

Adam McLean's Study Course on reading alchemical texts



Lesson 4 : How to read straightforward texts of practical alchemy

Having surveyed the various types of alchemical text let us now look at how we can read works of practical alchemy, and how we can try to overcome some of the difficulties involved in exploring this type of writing.

Let us look at a seemingly simple description of an alchemical experiment, taken from a manuscript in the Bodleian library in Oxford, MS. Ashmole 1408. This gives a process supposedly by Trithemius, a 15th century Abbot interested in alchemy, magic, cryptography, and other arcane things, for making an everburning lamp. The original full text is on

<http://www.levity.com/alchemy/everbrn.html>

Take 4 unces of sulphur, & so much of calcyned alume, bruisse them together, put it into an earthen sublimatorie, place it into a coale fier, well lited, let the sulphur ascend through the Alume, and in 8 houres is it prepared.

Thearof take at the lesse 2 1/2 unces, and one unce of good christallick venetian porras, bruisse them two small togeather, put it into a flat glasse that it may lye flatly, poure uppon it a stronge sharpe 4 times distilled spirit of wine uppon it, & extracte it in ashes soffly to the oyle, poure it uppon again, extracte it to the oyle, poure it uppon again & drawe it of agayne; take a litle of the sulphure, laye it uppon a red hott copper plate, and when it floweth like wax without smoking then is it prepared, if not then must thou extract theareof more of the spirit of wine, till it sustineth the proove & it is prepared.

Nowe take alumephume, make therof a top not as long as a little finger, and halfe as thicke, foulde it about with whyte silke, put it thus whole into a venetian little glasse, & joyne thearunto of the prepared sulphure, place it a day & night in hott sande, that the top be continually in the sulphur. Nowe take the top thearout, and put it into such a glasse, that the top looke out a litle, adde thearunto of the prepared incombustible chyburals, place the glasse into hott sand till the sulphure melteth, and cleaveth beneath and upward about the top, that it be seene but a litle above, kindle the top with a common light, & it beginneth to burne presently, and the sulphure remaineth flowing, take the light and place it wheare you wilt, and it burneth continually for ever.

Let us now modernise the English so that the language will not be an obstacle.

Take 4 ounces of sulphur, and the same amount of calcined alum. Grind them together, and put this into an earthen sublimatory, place it into a coal fire, well lit. Let the sulphur ascend through the alum, and in 8 hours is it prepared.

Of this take at least 2 1/2 ounces, and one ounce of good crystalline Venetian porras, grind these two together finely, put it onto a flat glass that it may lie flatly, pour upon it a strong sharp distilled spirit of wine which has been distilled four times, and extract it in ashes gently to an oil. Pour more distilled spirit of wine upon it again, extract it to an oil, pour distilled spirit of wine upon it again and draw it off again. Take a little of the sulphur, lay it upon a red hot copper plate, and when it flows like wax without smoking then is it prepared. If not then you must extract it with more of the spirit of wine, till it passes the test and it is prepared.

Now take alumephume, and make of this a top not as long as a little finger, and half as thick, bind it round about with white silk, put it thus whole into a little Venetian glass, and join it with the prepared sulphur, place it a day and a night in hot sand, so that the top is continually in the sulphur. Now take the top, and put it into such a glass, that the top look out a little, add to this the prepared incombustible chyburals, place the glass into hot sand till the sulphur melts, and cleaves beneath and upward about the top, that it be seen but a little above. Kindle the top with a common light, and it begins to burn presently, and the sulphur remains flowing. Take the light and place it wherever you will, and it burns continually for ever.

Now we have a text that seems quite comprehensible. So, unless you were able to read the 17th century English of the original manuscript, it is always a good practice to translate it into modern English. Of course one can easily introduce errors here if one believes one understands a word when in fact one does not. If in doubt one must use a good dictionary, such as the full Oxford English Dictionary, which gives all these earlier word forms and their modern meaning.

Note that, we are left with some technical alchemical terms which need exploring.

Earthen sublimatory : by this is meant an earthenware vessel used for making sublimations.

Crystalline Venetian porras : This is a form of borax. It is here called 'Venetian' because it was used in the Venetian glass industry of that time, as a flux.

Alumphume : This word should be read 'alum plumeum', feather or plume alum in the Oxford English Dictionary, which when we look up in Schneider's 'Lexikon alchemistisch-pharmazeutischer Symbole' is "originally a form of alum crystallised in very fine threads". In other words a fibrous mineral like asbestos.

