water, and a violet colour with *ferric chloride.* When it is melted with *sodium hydrate* and acidulated with *hydrochloric acid* a white precipitate is formed and phenol is liberated.

Santoninum.

It gives with a warm alcoholic solution of *potassium hydroxide* a violet-red colour.

Sodii Bicarbonas.

A solution in cold water when treated with *mercuric chloride* gives a whitish precipitate rapidly becoming brownish-red. It does not give a precipitate with a cold solution of *magnesium sulphate.* These tests distinguish it from the carbonate.

Spiritus Ætheris Nitrosi.

When carefully poured on an acidulated strong solution of *ferrous sulphate* in a test tube a deep olive-brown colour is produced at the line of contact of the liquids.

Impurities. Free acid (the spirit should not effervesce, or only feebly, on shaking with *sodium bicarbonate;* this is the limit of acidity); excess of aldehyde (when mixed with half its volume of water and half its volume of volumetric solution of *sodium hydroxide,* only a yellow colour, and not a brown colour, should be produced on standing twelve hours).

Strychnina.

Is not coloured by *nitric acid.* When a minute quantity is added to a drop of *sulphuric acid* on a white slab, and a very small fragment of *potassium permanganate* is brought into contact with it, a violet colour is produced.

Sulphonal.

Gives off hydrogen sulphide when gradually warmed

with dried *sodium acetate.* When mixed with an equal weight of *potassium cyanide* and heated, the odour of mercaptan is evolved ; and when, to the aqueous solution of the product an excess of *hydrochloric acid* and a little *ferric chloride* are added, a reddish colour is developed.

Sulphur Præcipitatum.

Impurity. Calcium sulphate (can be seen under the microscope in the form of crystals ; it remains as a fixed residue after incineration).

Sulphur Sublimatum.

Impurities. Free acid (water shaken with it would redden *litmus* paper); arsenium sulphide (can be removed by agitation with *ammonia* solution, and will be left as a residue on evaporating the solution).

Thymol.

When dissolved in half its weight of *glacial acetic acid* and warmed with an equal volume of *sulphuric acid*, it produces a reddish-violet colour.

EXERCISES IN PRACTICAL DISPENSING AND IN THE TESTING OF DRUGS.

EXERCISE 1.

Weigh out and wrap up separately in paper:—

a. Powdered Rhubarb, gr. x. *or* 6 dgm.
b. Calomel, gr. xx. „ 12 dgm.

Measure into a 3oz. (100 c.c.) bottle ℥ij ♏xxx (*i.e.*, 990 minims) of water; pour into it ♏x (1 c.c.) of Spirit of Camphor = 1 grain (1 dgm.) of Camphor, and shake until dissolved. The product is practically identical with the official Aqua Camphoræ (1 in 1,000).

Dispense the following mixture:— See p. 25.

Recipe—Magnesii Sulphatis drachmas duas *or* 6 grm.
Acidi Sulphurici diluti drachmam „ 3 c.c.
Ferri Sulphatis grana octo „ 4 dgm.
Aquæ Menthæ Piperitæ ad uncias quatuor *or* 100 c.c.

Fiat mistura.
Signetur: A tablespoonful for a dose.

Dispense:— See p. 56.

Recipe—Potassii Chloratis drachmas duas *or* 8 grm.
Aquæ destillatæ uncias sex „ 180 c.c.

Fiat gargarisma.
Signa: The Gargle. To be used as directed

EXERCISE 2.

Dispense:— See p. 52.

Recipe—Pulveris Rhei granum *or* 6 cgm.
Sodii Bicarbonatis grana duo „ 12 cgm.
Hydrargyri cum Cretâ, granum „ 6 cgm.
Misce; fiat pulvis; mitte sex.
Signa: One to be taken every four hours.

Dispense:— See p. 28.

Recipe—Pulveris Rhei semidrachmam *or* 2 grm.
Sodii Bicarbonatis drachmam „ 4 grm.
Spiritus Ammoniæ Aromatici
Spiritus Chloroformi ana drachmam
or 4 c.c.
Aquæ Carui ad uncias tres „ 100 c.c.
Fiat mistura.
Signa: ℥ss ter die sumendum. Phiala prius agitata.

Dispense:— See p. 28.

Recipe—Bismuthi Carbonatis grana viginti
or 15 dgm.
Sodii Bicarbonatis, grana quadraginti
or 3 grm.
Infusi Calumbæ ad uncias quatuor
or 100 c.c.
Fiat mistura.
Signa: Cochleare magnum t.d.s. post cibos. Phiala agitata.

EXERCISE 3.

Dispense:— See p. 58.

Recipe—Olei Pini
Creosoti ana ʒss *or* 2 c.c.
Magnesii Carbonatis Levis gr. xxx „ 2 grm.
Aquam ad ʒiij „ 100 c.c.

Fiat inhalatio.

Signetur: A teaspoonful in a cupful of hot water for inhalation every night.

Dispense:— See p. 45.

Recipe—Tincturæ Guaiaci Ammoniatæ ʒij *or* 6 c.c.
Mucilaginis Acaciæ ʒiv „ 12 c.c.
Syrupi Tolutani ʒiv „ 12 c.c.
Aquæ Camphoræ ad ʒiv „ 100 c.c.

Fiat mistura.

Sig. A tablespoonful every two hours.

Dispense:— See p. 41.

Mitte Misturæ Ammoniaci B.P. ʒvj *or* 150 c.c.

Sig. One tablespoonful for a dose.

Ammoniacum, 82 grains	*or*	5 grm.
Syrup of Tolu, 3 drachms	„	10 c.c.
Water to 6 ounces	„	150 c.c.

EXERCISE 4.

Dispense:— See p. 43.

Recipe—Olei Ricini ʒvj	*or*	18·75	c.c.
Mucilaginis Acaciæ ʒiij	„	9·38	c.c.
Aquæ Aurant. Flor. Conc. ʒij	„	6·25	c.c.
Aquæ Cinnamomi, ʒv	„	15·62	c.c.

Fiat emulsio.
Signetur: One-half to be taken at bedtime.
(This is the Pharmacopœial Mistura Olei Ricini).

Dispense:— See p. 46.

