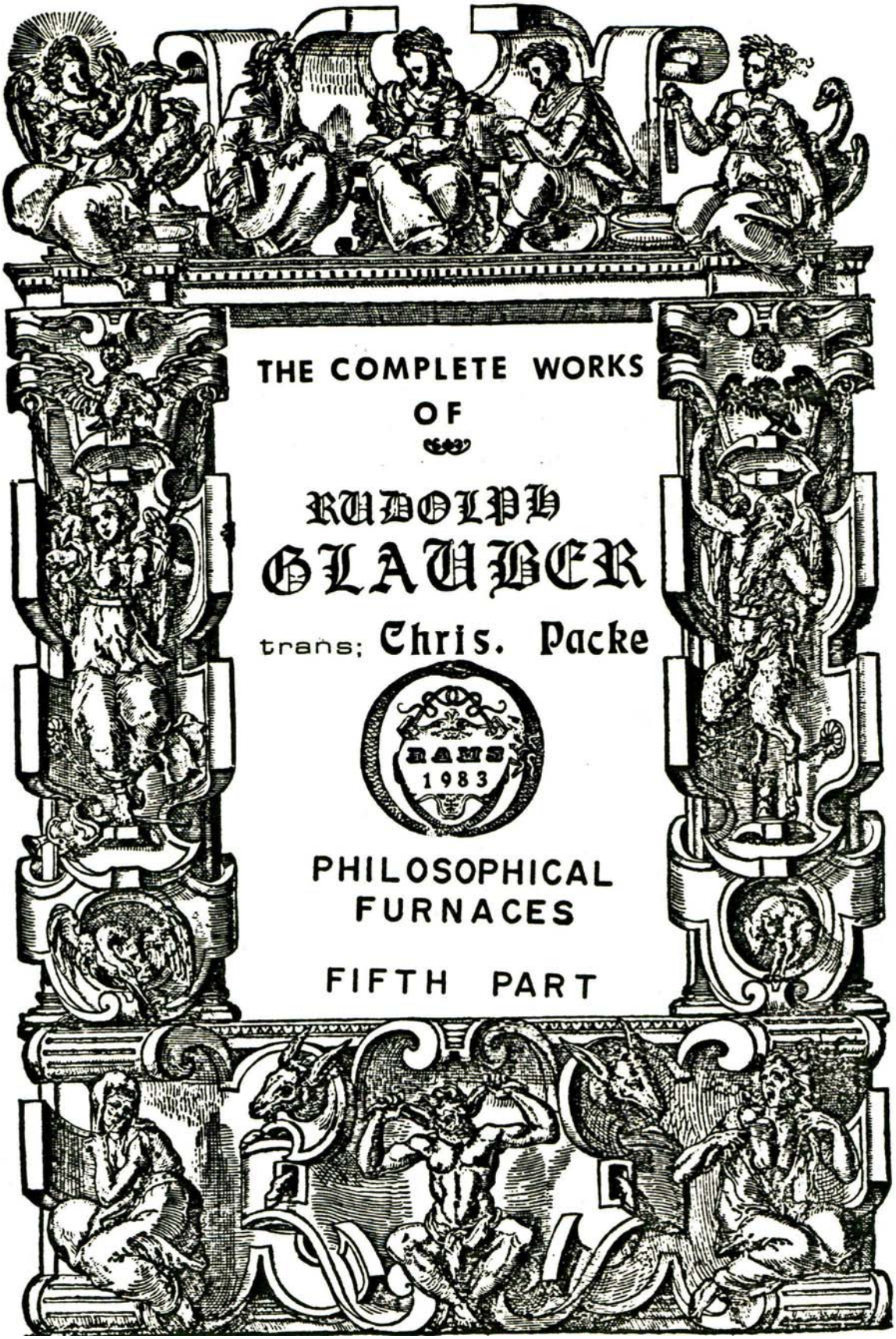

THE COMPLETE WORKS
OF

RUDOLPH GLAUBER

trans: Chris. Packe

HAMS
1983

PHILOSOPHICAL FURNACES

FIFTH PART

THE FIFTH PART OF PHILOSOPHICAL FURNACES:

In which is treated of the wonderful Nature of the Fifth Furnace: Also, of the easy Preparation of the Instruments and Materials belonging to the foresaid Four Furnaces. Most profitable for Chymical Physicans.