Top : Here we could remain confused, until we realise that what is meant here is that the alchemist is shaping the fibrous mineral, the feather alum, into the form of a wick, a little pointed cone or top.

Prepared incombustible chyburals : 'Kybur' or 'Chybur' is sulphur, being variations on the term kibrit. Alchemists liked the idea of the incombustible sulphur, a kind of contradiction. In this recipe the sulphur which has been prepared in the first part of the experiment has become transformed into a form that is not immediately easy to ignite.

Now we understand all the terms in this text we can grasp the entire process that is being described. Indeed, this experiment has been replicated by Sam van Oort, who further translated it into modern chemical laboratory terms, and actually made it work. Of course, it does not burn for

ever, but does for longer than one might expect. To see the details of this, please go to this page on my web site

http://www.levity.com/alchemy/lights_of_trithemius.html

In this case, we have been able to entirely deconstruct an alchemical recipe and reproduce it. This will not be the case with most practical alchemical texts, but most can at least be understood, even though the resulting experiment might not, for a variety of reasons, give the results one might expect.

Let us now look at a short piece from the *Secret Book of Artephius*, supposedly written in the twelfth century, but more likely some time later.

Antimony is a mineral participating of saturnine parts, and has in all respects the nature thereof. This saturnine antimony agrees with sol, and contains in itself argent vive, in which no metal is swallowed up, except gold, and gold is truly swallowed up by this antimonial argent vive. Without this argent vive no metal whatsoever can be whitened; it whitens laton, i.e. gold; reduceth a perfect body into its prima materia, or first matter, viz. into sulphur and argent vive, of a white color, and outshining a looking glass. It dissolves, I say the perfect body, which is so in its own nature; for this water is friendly and agreeable with the metals, whitening sol, because it contains in itself white or pure argent vive.

And from both these you may draw a great arcanum, viz. a water of saturnine antimony, mercurial and white; to the end that it may whiten sol, not burning, but dissolving, and afterwards congealing to the consistence or likeness of white cream. Therefore, saith the philosopher, this water makes the body to be volatile; because after it has dissolved in it, and in frigidated, it ascends above and swims upon the surface of the water. Take, saith he, crude leaf gold, or calcined with mercury, and put it into our vinegre, made of saturnine antimony, mercurial, and sal ammoniac, in a broad glass vessel, and four inches high or more; put it into a gentle heat, and in a short time you will see elevated a liquor, as it were oil swimming atop, much like a scum. Gather this with a spoon or feather dipping it in; and in doing so often times a day until nothing more arises; evaporate the water with a gentle heat, i.e., the superfluous humidity of the vinegre, and there will remain the quintessence, potestates or powers of gold in the form of a white oil incombustible. In this oil the philosophers have placed their greatest secrets; it is exceeding sweet, and of great virtue for easing the pains of wounds.

Let us first attempt to render this into more modern English.

Antimony is a mineral composed of saturnine components, and has in all respects the nature of Saturn. This saturnine antimony agrees with Sol, and contains in itself a kind of quicksilver, in which only gold among the metals can be dissolved, and gold is truly swallowed up by this antimonial quicksilver. Without this quicksilver no metal whatsoever can be whitened. It whitens laton or gold. It reduces a perfect body into its prima materia, or first matter, namely into sulphur and quicksilver, which is of a white colour, and outshines even a mirror. It dissolve the perfect body, which is so in its own nature; for this water is friendly and agreeable with the metals, whitening sol, because it contains in itself a white or

pure quicksilver.

And from both these you may draw a great arcanum, namely, a water of saturnine antimony, mercurial and white, for the purpose that it may whiten sol, not burning it, but dissolving it, and afterwards congealing it to the consistency or likeness of white cream. Therefore, the philosopher says, this water makes the body to become volatile; because after the body has been dissolved in it, and made cold, it ascends above and swims upon the surface of the water. The philosopher says to take crude leaf gold, or gold calcined with mercury, and put it into our vinegar, made of saturnine antimony, mercurial, and sal ammoniac, in a broad glass vessel, and four inches high or more. Put this glass vessel onto a gentle heat, and in a short time you will see a liquor rising up, like an oil swimming on top of the material, much like a scum. Gather this with a spoon or by dipping in a feather; and in doing this many times a day until nothing more arises. Evaporate the water with a gentle heat, i.e., the superfluous humidity of the vinegar, and there will remain the quintessence, potestates or powers of gold in the form of a white incombustible oil. In this oil the philosophers have placed their greatest secrets; it is exceedingly sweet, and of great virtue for easing the pains of wounds.