℞ Pulveris Rhei gr. xij	*or*	72	cgm.
Aloes Socotrinæ gr. ix	„	54	cgm.
Pulveris Myrrhæ gr. vj	„	36	cgm.
Pulveris Saponis gr. vj	„	36	cgm.
Olei Menthæ Piperitæ gtt. j.	„	·06	c.c.
Syrupi Glucosi gr. xij, vel q.s.	„	72	cgm.

Misce ut fiat massa; divide in pilulas duodecim.
Signetur: One or two for a dose.
(This is the Pilula Rhei Composita of the Pharmacopœia).

EXERCISE 5.

Dispense:— See p. 56.

℞ Liquor. Atropin. Sulph. ♏x *or* 0·6 c.c.
Aluminis gr. j. „ 7 cgm.
Aquæ Rosæ ad ℥j „ 30 c.c.
Fiant guttæ.
"The drops for the eye."

Dispense:— See p. 46.

℞ Pulv. Digital. gr. ss *or* 3 cgm.
Pulv. Scillæ gr. j „ 6 cgm.
Pil. Hydrargyri gr. iij „ 18 cgm.
Fiat pilula; mitte xij
"One pill night and morning."

Dispense:— See p. 42.

℞ Ol. Morrhuæ ℥j *or* 30 c.c.
Ol. Cassiæ ♏iv „ 0·3 c.c.
Mucilagin. Acac. ℥vj „ 23 c.c.
Syrupi ℥iv „ 15 c.c.
Calcii Hypophosph. ℥j „ 4 grm.
Sodii Hypophosph. ℥ss „ 2 grm.
Aquæ ad ℥iv „ 125 c.c.
Fiat emulsio.
A dessertspoonful twice daily after food.

EXERCISE 6.

Dispense:— See p. 42.

℞ Copaibæ ʒiv *or* 12 c.c.
Mucil. Acac. ʒiv „ 12 c.c.
Syrup. Aurant. ʒiij „ 9 c.c.
Spir. Æther. Nitros ʒij „ 6 c.c.
Potass. Bicarb. ʒj „ 3 grm.
Aquæ ad ʒvj „ 150 c.c.

Ft. mist. s.a.
Sig. Coch. ampl. t.d.s. ex aq. inter cib.

Dispense:— See p. 46.

℞ Plumbi Acetat. gr. iij *or* 18 cgm.
Pulv. Opii gr. ss „ 3 cgm.
Syr. Glucos. q.s.

Ft. pil.; mitte xij.
Sig. One after each loose motion.

(This is the Pilula Plumbi cum Opio B.P.).

Dispense:— See p. 71.

Habeat Emplastrum Cantharidis
pro aure dextra
"To be applied behind the right ear."

EXERCISE 7.

Dispense:— See p. 63.

℞ Tinct. Opii ʒij *or* 6 c.c.
Liq. Plumb. Subacet. Fort. ʒij „ 6 c.c.
Aquam ad ʒvj „ 150 c.c.
Fiat lotio.
Signa: "To be used frequently."
"Poison." "Shake the Bottle."

Dispense:— See p. 42.

℞ Ol. Terebinth. ♏lxxx *or* 6 c.c.
Mucil. Acaciæ ʒiij „ 12 c.c.
Tinct. Cardam. Comp. ʒij „ 8 c.c.
Aquam ad ʒiv „ 100 c.c.
Fiat mist. s.a.
The eighth part for a dose as directed.

Dispense:— See p. 66.

℞ Zinci Oxid. gr. xxx *or* 2 grm.
Sulph. Præcip. gr. xv „ 1 grm.
Olei Cadini ʒj „ 4 c.c.
Paraffin. Moll. ad ʒj „ 30 grm.
Ft. unguentum.
To be applied to the head.

EXERCISE 8.

Dispense:— See p. 66.

℞ Glycerin. Plumb. Subacet. ʒss	*or*	2	c.c.
Zinci Oxidi ʒj	„	4	grm.
Hydrarg. Ammon. gr. x	„	6	dgm.
Adipis ad ℥j	„	30	grm.

Ft. ung.

More dicto utendum.

Dispense:— See p. 64.

℞ Sapon. Mollis ʒj	*or*	4	grm.
Olei Terebinth. ʒiv	„	15	c.c.
Camphor. gr. xx	„	1·3	grm.
Aquæ ad ℥ij	„	60	c.c.

Fiat linimentum.

Rub into the painful parts every night.

Triturate the soap with one drachm (4 c.c.) of water until quite smooth; add three drachms (12 c.c.) of water with constant stirring; dissolve the camphor in the turpentine and add the solution a little at a time to the soap mixture with rapid stirring; finally add the remaining water gradually.

Dispense:— See p. 69.

℞ Acid. Tannic. gr. iij	*or*	18	cgm.
Ol. Theobromatis gr. xiij	„	9	dgm.

Fiat suppositorium; mitte sex.

Use as directed.

EXERCISE 9.

Test the **Acetic Acid** for the following impurities:—

See p. 139.

a. Sulphuric Acid
b. Hydrochloric Acid
c. Sulphurous Acid
d. Tarry Matters
e. Metals
f. Formic Acid

Test the **Hydrochloric Acid** for the following impurities:—

See p. 141.

a. Iron
b. Free Chlorine
c. Arsenic

Test the **Tartaric Acid** for the following impurities:

See p. 143.

a. Oxalic Acid
b. Calcium
c. Lead
d. Iron

EXERCISE 10.

Identify the **Calomel** by means of appropriate tests and examine it for the following substances:—

See p. 147.

a. Mercuric Chloride
b. Ammoniated Mercury

Test the **Grey Powder** for:— See p. 148.

a. Mercuric Oxide

Distinguish by tests between **Potassium Bromide** and **Potassium Iodide.** See pp. 149, 150.

Test the **Potassium Iodide** for:— See p. 150.

a. Potassium Iodate
b. Potassium Carbonate

Test the **Boric Acid** for:— See p. 140.

a. Borax
b. Sulphates
c. Chlorides

EXERCISE 11.

Test the **Bismuth Subnitrate** for:— See p. 144.

a. Free Acid
b. Calcium Phosphate
c. Lead, Iron and Copper

Test the **Sublimed Sulphur** for:— See p. 152.

a. Arsenious Sulphide

Examine the **Precipitated Sulphur** for:— See p. 152.

a. Calcium Sulphate

Distinguish by means of tests between **Gallic Acid** and **Tannic Acid.** See pp. 141, 143.