Of the Preparation of the Furnace.

As concerning this, of which, though I made no mention in the Preface; for It was not my Resolution to mention it in the last Part, because I was purposed only to treat of the Instruments, as well earthen, as those of glass, and also of the other necessary things belonging to those four parts premised; yet I am willing now in this Part, (which I have judge4 to be the most convenient place for it, for which I did before design another) to discover the wonderful Nature thereof, as far as I may for the Studious Artist’s sake. And although I know that more in this part, than in all my other writing’s especially the ignorant and unskillful, will be offended; yet I will not therefore pass it by, perswading my self, that by this means I ehall do a work, that will be most acceptable to the searchers of Art, and Nature. For I do devoutly affirm, That this is the choicest of all my secrets that I confide in, in which I have already seen wonderful things, hoping that the Divine

Benediction will some time or other be obtained upon the practise thereof. And as for the structure of it, much cannot be said thereof, because it is not built as other Furnaces are, but it is every where found extructed by Nature, being ordained for no other works, than those of Nature, viz, for the making of any MENSTRUIJM that shall dissolve gold, silver, and all other metals, and minerals without any noise, as also precious, and common stones, and also glasses: the original of which, is the original of the MENSTRUiJM. Now what, and what manner of Furnace that is, that produceth this Royal MENSTRUUM, (coming from the MENSTRUUM it self) and that easily without any labour, you may easily conjecture, that it is not any common one, by the help whereof other things are distilled, that can yield such a MENSTRUUM that is not corrosive: which certainly is not any common MENSTRUUM, because there is but this one MENSTRUUM that I know, which doth not partake of any corrosive quality, that doth more than any, of all other corrosive waters whatsoever. For all corrosives whatsoever they are, as AQUA FORTIS, AQUA REGIA, Spirit of salt, vitriol, allome, and nitre cannot together, and at once dissolve the close union of gold, and silver, and other most hard sub— jects, that cannot be dissolved in waters, though never so caustick.

This indeed is wonderful, and stupendous, that a thing every where found most vile and base, should do so great a miracle: I know not what moved me to write of it, knowing that I shall in this part offend not only the wise by writing so openly, but also the ignorant detractors, and slanderers that will accuse me of falsity. And truly these considerations might justly have deterred me, but that I knew I might do a good

work, recalling many from their errors: For many are persuaded that there is no other dissolving MENSTRUUM, besides the aforesaid corrosive spirits; but those are Chymists that are ignorant of Nature; yet the Philosophers with one consent say, that those corrosive destructive spirits make a fruitless solution of metals; for experience testifies, that the solutions made by the help of AQUA FORTIS, and REGIA, and other spirits, colour the hands, being that which a true Philosophical solution doth not, and furthermore, testifies, that those, viz, which colour the hand.s are not to be reckoned among the true Philosophical solutions, but to be contemned as Malignant. Wherefore I was willing to write these things to instruct those that erre. Let no man therefore perawade himself, that a MENSTRUTJM so vile and contemptible, is of less efficacy, than those corrosive spirits. I my self did once scarce believe, that so great Virtues, could be in so most vile a MENSTRUUM, until I had experience of the truth in good ernest.

I could here add more things concerning the original of the universal MENSTRUUM, which is to contemptible, which doth by its wonderful powers and virtues dissolve all metals, minerals and stones radically without any noise, unites and fixeth them; the solution whereof doth not colour the hand; the conjunction is inseparable, and the fixation incombustible, I say, I could add more things concerning it, but that divers inconveniences, which by this means I might incur, as also the envy and hatred of others do deter me. For although any one doth think to discover the possibility of Art, and Nature; yet few would be content therewith, being very desireous of all manner of revealation and

if we should not gratify them, we should forthwith incur their hatred and envy, who would without doubt judge otherwise of the matter, if they had but any experience of our labours. Be thou therefore (courteous Reader) contented with this discourse, that shews thee the possibility of Art and Nature; and diligently seek after it in the fear of God, and without doubt thy labour shall not be in vain.

Of the Building of the Furnaces.