Next we can attempt a reading. To illustrate the process of reading a text it will be explained at length, sentence by sentence. We will avoid reading a meaning into the text, and instead try and read the meaning out of what the author is trying to tell us.

Antimony is a mineral composed of saturnine components, and has in all respects the nature of Saturn.

The author sets out his belief that antimony is related to Saturn or lead, and very has a similar nature.

This saturnine antimony agrees with Sol, and contains in itself a kind of argent vive or quicksilver, in which only gold among the metals can be dissolved, and gold is truly swallowed up by this antimonial quicksilver.

Our author believes further that this saturnine antimony is close in some way to sol or gold, as it contains in itself a quicksilver, that is, when it is melted into a liquid metal it can dissolve gold but not other metals. [This is in fact not true as molten antimony will dissolve a number of other metals. Perhaps our author is here imperfectly explaining the common use in his time of antimony for purifying gold from copper and silver. Here an impure or mixed metal was melted with natural antimony sulphide (stibnite). Copper and silver were converted into sulphides, but the more noble gold went into solution in the antimony metal that formed. The antimony-gold alloy was then heated in a stream of air, causing antimony to volatilize as the trioxide, leaving behind the gold.]

Without this quicksilver no metal whatsoever can be whitened.

Our author further believes that without this molten metallic antimony, this argent vive, living silver or quicksilver, as he terms it, no metal can be made whiter. Perhaps by 'made whiter' he means purified.

It whitens laton or gold.

By 'laton' our author means latten, "a mixed metal of yellow colour, either identical with, or closely resembling, brass" as the Oxford English Dictionary defines the word.

It reduces a perfect body into its prima materia, or first matter, namely into sulphur and argent vive [mercury], which is of a white colour, and outshines even a mirror.

This molten antimony is so powerful that it can reduce a perfect body down into its first matter, its primal components. These are the sulphur and mercury of which all metals are composed, following the sulphur-mercury theory we glimpsed in the third lesson. The mercury is of such a white colour that it will outshine a mirror in brightness.

It dissolves the perfect body, which is so in its own nature; for this water is friendly and agreeable with the metals, whitening sol, because it contains in itself a white or pure

quicksilver.

He repeats to emphasise the point that this molten antimony, which looks like quicksilver, dissolves the perfect body of gold. For this liquid metal, or water, is so close and friendly to other metals, that it can whiten gold, as it contains in itself a white or pure quicksilver.

And from both of these you may draw a great arcanum, namely, a water of saturnine antimony, mercurial and white, for the purpose that it may whiten sol, not burning it, but dissolving it, and afterwards congealing it to the consistency or likeness of white cream.

From both of these (here the author can only be referring to the sulphur and mercury which are the first matter of metals), you can extract a secret material, a liquid of saturnine antimony, which can whiten sol or gold metal, without burning it. This will dissolve gold and afterwards make it into a white cream or paste.

Therefore, the philosopher says, this water makes the body to become volatile; because after the body has been dissolved in it, and made cold, it ascends above and swims upon the surface of the water.

When alchemists use the term ‘the philosopher’ they usually refer to Hermes. Thus Artephius is here apparently quoting from a Hermetic text. This says that the liquid antimony makes the body become volatile. After the material has dissolved in it and the matter cooled, it will be seen to rise up in the mass of the liquid and float on its surface.

The philosopher says to take crude leaf gold, or gold calcined with mercury, and put it into our vinegar, made of saturnine antimony, mercurial, and sal ammoniac, in a broad glass vessel, and four inches high or more.

In that Hermetic text we are further told to take impure gold leaf, or gold that has been heated with mercury, and put it into ‘our vinegar’. [Now vinegar was well known to alchemists of this period, as it was easily distilled from sour wine. Alchemists saw that it corroded many metals. Chemically it dissolves them into acetates. Thus they knew vinegar as a corrosive. Here our author uses the term ‘our vinegar’ in a more general sense to mean a corrosive liquid made from antimony, mercury and sal ammoniac.] These should be put into a wide necked glass flask to a depth of at least 4 inches, together with the crude leaf gold.

Put this glass vessel onto a gentle heat, and in a short time you will see a liquor rising up, like an oil swimming on top of the material, much like a scum.