EXERCISE 12.

Test the **Glycerin** for the following impurities:—

See p. 147.

a. Arsenic
b. Sugar
c. Fats and Oils
d. Chlorides
e. Sulphates
f. Calcium
g. Metals as Iron and Lead
h. Free Acid
i. Water

Test the **Magnesium Sulphate** for:— See p. 148.

a. Ferrous Sulphate
b. Calcium

Distinguish by means of tests between **Sodium Bicarbonate** and **Carbonate.** See p. 151.

EXERCISE 13.

Test the **Chloroform** for the following impurities:—

See p. 145.

a. Free Acid
b. Chlorine and Hydrochloric Acid
c. Organic impurities

Test the **Ether** for:— See p. 143.

a. Water
b. Alcohol
c. Aldehyde
d. Hydrogen Peroxide

EXERCISE 14.

Identify the **Chloral Hydrate** by chemical tests, and examine it for the following:— See p. 145.

a. Chlorides
b. Chloral Alcoholate

Distinguish between the **Creosote** and **Carbolic Acid** by their chemical reactions.

See pp. 140, 146.

Identify the following by their chemical reactions:—

a. **Salicin** See p. 150.
b. **Santonin** See p. 151.

EXERCISE 15.

Identify the following alkaloids by their chemical reactions:—

a. **Morphine** See p. 149.
b. **Codeine** See p. 146.
c. **Quinine** See p. 150.
d. **Strychnine** See p. 151.
e. **Caffeine** See p. 144.

Examine the **Cocaine Hydrochloride** for other Coca alkaloids. See p. 146.

EXERCISE 16.

Identify the following synthetic products by means of chemical tests:—

a.	**Acetanilide**	See p. 139.
b.	**Phenazone**	See p. 149.
c.	**Phenacetin**	See p. 149.
d.	**Sulphonal**	See p. 151.
e.	**Salol**	See p. 150.
f.	**Gluside**	See p. 147.

EXERCISE 17.

Make one ounce of the

Sodii Citro-Tartras Effervescens.

Sodium Bicarbonate, in powder	223 grains	*or*	12·75 grm.
Tartaric Acid, in powder	118 grains	„	6·75 grm.
Citric Acid, in powder	79 grains	„	4·5 grm.
Refined Sugar, in powder	66 grains	„	3·75 grm.

" Mix the powders thoroughly; place the mixture in a dish or pan of suitable form heated to between 200° and 220°F. (93·3°C. and 104·4°C.). When the mixture, by aid of careful manipulation, has assumed a granular character, separate it into granules of uniform and convenient size by means of suitable sieves. Dry the granules at a temperature not exceeding 130°F. (54·4°C.). The product should weigh 1 ounce (or 25 grammes)." (*British Pharmacopœia*, 1898).

EXERCISE 18.

Make two fluid ounces of the

Syrupus Ferri Phosphatis.

Iron, in wire	$7\frac{1}{2}$ grains	*or*	0·43 grm.
Concentrated Phosphoric Acid	1 fluid drachm	„	3·12 c.c.
Syrup	11 fluid drachms	„	35 c.c.
Distilled Water	a sufficiency		

"Place the Iron wire and the Concentrated Phosphoric Acid, previously diluted with an equal volume of Distilled Water in a small flask; plug the neck with cotton wool, and heat gently until the Iron is dissolved. When cold, filter into the Syrup, and pass a sufficiency of Distilled Water through the filter to make the product measure two fluid ounces (or 50 c.c.)." (*British Pharmacopœia*, 1898).

SUPPLEMENTARY EXERCISES IN THE DISPENSING OF PRESCRIPTIONS.

(1) ℞ Cret. Præparat. ʒj *or* 5 grm.
Pulv. Tragacanth. gr. vj „ 5 dgm.
Tinct. Opii ʒss „ 2·5 c.c.
Tinct. Catechu ʒj „ 5 c.c.
Aq. Cinnam. ad ʒiij „ 100 c.c.
Fiat mist.
Coch. parv. ij si opus sit.

(2) ℞ Magnes. Sulphat. ʒiij *or* 15 grm.
Magn. Pond. ʒss „ 2·5 grm.
Spirit. Menth. Pip. ♏x „ 0·8 c.c.
Spt. Chlorof. ʒss „ 2·5 c.c.
Aquam ad ʒiij „ 100 c.c.
Fiat mist.
Coch. ampl. ij t.d.s. ante cibos.

(3) ℞ Liq. Morph. Hydroch. ♏xx *or* 1·3 c.c.
Vin. Ipecac. ♏xxx „ 2 c.c.
Syr. Scillæ ʒij „ 8 c.c.
Syr. Pruni Virgin. ʒij „ 8 c.c.
Aquæ ad ʒiv „ 125 c.c.
Fiat linctus.
One teaspoonful when the cough is troublesome.

(4) ℞ Ext. Filicis Liq. ʒj *or* 4 c.c.
Pulv. Acac. gr. xxx „ 2 grm.
Syrup. Aurant. ʒj „ 4 c.c.
Aq. Menth. Pip. ad ʒj „ 30 c.c.
Fiat haustus.
To be taken as directed.

(5) ℞ Phenazoni gr. xl *or* 3 grm.
Syrup. Aurant. Flor. ʒij „ 8 c.c.
Aquam ad ʒij „ 60 c.c.
Signa: One tablespoonful every two hours until the pain is relieved.

(6) ℞ Ammon. Carb. gr. xvj *or* 1 grm.
Tinct. Camph. Co. ʒiss „ 4·8 c.c.
Spirit. Chlorof. ʒj „ 3·5 c.c.
Liq. Seneg. Conc. ʒiv „ 14 c.c.
Aquæ ad ʒiv „ 100 c.c.
Fiat mist.
Signa: The Cough Mixture.
One tablespoonful for a dose.

(7) ℞ Spirit. Ætheris Nit. ʒij *or* 8 c.c.
Liq. Ammon. Acet. ʒiij „ 90 c.c.
Potass. Nitrat. ʒj „ 4 grm.
Aq. Camph. ad ʒvj „ 180 c.c.
Fiat mist.
One tablespoonful every four hours.