How those Furnaces of the first and second part are to be built and made of Potters Clay, and Stones; I need not say much, because there be many Books extant, treating of this matter sufficiently; yet this caution is to be observed in building of the Furnaces, viz, that those Furnaces, in which a very strong fire is not kindled, need not so strong walls, as those in which we distil, sublime, and melt, with a most strong fire. And for what belongs to subliming and distilling Furnaces; you may erect them of those common bricks which are made of the best clay, and well burnt, compassing them about with very strong walls, that they may the longer retain the heat: or else you will continually have something to do in mending them, and closing their chinks, which hinder the regiment of fire. Wherefore they must be compassed about with iron hoops, that they may be durable and not gape. Now what concerns the melting Furnaces, the aforesaid bricks are not of use in the building of them, because they not being durable melt in the fire; wherefore you must make other bricks of a very good earth that is fixed in the Fire,

such as is that of crucibles, & etc. of which, afterwards; which are to be made in a brazen or wooden mould, and to be burnt, and it matters not whether they be round or square, a regard being had of the Furnace, that six or eight of them make one course, or row. But you need not build the whole Furnace of these stones, for it is sufficient, if the place only, where the coals still lye, be made of them, and the other part of the Furnace be made of common bricks.

A Lute for the erecting of Furnaces.

Lute may be made divers ways for this business; for men prepare their Lute several ways as they please. Some mix with sifted Potters earth, the beaten hairs of Cows, Oxen, Harts, or the chaff of Barley, Tow, Flocks, Horse dung, and the like, that hold together the clay, and prevent chops, to which they add sometimes sifted sand, if the clay be too fat, beating the mixture together with water, and bringing it to a just consistence. And this is the best mixture, that is not subject to cleaving, yet weak, because in length of time the hair and chaff are burnt, wherefore the Furnace becomes thin and weak. Many leave out combustible things, and mix Potters clay, and sand together, and temper them with brine, for the making of their Furnaces. And this is the best mixture, because it is not combustible as the other is, neither is it subject to cracking, by reason of the salt: and for this purpose, the brine of fish and salt flesh soth serve, and is very good, because the blood helps the joining of them together: but if the CAPUT MORTUUM

of vitriol or AQUA FORTIS, being mollifyed, be mixed with Potters clay and sand, you go a better way to work: for this Lute is not at all subject to cracking, but fixed in the fire and permanent, With this Lute are Retorts, and Gourds very well luted, and coated, also the joints of Retorts, and Receivers cloeed: this being mollifyed• with a wet cloth applyed to it, may again be separated, and taken off, as that also with which salt is mixed: but the other Lutes that want salt will not be separated, by reason whereof glasses oftentimes are broken. Wherefore in defect of the CAPUT MORTUUM of Vitriol, temper the clay with sand and with brine: But many mix the filings of iron, powdered glass, flints, & etc. but you need not them for the building of the Furnaces, but only for the coating of certain glasses used for separation, and distillation, because the filings of iron being helped with salt, binds, and joins together most strongly.

Of the closing of the Joints, hindering the evaporation of Subtile Spirits.

The aforesaid Lute is sufficient for the closing of the joints of the first Furnace, where air is not kept from the Spirits, but not of the Vessels of the second Furnace, where most subtile SpIrits are distilled, which it cannot retain, penetrating the same with the loss of the better part: wherefore you must make choice of another; unless upon the other being well d.ryed, a mixture made of quick Lime, most subtilly powdered, and Linseed—oil, besmeared over with a pencil, which the porous clay attracting to it, is fortifyed, so as to be able to retain

those most subtile Spirits: but this Lute can hardly be separated again; because refusing water, it cannot be mollifyed; wherefore the clay is to be tempered only with the white of eggs, and to be applyed with linnen clouts: but you must prevent the burning of the linnen, by reason of the extream heat of the neck of the Receiver, by putting between an iron or strong glass, viz, betwixt the receiver and the retort. The joints also may be closed with ox bladders wet in the white of eggs, also with starch tempered with water, if it be sometimes applyed, being smeared on paper. For by this means those most subtile spirits are easily retained, but not corrosive, for which use the CAPUT MORTUUM of AQUA FORTIS is more convenient which after it is dryed must be smeared over with a mixture made of linseed oil, and quick lime.

And divers kinds of these lutes are had being destined to divers uses.

Another Lute for broken Glasses.