This flask should be heated gently and you will quickly see an oily scum rising to the surface.

Gather this with a spoon or by dipping in a feather; and in doing many times a day until nothing more arises.

Remove this scum with a spoon or by lifting it up using a feather.

Evaporate the water with a gentle heat, i.e., the superfluous humidity of the vinegar, and there will remain the quintessence, potestates or powers of gold in the form of a white incombustible oil.

When you have collected sufficient of this substance, evaporate away the moisture (that is the superfluous ‘vinegar’ that is still in the scum) with a gentle heat, and what will remain is a white incombustible oil, which contains the quintessence of all the powers of gold.

In this oil the philosophers have placed their greatest secrets; it is exceedingly sweet, and of great virtue for easing the pains of wounds.

This oil is one of the greatest secrets of the alchemical philosophers. It is very sweet and has great powers to easing painful wounds.

I hope this in-depth examination of the text serves to demonstrate that is possible to read a practical alchemical text in a straightforward way, without recourse to mysteries, esoteric theories and so on. The meaning can be read out of the text if one approaches the task in a systematic way. For difficult material you may find it necessary to use this interlinear method as a technique for analyzing texts.

Let us look at another 17th century alchemical recipe which introduces a further problem we have to overcome, that is, making sense of the alchemical symbols or glyphs by which they notated substances and processes in a kind of shorthand. I will attach below an analysis of this simple process and explain the symbols used.

Common Oil, or Spirit of \ominus .

Rx. *Of French or Spanish Bay \ominus as much as you will, dissolve it in water and filter it; mix with this brine (in a copper vessel), fine powder of tiles or brick, double or treble the weight of the \ominus before dissolution, set it in an equable heat and let the water evaporate away (continually stirring it) till it be very dry; then put the powder in a glass retort, well luted to a large receiver, and give it a naked fire by degrees to the height, so shall you have in the receiver Oil or sharp Spirit of \ominus ; rectify this liquor in sand by separating the phlegm, according to our art, then keep it in a vessel close stopped for use.*

NOTE: - There are a variety of ways of preparing this oil or spirit, according to the opinions of various men. Some take common \ominus and distil it alone in a retort, whence comes first a sour water, secondly a phlegm, then the \ominus being taken out and sprinkled with water and distilled again, you have thirdly an acid spirit, which you may repeat till all the \ominus is turned into spirit, which rectify in BM.

Some to \ominus p. ii. take of clay, brick, sand or earth, p. iii, which they make into balls and dry and distill as before in a retort. Others to \ominus p. i. mix clay, sand, earth, etc., p. v. and (without making of it into balls) fill a glass retort with it, luted up to half the neck, then set it in a close reverberatory, fitting to it a large receiver, thence giving fire by degrees, coming as soon as possible to the last degree, which is to be continued 24 hours or until the recipient feels cold, the retort being violently hot. By this rule you may extract out of lb i. of \ominus near 3x. of oil or spirit. In these processes the \ominus ought not to be decrepitated or separated from its phlegm, nor the matter made red hot in the fire; for the phlegm coming first helps the acid oil or spirit, and is as a vehicle to it, and without which you would attain to no acid spirits. This spirit is made strong and pure by dephlegmating of it in a sand heat.

This is a process to make the oil or spirit for common salt, \ominus being the symbol for salt. It usually represents 'Salt' in general, but here from the context it is obvious that common salt is intended. Our process begins with *Rx.* This is a shorthand symbols for 'recipe', indicating that the following is an account of a practical process to be followed. It is still used by some doctors for their prescriptions or instructions to pharmacists. We are to take French or Spanish bay salt. This is the sea salt made along the French and Spanish coasts. Dissolve it in water to make a strong brine, and add two or three times the weight (of the original dry salt) of finely powdered tile or brick dust. Heat it gently and stir continually till all the water dries up. Then put the powder into a glass retort well luted to a receiving vessel. To 'lute' means make a tightly sealed joint between two vessels. This is then heated on an open flame, gradually increasing the temperature. Then a oil or sharp spirit will distill over into the receiving flask. This is hydrochloric acid which is formed by the breakdown of the salt. Afterward you have collected this spirit of salt, you can rectify or purify it by running it through a sand filter. Letting it percolate through sand lets the sand hold back the phlegm or impurities. Once purified keep it in a closely stoppered vessel.