(8) ℞ Quin. Sulph. gr. viij *or* 5 dgm.
Acid. Sulph. dil. ʒss „ 2 c.c.
Syrup. Limon. ʒij „ 8 c.c.
Aquæ ad ʒiv „ 100 c.c.
Fiat mist.
Coch. magn. t.d.s. inter cibos.

(9) ℞ Sodii Bicarb. ʒiss *or* 6 grm.
Tinct. Nuc. Vom. ʒj „ 4 c.c.
Spt. Chlorof. ʒiss „ 6 c.c.
Inf. Gent. Co. ad ʒvj „ 180 c.c.
Fiat mist.
One tablespoonful three times a day before meals.

(10) ℞ Chloral Hydr. gr. x *or* 7 dgm.
Pot. Bromid. gr. xx „ 13 dgm.
Tinct. Hyos. ♏x „ 0·7 c.c.
Syr. Aurant. ʒij „ 8 c.c.
Aquæ ad ʒj „ 30 c.c.
Fiat haust.
Hora somni sumat.

(11) ℞ Liq. Arsenicalis ♏xv *or* 1 c.c.
Ferri et Amm. Cit. ʒss „ 2 grm.
Spt. Ammon. Arom. ʒss „ 2 c.c.
Aq. Chlorof. ad ʒiij „ 100 c.c.
Fiat mist.
Coch. ampl. bis in die post cibos.

(12) ℞ Sodii Salicyl. ʒj *or* 4 grm.
Pot. Bicarb. gr. xv „ 1 grm.
Spt. Ammon. Arom. ʒj „ 4 c.c.
Syrup. Zingib. ʒiij „ 12 c.c.
Aquam ad ʒiij „ 100 c.c.
Fiat mist.
Two tablespoonfuls every four hours.

(13) ℞ Liq. Hydrarg. Perchlor. ʒiij *or* 12 c.c.
Potass. Iodid. gr. xviij „ 12 dgm.
Liq. Sarsæ Co. Conc. ʒiij „ 12 c.c.
Aquæ ad ʒiij „ 100 c.c.
Fiat mist.
One tablespoonful thrice daily after food.

(14) ℞ Tinct. Ferri Perchlor. ʒj *or* 4 c.c.
Acid. Phosph. Dil. ♏xxx „ 2 c.c.
Spt. Chloroform. ʒj „ 4 c.c.
Infus. Digital. ad ʒiij „ 100 c.c.
Fiat mist.
Signetur: Two teaspoonfuls three times daily.

(15) ℞ Potass. Chlorat. ʒj *or* 4 grm.
Acid. Hydrochlor. ♏x „ 0·6 c.c.
Misce et adde
Aquæ ad ʒvj „ 180 c.c.
Fiat gargarisma.
To be used frequently as directed.

(16) ℞ Phenacetin. gr. x *or* 6 dgm.
Fiat pulvis; mitte iij.
One powder to be taken immediately and repeated in one hour if necessary.

(17) ℞ Aloes Barb. gr. iss *or* 9 cgm.
Hydrarg. Subchlor. gr. ss. „ 3 cgm.
Ext. Coloc. Co. gr. ss „ 3 cgm.
Olei Menth. Pip. ♏$\frac{1}{6}$ „ 0·01 c.c.
Ext. Tarax. q.s.
Ut fiat pilula; mitte xij.
One after dinner daily.

(18) ℞ Acid. Arseniosi gr. $\frac{1}{20}$ *or* 3 mgm.
Sacchar. Lact. gr. j „ 6 cgm.
Excipientis q.s.
Ut fiat pil.; mitte xij.
One pill twice a day immediately after meals.

(19) ℞ Ferri Sulph. Exsic. gr. iss *or* 9 cgm.
Ext. Aloes Barb. gr. ss „ 3 cgm.
Ext. Gentian. q.s. ut fiat pil.
Signa: One twice daily after meals.

WORDS AND PHRASES USED IN PRESCRIPTIONS.

English.	Latin.	Abbreviations.
Accurately	Accurate	
Add, to	Addere	
Add (thou)	Adde	Add.
Let it be added	Addatur	Addat.
Let them be added	Addantur	Addant.
To be added	Addendus, a, um	
Adjacent	Adjacens	
Administered, to be	Adhibendus, a, um	
After	Post	
After every loose stool	Post singulas sedes liquidas	
After meals	Post cibos	P.c. *vel* p. cib.
Afternoon	Pomeridies, ei	P.M.
Again	Iterum	
Against	Adversum	
Alone (only)	Solus, a, um	
Also	Nec-non ; Quoque	
Alternate	Alternus, a, um	
Every other hour	Alternis horis	Alt. hor.
And	Et	
Ankle	Talus, i	
Annual	Annuus, a, um	
Any	Qui-libet, quæ-, quod-	
Of any	Cujus-libet	
Apply, to	Admovere	Admov.
Apply (thou)	Admove	Admov.
Let it be applied	Admoveatur	Admov.
April	Aprilis, is	
Arm, the	Brachium, ii	
Art, according to	Secundum artem	S. a. *vel* sec. art.
As much as is convenient	Quantum convenit	Q. conv.
As much as may be sufficient	Quantum sufficit	Q. s.
As much as you please	Quantum libet	Q. l.
At pleasure	Ad libitum	Ad. lib.
August (the month)	Augustus, i	
Back, the	Dorsum, i	
Balsam	Balsamum, i	Bals.