It happens sometimes that glass vessels, as receivers, and retorts, have some cracks, but otherwise are whole and sound; which are greater in those glasses that do again suffer the heat of the Fire, wherefore at last the glasses are broken, which If you will prevent, make a unament or thin lute of linseed oil, quick lime, and red lead; which being smeared over a linnen cloth apply to the crack, upon which being dryed apply another: but if the crack be very great, you may apply three or four linen cloths, for the greater safety sake: as you may apply the

whites of eggs beaten together, upon the cracks with linnen, and cast upon it quick lime sifted very fine, and press it down hard with your hand: which being done, you may apply over them more linen clouts wet in the whites of eggs, and cast upon them quick lime again: which when the lute is well dryed, retaines the spirits, but sooner subject to the corrosion of corrosive spirits than the former.

Note well that quick lime is not to be mixed with the white of eggs, and so used upon linen clouts, as the manner of some is; because the whites of eggs acquire a hardness from the lime before they be united, and therefore cannot stick, but linen clouts wet First therewith before the quick lime be cast upon them, so that the lime doth not immediately touch the glass, being applyed betwixt two linen cloths.

How those Subtile Spirits when they are made, may be kept that they evaporate not.

Those glasses in which those spirits are kept are for the most part stopt with cork, or wax, upon which afterward bladders are bound: which stopping Is convenient for some spirits, that do not prey upon cork or wax: For all corrosive spirits, as of vitriol, Allome, common salt, nitre, & etc. corrode cork; and lixivial spirits, as that of harts—horn, tartar, salt armoniack, urine, wine, & etc. melt wax, and penetrate it.

And although other stopples might be made, which might retain both sorts of spirits, yet it would be tedious and laborous to open those 80 often, and to stop them again. Wherefore I have found out a fit

kind of glasses, viz, of such, whose mouths have distinctions, and are fit to receive their covers; as it appears by the delineation. (See the first figure). A. signifies the cover: B. the glass containing the spirit. C. a drawer by the help whereof the spirits are taken out of the glass, when there is occasion, into the distinction in the brim of the mouth; viz, of the glass that contains the spirit, is put quicksilver, and upon this is put a cover; this being done, the Mercury cbseth the joints of both glasses running in the brim, so that nothing at all can evaporate; for the spirits do not penetrate the Mercury, unless they be very corrosive (a thing to be noted) which then in process of time turn the Mercury into water, but very seldom; and then the Mercury is to be renewed. But we need not give so much honour to corrosive spirits, being not to be compared to those volatile ones, which being abstracted from corrosives not prey upon Mercury; and much less than these, do lixivial spirits corrode Mercury; and for the sake of these were these glasses invented, by the help whereof most subtile spirits are without any loss of their virtues, if you please, a very long time preserved and kept. And because when there is occasion the spirits cannot be poured forth by reason of the Mercury in the brim, you must get a drawer like to that, by the help whereof wine is taken out of the vessel, but lesser, having a belly with a little mouth made very accurately. This being let down you may take up as much as you please, as is needful, the upper orfice whereof being stopped with the finger nothing drops out; being put into a lesser glass is thence poured forth for your use. Then you must again cover the remainder of the Spirit

that is in the glass, and as oft as is needful take out with that drawer as much as is useful. And this is the best way by which the most subtile spirits are retained; which also are very well retained in those glasses, whose stoples are of glass smoothed with grinding. But this is a more costly way of keeping in spirits, and it is done after this manner.

How glass stopples are to be smoothed by grinding for the retaining of spirits in their glass vessels.

First of all order the matter so that you have glass bottles of several sorts, some greater, some lesser, with strong necks, and mouths, with their glass stopples, which being smoothed by grinding shut the orifice of the bottle very close: Now they are smoothed thus. Put the stopples in the turn, being set or fastned in some wood, bring it into a round shape, then being moistened with SMIRIS, and water mixed together, let it be put to the mouth of the bottle, so as to be turned round in the mouth of the bottle, which you must often take away from the stopples being fastened to the turn, for the oftner moistening of it, which is with that mixture of prepared SMIRIS and water, with the help of a pencil, or feather; and that so often and so long, until the stopple stop the mouth of the bottle most closely: which being done, you wipe off the SMIPIS with a lint from the stopples and mouth of the bottle, then smeer over the stopple with a liniment made of some fine washed earth, and water, or oil, and again turn it round in the mouth of the

bottle, and often smear it over with this fresh mixture, until the stopple be most exactly smoothed, which afterward is to be tyed to its proper bottle; the same also is to be understood concerning the rest; that one may not be taken for another, & etc. And that you may not need to take away so much from the stopples, and bottles, get some copper moulds made for the stopples, which stopples must be taken whilest they be yet warm, soft, and new drawn from the furnace, that they may be made of a just roundness, as also other copper moulds. Which must be put into the mouths of the bottles, whilest they be yet hot and soft, for the better making of them round, whereby afterwards the stopple may more easily, and quickly become fit to stop the mouths of the bottles very close, (as for example: A. is the stopple, B. the glass or bottle) if thou knowest how to order them rightly, they will quickly and easily fit one the other.