Our author then describes some other methods of making this spirit of salt. Some take salt by

itself and distil in a retort. Then there comes over a sour water then a phlegm (or watery slimy impurity). Then we are to take out the ☉, sprinkle with water and distil again. The ☉ is really a little death's head symbol, and means the ashes (or calx) remaining after a substance is burnt. If you moisten these ashes and distil them again then the acid spirit will be obtained. This should be rectified in BM. 'BM' is a Balneum Maria, the water bath of Maria, used to distil a substance at a gentle heat by only heating it with boiling water and not with a naked flame.

Next we have what might appear confusing at first. "Some to ☉ p. ii. take of clay, brick, sand or earth, p. iii,". The p. ii and p. iii, mean two and three parts, respectively. Thus it is simply explained – Some alchemists to two parts of salt add three parts of clay, brick, sand or earth." These they form into balls and distil as before.

I will leave you to read the rest of the short piece, except for explaining one sentence. "By this rule you may extract out of lb i. of ☉ near ⅜ x. of oil or spirit." - The rule is that out of one pound of salt nearly 10 ounces of spirit of salt is obtained. ⅜ is the symbol for an ounce, which combined with the 'x', the Roman number 10, we have the ten ounces.

In order to read many texts of practical alchemy one must become familiar with these little shorthand glyphs. I have given a list of the most common as an appendix to this lesson. To see a much more comprehensive listing, see the alchemy web site pages **Alchemical symbols for substances, processes and equipment** accessed through,

http://www.levity.com/alchemy/images_s.html

Please now work through the exercises, and attempt to read these works of practical alchemy. These should not be too difficult to understand once we get over problems of the language and the use of the alchemical graphic symbols. If you have problems with one of these pieces, then break it down into sentences and make an interlinear reading of it as we did with the *Secret Book of Artephius* extract. Of course being able to read a text, does not mean that one will entirely understand it in all its facets. Neither does it mean that we will be able to read out of the text an actual working alchemical process that actually produces what it seems to promise. Often alchemists did not fully test out these recipes, or were not sufficiently skilled in making a description of what they had done in their laboratory work. All we can hope for is to be able to read clearly what is expressed in the text itself, and not to attempt to read our own opinions into it.

For those who find these exercises too easy, please go onto the alchemy web site and have a look at some of the practical alchemical works accessed through the alchemical texts page.

<http://www.levity.com/alchemy/texts.html>

EXERCISE 1

Philosophic Spirit of ♀

R_x. ⊖ of ♀, which reverberate 24 hours upon a refiner's test (but melt it not), and the ⊖ will be blue; add distilled ⊕ three inches above it, ♁ till the ⊕ is very red, then filter and coagulate; do this four times with fresh distilled ⊕. Mix these four salts with rectified SV. and extract a tincture till it ceases to be colored ☉ the ⊖ remaining in distilled ⊕ extract its tincture with SV, gather all these and ♁ them in BM. in a still with an alembic and a funnel; pour in again the SV. distilled at the funnel to the tintured ⊖, and cohobate 15 or 16 times, till you see red drops fall; then cease and ♁ the liquor gently by a retort in sand. So have you the Spirit of ⊖ of ♀, cloudy with red drops and a red powder at the bottom.

EXERCISE 2

And you shall in this treatise understand me not otherwise than according to the letter; for I will use here no metaphors, allegories, or similitudes; I will only describe ☉ with a plain stile, that you may not be deceived, though you prepare it according to the letter, and you shall obtain that of which I write; by these, you may also judge whether in common ☉ that secret, or Chymical and Physical Mystery be or not, of which Paracelsus and the Magicians have written.

Now ☉ as it comes out of the Mountains, is not pure as it should be; for it is mingled with stones of the mine. I never saw any that came forth pure from the Mountains; therefore ere one use it, it must be purified, which purification is done by digestion; but this digestion is a Sulphureous Fire.