English.	Latin.	Abbreviations.
Bark, a	Cortex, icis.	Cort.
Barley	Hordeum, i	Hord.
Barley water	Decoctum hordei ; Aqua hordeata	Dec. hord. Aq. hord.
Bath	Balneum, i	Baln.
Cold bath	Balneum frigidum	Baln. frig.
Foot-bath	Pediluvium, i	
Hip-bath	Coxæluvium, i	
Hot bath	Balneum fervens	Baln. ferv.
Sea-water bath	Balneum maris[1] *vel* marinæ	Baln. mar.
Slipper-bath	Semicupium	
Tepid bath	Balneum tepidum	Baln. tep.
Vapour bath	Balneum vaporis	Baln. vap.
Warm bath	Balneum calidum	Baln. cal.
Be, to	Esse	
Let it be	Sit	
Bean	Faba, æ	
The size of a bean	Magnitudo fabæ	
Beard	Barba, æ	
Bed	Lectus, i	
Bed-time	Horâ somni ; Horâ decubitûs	Hor. som. ; Hor. decub.
Beef-tea	Infusum carnis bubulæ	
Beer	Cerevisia, æ	
Bitter beer	Cerevisia amara	
Before	Ante	
Before dinner	Ante prandium	Ant. prand.
Behind	Pone	
Behind the ear	Pone aurem	
Belly	Abdomen, inis	
Belly (bowels)	Alvus, i	
Between	Inter	
Biscuit	Panis biscoctus	
Blister, a	Vesicatorium, ii	
Blistering cloth	Pannus vesicatorius	
Blistering paper	Charta vesicatoria	
Blistering plaster	Emplastrum Cantharidis	Emp. Canthar.
Blister, to apply a	Vesicatorium admovere	
Blood	Sanguis, inis	
Boil, to	Coquere	
Boil (thon)	Coque	
Let them be boiled	Coquantur	
Boil in a proper manner	Coque secundum artem	Coq. s.a.

[1] Balneum mariæ *vel* maris is used in pharmacy to indicate a water bath for chemical operations.

English.	Latin.	Abbreviations.
Boil in a sufficiency of water	Coque in sufficiente quantitate aquæ	
Boiling	Bulliens ; Fervens	
Bottle	Lagena, æ ; Ampulla, æ	
Phial	Phiala, æ	
The bottle being previously shaken	Phialâ prius agitatâ	P.p.à.
A stoppered bottle	Lagena obturamenta	
Bowels	Alvus, i	
The bowels being confined	Alvo adstrictâ	
Until the bowels are opened	Donec alvus purgetur	
Box	Pyxis, idis	
A wooden box	Pyxis lignea	
A paper box	Pyxis chartacea	
Brandy	Spiritus Vini Gallici	
Bread	Panis, is	
Brown bread	Panis furfuraceus	
White bread	Panis candidus	
Bread crumb	Mica panis	
Bread crust	Crusta panis	
Toasted bread	Panis tostus	
Breakfast	Jentaculum, i	
Breast-bone	Sternum, i	
Broth	Jus, juris : Jusculum, i	
Beef-broth	Jus bovillum	
Chicken-broth	Jus gallinaceum	
Mutton-broth	Jus ovillum	
Brush ; *see* pencil		
Butter	Butyrum, i	
Cachet, a	Capsula amylacea	
Capsule, a	Capsula, æ	
Gelatin capsule	Capsula gelatina	
Cautiously	Caute	
Cerate	Ceratum, i	
Cider	Vinum pomaceum	
Cloth	Pannus, i	
Clyster, a	Clysma	
Coffee (infusion of)	Infusum coffeæ	
Colour, to	Colorare	
Let it be coloured	Coloretur	
Compound	Compositus, a, um	Comp.
Confection	Confectio, onis	Conf.
Conserve, a	Conserva, æ	
Constipation	Constipatio alvi	

English.	Latin.	Abbreviations.
Continue, to	Continuare	
Let the medicine be continued	Remedium continuetur	
Cotton	Gossypium, i	
Cotton cloth	Pannus gossypinus	
Cough, the	Tussis, is	
The cough increasing	Tussi ingravescente	
The cough being troublesome	Tussi urgente	Tuss. urg.
Cream	Cremor lactis	
Cup, a	Cyathus, i ; Poculum, i	
A little cup	Pocillum, i	
In a cup of tea	Ex cyatho theæ	Ex cyath. theæ
Cut, to	Incidere	
Cut (thou)	Incide	
Cut, sliced	Incisus, a, um ; Concisus, a, um	
Day	Dies, ei	
Two days	Biduum	
Three days	Triduum	
To-day	Hodie	
Yesterday	Heri	
The day after	Postero die	
Daily	Quotidie ; Omni die	
Every other day	Alternis diebus	Alter. die.
Every third day	Tertiis diebus	
From day to day	De die in diem	
The day before	Proximâ luce	
Daybreak	Diluculum, i	
December	December, bris	
Decoction	Decoctum, i	Decoct.
Delay	Mora, æ	
Dilute, to	Diluere	
Dilute (thou)	Dilue	
Diluted	Dilutus, a, um	Dil.
Dinner	Prandium, i	
Direction, a	Directio, onis	
With a proper direction	Directione propriâ	Direct. prop.
Dissolve, to	Solvere	
Dissolve (thou)	Solve	
Dissolved	Solutus, a, um	Solut.
Divide, to	Dividere	
Divide (thou)	Divide	Div.
Let it be divided	Dividatur	
To be divided	Dividendus, a, um	

English.	Latin.	Abbreviations.
Dose, a	Dosis, is	Dos.
Let the dose be three tablespoonfuls	Sit dosis cochlearia tria ampla	
Drachm	Drachma, æ	℥j
Half a drachm	Semidrachma; Drachma dimidia	℥ss
Draught, a	Haustus, ûs	Haust.
Drink, to	Bibere	
Drink (thou)	Bibe	Bib.
Drink, a	Potus, ûs	
Drop, a	Gutta, æ	Gtt.
By drops, drop by drop	Guttatim	
During	Per	
During an hour	Per horam	
Each	Quisque, quæque, quodque	
Each hour	Quâque horâ	
Of each ingredient	Ana	ā *vel* āā
Ear	Auris, is	
Behind the ear	Post aurem	
To be dropped into the ear	In aurem instillari	
Egg	Ovum, i	
Eight	Octo	
Eighth	Octavus, a, um	
Eight times	Octies	
Eighteen	Duodeviginti	
Eighteenth	Duodevicesimus, a, um	
Eighty	Octoginta	
Eightieth	Octogesimus, a, um	
Eight hundred	Octingenti, æ, a	
Electuary (Confection)	Electuarium, i; Confectio, onis	Elect.; Conf.
Enema	Enema, atis *pl.* enemata	
Equal	Æqualis, e	
Equal parts	Partes æquales	P. æq.
Evening	Vesper, eris	
Every (all)	Omnis, is	
Every hour	Omni horâ	Omn. hor.
Every two hours	Secundâ horâ	
Every other hour	Alternâ horâ	Alt. hor.
Every third hour	Omni tertiâ horâ	Omn. tert. hor.
Every quarter of an hour	Omni quadrante horæ	Omn. quadr. hor.
Every night	Omni nocte	Omn. noct.
Every morning	Omni mane	