In defect of turn, proceed after the following manner, which is slow, yet safe, because in a turn the glasses, oftentimes waxing hot are broken by reason of the over great haste; and it is thus, make an iron or wooden receptacle fit to receive the glass bottle, which being covered about with linen, and put in, join both parts of the receptacle warily and softly, with the help of a screw, that the bottle be not broken, and that that instrument, or receptacle of the bottle being fastened to a form with the help of the screw, cannot be moved. Afterwards cause that another wooden instrument be made for the stopple (as for example, A. the stopple with its receptacle, B. the bottle with Its receptacle) that may be separated in the middle, and be again reunited

with a screw after the putting in of the stopple, which being smeered over with the aforesaid mixture of SMIRIS and water, take the instrument with both hands, and put the stopple round about the neck of the bottle, and grind it round upon the other, as Wine Coopers are used to do in smoothing the taps, and that so long until the stopple be fit for the bottle; then reiterate the same labour with the earth TRIPOLIS, until it be compleated; and it will stop as well as a stopple made by the help of a turn (See the second and third Figures before the fourth part).

After this manner also you must work those greater glass receivers of the first furnace, that without luting they may be closed. Stopples also of vials or Boltheads for fixation may be wrought after this manner, which in stead of luting may be put into the mouths of the vials, upon which are put caps of lead; by which means in case of necessity they may be lifted up, viz, in case the spirits by too strong a fire be stirred up and rarified, by reason of the danger the glasses are in to be broken, and may again fall down into the mouths of the bottles being pressed down with the leaden caps, and so stop close again. And this way of stopping is better than that which is done with cork, wax, sulphur, and other things: because in case the fire be not well governed, and by consequence an error is committed, you may preserve your glasses by lifting up of the stopples, viz, when the spirits are too much stirred up. And although this be a better way of Stopping than the other common way; yet that which follows is better then this, whereby the spirits are easily retained, the glasses being preserved, and without all danger of being broken. And it is thus, viz, get a glass pipe to be made

crooked according to the figure set down, into the belly whereof is quicksilver to be put from half an ounce to an ounce, or thereabouts, and let this pipe which bath a belly be put into the vial containing the matter to be fixed (as for example. A. the pipe with a belly, B. is the vial, and again C. signifies the aforesaid leaden cap with the neck of the vial D.) the joints whereof afterwards are to be covered over with lute, and the vial will never be in danger of being broken.

SEE THE FOURTH FIGURE.

These foresaid ways of stopping are the best, by which the breakings of glasses are prevented, viz. whilest men are in error about the fixing of spirits of salts, minerals and metals, which although they are fixed with great costs and labours, yet do not satisfie what is promised and expected, because those kinds of fixations are violent and forced, and by consequence contrary to nature: but in the profitable fixation of spirits, not so, where we must follow Nature, and not commit our selves to fortune in our labours. For only fools are wont to break their glasses in their supposed tincture; but Philosophers not so; for every VIOLENT THING IS AN ENEMY TO NATURE; and all the operations of Nature are spontaneous. They err therefore, and never shall come unto their disered end, who attempt violent fixations. I cannot be perswaded that bodies dead, or half dead can be so mixed as to multiply: but I could easily believe that the conjunction of male and female of one and the same species, sound and nourished with sound and wholesome meats to be natural, and to make a spontaneous propagation, and multiplication of their species; viz, of those that endure in a good, and adverse fortune, in