The best ♁ is a ♁ Metalline, and though Artists do purifie it with vegetable fire, that is with Tartar, yet is this digestion not natural, But that the Tartar divides the Regulus from its Faeces this is the cause that the ♁ of ☉, is more Vegetable than Metalline, but you shall purify it with ♁ that is sprung from Mercury, and not from Salts; for this metalline ♁ will ve reduced in the Arg. vive. of ☉ into Arg. vive, and lastly out of this Arg. vive will pure gold be made. How this Metalline ♁ that purifieth ☉ is only in ♂ and no where else, and this purification is done thus:

R_x ♂ or Iron ☾ 4 (I am wont to take pieces of nails which are neither gross nor thick) put them into a strong crucible, and set them in a wind Furnace. Let it stand so long till you see the nails or Iron are soft, then put into the Crucible ☾ 8 of ☉, make a strong fire that the ♂ may flow well in the ☉, then cast into the crucible with an Iron Ladle, a good handful of Saltpetre; then let them boil up together in the Crucible (let the Crucible therefore be considerably great, that it boil not out) and let it stand still till all be quiet and flowing, then cast it forth into a casting pot so the Regulus settles itself so soon as the matter is coagulated in the Puckle-pot.

EXERCISE 3

How to make the salt of antimony

Powder good Hungarian Antimony, small as meal, and calcine it over a gentle coal-fire as men usually do. Always stirring it with an Iron till all be whitish and it smoke no more, but endures an indifferent strong Fire. Then put it into a crucible and melt it into a transparent yellow glass; beat this glass small, put it into a glass retort, and pour on it strong distilled Wine Vinegar. Let it stand in gentle warmth, and the Vinegar will extract the tincture of ☉, and will be coloured very high, which Tincture, or extract of ☉ may be further prepared and be used for an excellent medicine.

Now when the Tincture is all extracted, and colours no more the Vinegar, then dry the powder at the bottom wholly, which will be black. Grind it with so much yellow ☿, put it into a melting pot, well luted, and place in an indifferent Fire till the ☿ be wholly burnt away. Then grind the matter remaining very small and pour on it new distilled Vinegar and draw the Salt thereby, and afterwards through reiterated distillations, draw off the eagerness of the Vinegar from it, and clarify the Salt with the Spirit of Wine, till it be bright, clear and white.

If you have wrought rightly, you shall have the Salt of ☉ wholly fixed and active, although there is another way to make the Salt of ☉, which is written elsewhere.

DOSE: 4 gr. and it is equal to the Salt of ☉ and cures diseases (and may easily be made sol)

The use of the salt of antimony

The water of Lignum Vitae is thus made: First, Grind it small, then moisten it with good Spirit of Wine in a Vessel close stopt. Let it stand certain days in a gentle heat; this done, pour a good quantity of FUMITORY water or Scabious water, upon it. Digest then, 14 days in a Bath, then distill it; Preserve the Liquor apart, and the Oyl apart, in Glasses close stopt. Use the water with the SALT of ANTIMONY. It is likewise used with good success in other diseases whereof we treated in another place; but an understanding Physician knows very well what virtues are in GUAIAACUM, and what benefit it doth in the cure of diseases. There are other ways to distil a Water and Oyl of the said Wood, which is needless to be mentioned here.

APPENDIX

List of common alchemical graphic symbols.

	Earth Cold and Dry. Melancholy.
	Water Cold and Wet. Phlegmatic.
	Air Hot and Wet. Sanguine.
	Fire Hot and Dry. Choleric.
	Salt
	Sulphur
	Mercury
	Precipitation
	Sublimation
	Caput Mortuum
	Aqua Fortis. Nitric acid
	Aqua Regia. Mixture of nitric and hydrochloric acid which dissolves gold.
	Oil of Vitriol. Sulphuric acid.
	Vinegar
	Distilled vinegar
	Oil
	Spirit
	Universal seed

 **Nitre.** Saltpeter, Potassium Nitrate.

 **Quicklime.** Calcium Oxide.

* or sometimes  **Sal ammoniac.** Ammonium Chloride.

 **Tartar.** Now known as Potassium Hydrogen Tartrate.

 **Cinnabar.** Mercuric sulphide. Vermillion.

 **Marchasite.** Iron Pyrites, or Iron disulphide. Also sometimes applied to Bismuth.

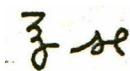
 or sometimes  **Litharge.** Lead monoxide.

 **Realgar.** Mineral ore of arsenic.. Arsenic disulphide.

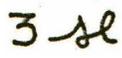
 **Orpiment** or **Auripigment.** A bright yellow ore of Arsenic. Arsenic trisulphide.

Symbols for weights of substances.

 **Ounce**

 **Half Ounce**

 **Drachma or Dram** 1/18 of an ounce

 **Half Drachma or Dram** 1/36 of an ounce

℥

Scruple $1/24$ of an ounce

℥ss

Half Scruple $1/48$ ounce