English.	Latin.	Abbreviations.
Extract, an	Extractum, i	Extract.
Eye	Oculus, i	
Eye-wash	Collyrium, i	
Fæces	Dejectiones ; Sedes	
Fainting, a	Defectio, onis	
To fainting	Ad defectionem	Ad. defect.
Faintness	Languor, oris	
Fasting	Jejunus, a, um	
February	Februarius, i	
Fever	Febris, ris	
Fever being absent	Febri absente	
When the fever is on	Febri adstante	
During fever	Febri durante	
Filter, a	Filtrum, i	
Filter (thou)	Filtra	
Finger	Digitus, i	
First	Primus, a, um	
Five	Quinque	
Fifth	Quintus, a, um	
Five times	Quinquies	
Fifteen	Quindecim	
Fifteenth	Quintusdecimus, a, um	
Fifty	Quinquaginta	
Fiftieth	Quinquagesimus, a, um	
Five hundred	Quingenti, æ, a	
Flannel	Lana, æ	
Flour	Farina, æ	
Fomentation	Fomentum, i	
Food	Cibus, i	
With food	Cum cibo	Cum cib
After food	Post cibum	P. c.
Foot	Pes, pedis	
Foot-bath	Pediluvium, i	
For	Pro	
Forenoon	Antemeridianus, a, um	A. M.
Form, of this	Ad instar	
Formula	Formula, æ	
Four	Quatuor	
Fourth	Quartus, a, um	
Four times	Quater	
Fourteen	Quatuordecim	
Fourteenth	Quartusdecimus, a, um	
Forty	Quadraginta	
Fortieth	Quadragesimus, a, um	
Four hundred	Quadringenti, æ, a	
Frequently	Sæpe	
Fresh	Recens, tis	

English.	Latin.	Abbreviations.
From	Ab ; De	
Gallon	Congius, i	Cong.
Gargle	Gargarisma, atis *pl.* gargarismata	Garg.
Gargle, to	Gargarizare	
Gin	Spiritus Juniperi	
Give, to	Dare	
Give (thou)	Da	
Let it be given	Detur	
Let them be given	Dentur	
Let six such doses be given	Dentur tales doses sex	
Glass, a (cup)	Cyathus, i	Cyath.
Wine-glass	Cyathus vinarius	Cyath. vin.
In a wineglassful of water	Ex cyatho vinario aquæ	Ex cyath. vin. aq.
Gradually	Gradatim	
Grain	Granum, i	
Gruel	Pulmentum, i, ; Jusculum avenaceum	
In gruel	Ex pulmento	
Gums, the	Gingivæ (*pl.*)	
Hair	Capillus, i ; Crinis, is	
Half, the	Semis, semissis	
An ounce and (with) a half	Uncia cum semisse	℥iss
Half (*adj.*)	Dimidius, a, um	Dim.
Half an hour	Semihora ; Hora dimidia	
Hand, the	Manus, ûs	
Handful, a	Manipulus, i	
Head	Caput, capitis	
At the top of the head	A summo capite	
The back part of the head	Occiputium, i	
Forehead	Frons, frontis	
Heart	Cors, cordis	
Heel	Calx, calcis	
Herb	Herba, æ	
Hip	Coxa, æ	
Honey	Mel, mellis	
In honey	Ex melle	Ex mel.
Hour	Hora, æ	
At the expiration of an hour	Horæ unius spatio	

English.	Latin.	Abbreviations.
In the intermediate hours	Horis intermediis	
Bed-time	Horâ somni; Horâ decubitûs	H. s.; Hor. dec.
An hour and a half	Sesquihora	
Every hour	Omni horâ; Singulis horis	
Every other hour	Alternâ horâ	
Every third hour	Omni tertiâ horâ	
Half an hour	Semihora	
If	Si	
If required, If there be occasion	Si opus sit	Si op. sit
Immediately	Statim; Protinus	Stat.
Infant	Infans, infantis	
Infusion	Infusum, i	Inf.
Injection	Injectio, onis	
Inhalation	Vapor, oris	
January	Januarius, i	
Jelly	Gelatina, æ; Jusculum coactum	
In currant jelly	Ex gelatinâ ribesiâ	
June	Junius, i	
July	Julius, i	
Knee	Genu, genu	
Koumiss	Spiritus lactis equini	
Label, a	Signatura, æ	
Label, to (to mark)	Signare	
Mark (thou)	Signa	Sig.
Let it be labelled	Signetur	Sig.
Large	Largus, a, um; Magnus, a, um; Amplus, a, um	
Leather	Aluta, æ	
Leech	Hirudo, inis	
Left	Sinister, tra, trum	
Leg	Crus, cruris	
Like (similar)	Talis, e	
Send twelve like this	Mitte tales duodecim	
Linen	Lintæum, i	
Liniment	Linimentum, i	Liniment.
Lint	Linteum, i	
Lip	Labrum, i; Labium, i	

English.	Latin.	Abbreviations.
Little	Parvus, a, um	Parv.
Liver, the	Jecur, jecoris	
Lotion	Lotio, onis	
Lozenge	Trochiscus, i	Troch.
Lying down, a	Decubitus, ûs	
Make, to	Facere	
Make (thou)	Fac.	F.
Make twelve pills	Fac pilulas duodecim	Fac. pil. xij
To be made	Fieri	
Let it be made	Fiat	Ft.
Let them be made	Fiant	Ft.
Manner, mode	Modus, i ; Mos, moris	
In the manner prescribed	Modo præscripto	Mod. præs.
In the manner directed	More dicto	More dict.
In the usual manner	More solito	More sol.
March (month)	Martius, i	
Mass, a	Massa, æ	
May (month)	Maius, i	
Measure, a	Mensura, æ	
Medium	Medius, a, um ; Modicus, a, um	Med.
Middle, the	Medium, i	
Milk	Lac, lactis	
Ass's milk	Lac asininum	
Cow's milk	Lac vaccinum ; Lac bubulum	
Ewe's milk	Lac ovillum	
Goat's milk	Lac caprinum	
Minim	Minimum, i	Min. ♏
Minute, a	Minutum, i	
Mix, to	Miscere	
Mix (thou)	Misce	M.
Mixture	Mistura, æ	Mist.
Let a mixture be made	Fiat mistura	Ft. mist.
Month	Mensis, is	
Morning	Mane	
Early in the morning	Primo mane	
This morning	Hodie mane	
To-morrow morning	Cras mane	
In the morning	Matutinus, a, um	
Eleven o'clock in the morning	Hora undecima matutina	
Mortar, a	Mortarium, i	
Mouth	Os, oris	
Mouth-wash	Collutorium, i	