life, and death; but the conjunction of dead things, to be dead, and barren. Do but consider how many and various instruments both gold, silver, copper, Iron, tin, and lead; as also earthen, glass, stone, and other vessels of other materials have been already invented, and found out for the fixing of Mercury alone with gold and silver, but In vain, because they have no mutual affinity. For although Mercury adheres to metals, or metals to it, yet that is not by reason of any affinity for multiplication, or perfection sake: for it appears by experience that Mercury flies away in the fire, and leaves the gold, silver and other metals. Where it is clear that they have no mutual affinity requisite for the multiplication of metals, nor is it ever possible: For they that have a mutual affinity embrace one the other and abide together for ever, although volatile, yet never leave one the other, like gold and Mercury, when they are united together with the strongest bond, so that they can never be separated although with the strongest fire. Wherefore a great care is to be had in the fixation of things joined together; which if they have a mutual affinity, will embrace and retain one the other, without the help of any curious glasses with long necks. Of which things if thou art ignorant, abstain from medling with them, as being more hurtful then profitable, as dayly experience both mine own., and others do witness. But that thou mayst the better understand what things have a mutual affinity one with the other: attend a little to what I shall say.

Is not he to be laughed at for his folly who will pour rain, or common water on gold, silver, and other metals to fix them? See therefore

the unwise actions of many covetous Alchymists in so hard a matter, that spend their time in trifles, reaping according to what they have sowed, and at last leave off their work which they have undertaken, after they have expended much cost, and spent their labour in stenches, watchings, and cares. For I have oftentimes seen those, that although they have not chosen common water for their MENSTRUUM, yet have made choice of MAY-DEW, snow or rain gathered in MARCH, and water distilled out of Nostick, or excrement of Stars; vegetables and animals for their solvent, in which they have lost their labour.

For as the radical union of the aforesaid things with metals is impossible: so never is any good to be produced from thence, by reason of their difference. And such may deservedly be compared to those, who ascending a very high ladder that hath many steps, do presently endeavour to fly from the lowermost to the uppermost; which is a thing impossible; so neither can there be any conjunction of things that do so much differ. But as any one may easily ascend the highest step by degrees, so also any one may (which yet he need not do) join together extreams, by adding first a thing that is most near to one of the extreams, and then to this another next to it, and so by consequence, until you come to the other extream, which is a thing that requires a very long time, and is a work without profit. And if things be joined together that have the next affinity, the one will be delighted in the other, and the one will embrace the other, will overcome, and retain it. As for example, there is a certain salt, and that only, that can coagulate, and turn into a body like itself, even common water, which can be fixed in a very little

time, with, and by one only certain mineral, which is very volatile. Minerals also may be fixed by metals, and metals, (a thing which I never tryed) by a certain thing more excellent than metals, without all doubt. But therefore it is needful in the fixation of minerals to begin with the coagulation of water, whereby it is turned into salt; and this afterward into a mineral; which would be too tedious; but it is sufficient to begin in things most near, in which nature bath begun to operate, but hath left Imperfect; for then there is hope of gain, if contrary things are not joined together, else not. Behold how ready Nature Is at hand to help any thing that is administered to it, which it can help: as for example, make salt of calcined Tartar by the help of solution and coagulation (but do not take that for it, of which a little before mention hath been made, which is far better than salt of Tartar) of which after it is calcined, observe the weight; upon which afterwards pour half the weight of most pure rain water; distilled to avoid the suspit— ion of impurity; then draw off the water gently in BALNEO, or Sand, which again pour upon the remaining salt of Tartar, and again draw it off; this do so often as is needful, until all the water be consumed. Which being done, take out the salt, and weigh it, being first made red hot in the fire, and thou shalt find it to be Increased in weight, which increase in weight, which increase came from the water, and not elsewhere.

Note well that the cohobation of the water is to be reiterated often upon the salt of Tartar. Observe, that by this means, the water is convertible into salt by Art, & etc. And If thou dost not believe the

conversion of things material and corporeal, how wilt thou believe the conversion of things immaterial, as the Sun, and Fire into a material fixed substance; of which thing, something shall be treated in our Treatise of AURUM POTABILE, and more at large afterwards in a Treatise DE GENARATIONE, if God permit: For you must know that the circulation of the Elements, and things elementated, viz, how one is converted into another; and how they nourish and cherish one the other: as for example, the Earth yields Water, the Water Air, the Air Fire, and the Fire again Earth; which if it be pure, yields pure Earth. But that thou maist understand aright how any thing to be fixed, may be retained by another by reason of affinity, observe the following example. The Husbandman casting seed into the Earth for to multIply, doth not choose any Earth, but that which is convenient for multiplication, viz, an Earth that is neither too dry, nor too moist; for the Seed cast in sand cannot grow, but is lost: For whatsoever Is to be preserved, is to be preserved by an. equil temper; which by how much it is more equal or like, so much the more perfect substance it doth produce. Humidity therefore being necessarily requisite for the growth of vegetables, without which, they can neither grow, nor multiply, but the seed being cast into moist sand, and the Rays of the Sun acting upon the sand, and suddenly consuming the humidity thereof, whence follows the burning up of the seed in the dry sand, because there was no affinity betwixt the water, and Sand; without which, the water could not be retained by the sand, and consequently, the seed deprived of its nutriment; it follows necessarily, that some MEDIUM be required, or bond joining and binding