English.	Latin.	Abbreviations.
Near to, nigh	Juxta	
Neck, the	Collum, i	
The back part of the neck	Cervix, icis	
Need, necessity	Opus	
If there be need	Si opus sit	Si op. sit
Night	Nox, noctis	
Every night	Omni nocte	Omn. noct.
To-night	Hac nocte	
Last night	Hesterna nocte	
Nine	Novem	
Ninth	Nonus, a, um	
Nine times	Novies	
Nineteen	Undeviginti	
Nineteenth	Nonusdecimus, a, um	
Ninety	Nonaginta	
Ninetieth	Nonagesimus, a, um	
Nine hundred	Nongenti, æ, a	
Noon	Meridies, ei	
Forenoon	Tempus antemeridianum	A. M.
Afternoon	Tempus postmeridianum ; Pomeridies	P. M.
Nose	Nasus, i	
Nostrils	Nares, ium	
Not	Non	
November	November, ris	
Now	Jam	
Number	Numerus, i	
Occasionally	Pro re nata	P. r. n.
October	October, ris	
Of, from	De	
Ointment	Unguentum, i	Ung.
Once	Semel	
One	Unus, a, um	
First	Primus, a, um	
Only	Solus, a, um	
Or	Vel ; Aut	
Other, the	Alter, era, erum	Alt.
Every other (alternate) hour	Alternis horis	
Ounce	Uncia, æ	℥j
Fluid ounce	Fluiduncia, æ	f℥j
An ounce and a half	Sescuncia, æ	℥iss
Half an ounce	Semiuncia, æ	℥ss

English.	Latin.	Abbreviations.
Pain	Dolor, oris	
The pain being troublesome	Dolore urgente	
While the pain lasts	Durante dolore	
Paper	Charta, æ	Chart.
A small paper	Chartula, æ	
Part, a	Pars, tis	
Equal parts	Partes æquales	P. æq.
To the affected part	Ad partem affectam	
Pastille	Pastillus, i	Past.
Pencil, a	Pencillum, i	
By means of a camel hair pencil	Ope pencilli camelini	
Perspire, to	Sudare	
Perspiration	Sudor, oris	
To promote perspiration	Sudorem elicere	
To check perspiration	Sudorem prohibere	
Pessary, a	Pessus, i	Pess.
Pill, a	Pilula, æ	Pil.
Pinch, a	Pugillus, i	
Pint	Octarius, i	Oct. ; Oj
Plaster, a	Emplastrum, i	
A plaster to pattern	Emplastrum ad instar ; Emplastrum ad exemplar	
A plaster of this size	Emplastrum hujus magnitudinis	
Let a plaster be made	Fiat emplastrum	Ft. emplast.
To spread a plaster	Emplastrum illinere	
To apply a plaster	Emplastrum imponere ; Emplastrum admovere	
Pleasant	Gratus, a, um	
Portion, a	Portio, onis	
In equal portions	Portionibus æquis	
Pot, a	Olla, æ	
Poultice, a	Cataplasma, atis	
Pour in, to	Infundere	
Pour in (thou)	Infunde	
Powder, a	Pulvis, eris	Pulv.
Prepared	Præparatus, a, um	Præp.
Prepared chalk	Creta præparata	Cret. præp.
Prescription	Formula, æ	
Proof spirit	Spiritus tenuior	
Proper	Idoneus, a, um ; Proprius a, um	
Proportion	Ratio, onis	
Purge, to	Purgare	
A purging	Purgatio, onis	

English.	Latin.	Abbreviations.
Quantity	Quantitas, atis	
Quarter	Quadrans, tis	
Rag, a	Pannus, i	
Remain, to	Stare	
Let it remain	Stet	
Let them remain	Stent	
Remainder, the	Reliquum, i	
Remaining	Reliquus, a, um	
Repeat, to	Repetere	
Let it be repeated	Repetatur	Repet.
Let them be repeated	Repetantur	
Right	Dexter, tra, trum	
Rub, to	Terere	
Rub (thou	Tere	
Rubbed	Tritus, a, um	
Rub in, to	Infricare	
Let it be rubbed in	Infricetur	Infricet.
To be rubbed in	Infricandus, a, um	
Rum	Spiritus sacchari	
Same	Idem	Id.
Of the same	Ejusdem	
Second	Secundus, a, um	
Send, to	Mittere	
Send (thou)	Mitte	
Let it be sent	Mittatur	
Let them be sent	Mittantur	
September	September, bris	
Seven	Septem	
Seventh	Septimus, a, um	
Seven times	Septies	
Seventeen	Septendecim	
Seventeenth	Septimusdecimus, a, um	
Seventy	Septuaginta	
Seventieth	Septuagesimus, a, um	
Seven hundred	Septingenti, æ, a	
Shape, to this	Ad instar	Ad. inst.
Side, the	Latus, eris	
To the painful side	Lateri dolenti	
Upon the right side	In latus dextrum	
Silk	Sericum, i	
Silken	Sericus, a, um	
Simple	Simplex, icis	Simpl.
Six	Sex	
Sixth	Sextus, a, um	
Six times	Sexies	

English.	Latin.	Abbreviations.
Sixteen	Sedecim	
Sixteenth	Sextusdecimus, a, um	
Sixty	Sexaginta	
Sixtieth	Sexagesimus, a, um	
Six hundred	Sexcenti, æ, a	
Sleep	Somnus, i	
Sleep, to	Dormire	
If the patient do not sleep	Si non dormiat	
Sneezing, a	Sternutamentum	
To excite sneezings	Sternutamenta excitare	
Solution	Liquor, oris; Solutio, onis	Liquor.
Some	Aliquot	
Sometimes, now and then	Interdum	
Sponge	Spongia, æ	
Spoonful	Cochleare *vel* cochlear, aris	
Spoonfuls	Cochlearia	
Tablespoonful	Cochleare amplum *vel* magnum *vel* largum	Coch. mag.
Teaspoonful	Cochleare parvum *vel* minimum *vel* infantis	Coch. min.
Dessertspoonful	Cochleare medium *vel* modicum	Coch. med.
By spoonfuls	Cochleatim	
Spray, a (the liquid)	Nebula, æ	
Spread, to	Extendere	
Spread (thou)	Extende	
Spread upon soft leather	Extende super alutam mollem	
Sprinkle upon, to	Inspergere	
Sprinkle (thou)	Inspergere	Insperg.
Sprinkle upon the plaster	Inspergere super emplastrum	
Stand, to	Stare	
Let it stand	Stet	
Let them stand	Stent	
Stomach	Stomachus, i	
The stomach being empty	Stomacho jejuno	
Stools, the	Dejectiones	
After every loose stool	Post singulas liquidas dejectiones	Post sing. liq. deject.
Stopper, a	Obturamentum, i	
A cork stopper	Obturamentum subereum	
A glass stopper	Obturamentum vitreum	
Strain, to	Colare	
Strain (thou)	Cola	

English.	Latin.	Abbreviations.
Let it be strained	Coletur	Colet.
Let them be strained	Colentur	Colent.
Strained	Colatus, a, um	Colat.
Such as, similar to	Talis, e	Tal.
Send twelve such doses	Mitte tales doses duodecim	
Sufficiency, a	Quantum sufficit ; Quantum satis	Q. s.
Supper	Cœna, æ	
Suppository	Suppositorium, ı	Supposit.
Tablet, a	Tabella, æ	
Take, to	Capere ; Sumere	
Let him (or her) take	Capiat ; Sumat	Cap. ; Sum.
To be taken	Capiendus, a, um ; Sumendus, a, um	
Let it be taken	Capiatur ; Sumatur	Capiat. ; Sumat.
Let them be taken	Capiantur ; Sumantur	
Take (thou)	Recipe (℞) ; Sume	
Tea (infusion of)	Infusum theæ	
Beef tea	Infusum carnis bubulæ	
Temple	Tempus, oris	
To the right temple	Tempori dextro	
Ten	Decem	
Tenth	Decimus, a, um	
Ten times	Decies	
Then, now and then	Subinde	
Thigh	Femur, oris	
Thin	Tenuis, e	
This	Hic, hæc, hoc	
Three	Tres, tria	
Third	Tertius, a, um	
Three times	Ter	
Three times a day	Ter in die	T. in d.
Thirteen	Tredecim	
Thirteenth	Tertiusdecimus, a, um	
Thirty	Triginta	
Thirtieth	Tricesimus, a, um	
Three hundred	Trecenti, æ, a	
Throat	Guttur, uris	
Through, by	Per	
Times	Vices	
At different times	Partitis vicibus	
To three other times	Ad tres alias vices	
To four times	Ad quatuor vices	Ad 4 vic.
To, up to	Ad	
To-day	Hodie	

English.	Latin.	Abbreviations.
Together	Simul	
To-morrow	Cras ; Crastinus, a, um	
To-morrow morning	Cras mane	
To-morrow evening	Cras vespere	
To-morrow night	Cras nocte	
Tonsil	Tonsilla, æ	
Tooth	Dens, tis	
Toothache	Odontalgia, æ	
Tow	Stupa, æ	
Tube	Fistula, æ	
Through a glass tube	Per fistulam vitream	
Twelve	Duodecim	
Twelfth	Duodecimus, a, um	
Two	Duo, æ, o	
Second	Secundus, a, um	
Twice	Bis	
Twice a day	Bis in die	
Twenty	Viginti	
Twentieth	Vicesimus, a, um	
Two hundred	Ducenti, æ, a	
Unless	Nisi	
Until	Donec	
Until the bowels be opened	Donec alvus dejicerit	
Use, to	Uti	
To be used	Utendus, a, um	Utend.
Vial	Phiala, æ	
The bottle having been first shaken	Phialâ prius agitatâ	P. p. a.
Vomit, to	Vomere ; Vomitare	
Vomiting, a	Vomitus, ûs ; Vomitio, onis	
To excite vomiting	Vomitum excitare	
To suppress vomiting	Vomitum supprimere	
Vomiting being troublesome	Vomitione urgente	Vom. urg.
Walnut	Nux Juglandis	
To the size of a walnut	Ad nucis juglandis magnitudinem	
Warm, to	Calefacere	
Warming	Calefaciens	
Warmed	Calefactus, a, um	
Wash for the eye	Collyrium, i	Collyr.
Wash for the mouth	Collutorium, i	Collut.
Wash for the nose	Collunarium	Collun.

English.	Latin.	Abbreviations.
Water	Aqua, æ	Aq.
Boiling water	Aqua bulliens	Aq. bull.
Cold water	Aqua frigida	Aq. frig.
Common water	Aqua communis ; Aqua fontalis	Aq. font.
Frozen water	Aqua astricta	Aq. astr.
Hot water	Aqua fervens	Aq. ferv.
Rain water	Aqua pluvialis	Aq. pluv.
River water	Aqua fluviatilis	Aq. fluv.
Sea water	Aqua marina	Aq. mar.
Snow water	Aqua nivalis	Aq. niv.
Spring water	Aqua fontana	Aq. font.
Tepid water	Aqua tepida	Aq. tep.
Weak	Tenuis, e	
Weaker	Tenuior	
Week	Hebdomada, æ	
Well	Bene	
Whey	Serum lactis	
Which	Qui, quæ, quod	
Of which	Cujus	Cuj.
To, or for. which	Cui	
Whisky	Spiritus frumenti	
Wine	Vinum, i	Vin.
Champagne	Vinum Campanicum	
Claret	Vinum Rubellum	
Hock	Vinum Hocheimense	
Moselle	Vinum Mosellanum	
Port	Vinum Portugallicum	
Sherry	Vinum Xericum	
Wineglass	Cyathus vinarius	Cyath. vin.
With	Cum	C.
Without	Sine	
Wound, a	Vulnus, eris	
Year	Annus, i	
Two years	Biennium	
Yesterday	Heri	
Yolk of an egg	Vitellus, i	

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