the rain, and sand, viz, salt, by the help whereof, the rain water is retained by the sand, that it be not so easily consumed by the heat of the sun.

The sand therefore retains the salt, and the salt, the rain water for the nutrition of the bud: but every salt is not convenient for this business; for although Christ saith, LUKE CHAP. 14., Verse the last, that earth without salt is barren; yet any common salt Is not to be understood thereby; (See more DE NATURA SALIIJN.) for some salts, as common salt, salt of Vitriol, Allome, & etc. do not only not do good, but do hurt to Vegetables, hindering by reason of their dryness their growth and increase. Now lixivial salts promote them that which Country men do better understand, than our supposed Philosophers: for they know how to help their barren ground with the excrements of Animals; which are nothing else but a lixivial salt, mixed with sulphur, making the earth fat and fertile. And by this means a VEHICtJLUM (rather a bond.) is administered to the rain water, that it may the less be consumed by the heat of the Sun. Moreover, all, seed (consisting in a lixivial salt and sulphur) loves its like, from whence it borrows its nutriment, which is observed but by a few Learned or Unlearned. HusbandMen may well be excused of their ignorance, because they work only out of Use and Custom, But others that bear the Title of Learning not so; whose Duty is to render a reason of Germination, who may deservedly be Ashamed of their Ignorance, being less knowing than Husband-Men. It is manifest, that Dung makes the Earth Fruitful; but how, and for what reason, not so; but if it did want nitrous salt, it would neither make

it Fertile, nor promote Germination: for It is not unknown, that Nitre is made out of the excrements of Animals. The goodness therefore of the dung consi&ts only in the lixivial salt contained in It, and not the straw.

But you will ask perhaps, why doth not any other salt help Germination? Why is the salt of dung required to Germination, and no other? We have already answered that, like are helped with like; and contraries are destroyed by contraries: For experience doth testify, that every seed consists in a lixivial salt and sulphur, and not in any acid salt; wherefore also it doth desire and embrace Its like. Let him therefore, that will not believe it, make tryal of the distillation of the seed of any vegetable; of which, let him force over a pound by a retort; and he shall see by experience, that not an acid spirit, but a flegm together with plenty of oil, and volatile salt whitening the whole Receiver, comes over; being that which no root or stalk can do; for the chiefest virtue, odour, and taste of vegetables, animals, and minerals is found in the seed, in which thing provident Nature hath done very well, whilest she attributes the chiefest faculties to the seed, being more obnoxious to injuries then the rest, which is also preserved, nourished, and cherished by its like.

Now this discourse which might otherwise have been omitted, was therefore appointed, that the cause of the germination of vegetables might be made the more manifest; and that what things have been spoken of the attraction, and fixation of all things might the better be under stood. The germination therefore, and multiplication of both minerals,

vegetables and animals must be spontaneous, and not forced, as is that barren and frustraneous of the false Chymists, because preternatural, Wherefore when you fix anything be cautious in the adding of any thing that should retain it, with which nothing can be fixed. Fire indeed doth always do its office; but it knows not how to help any preternatural thing; which It doth wholly destroy, agaInst which nothing can be prevalent, unless it be rightly ordained according to Nature.

And thus much is spoken for instruction sake, to thee that intendest to fix any thing, lest otherwise thou losest thy labour.

Of the making of the best crucibles,

The best crucibles that are requisite for the fourth furnace, not being found in every place, I thought it worth while to set down the manner of making them: for I am not ignorant how oftentimes many for want of these are constrained to be content with those that are useless, and truly with great loss of metals, whilest the crucibles are broken in the fire, and Consequently with a tediousness In drawing them out of the ashes.

Chymists have been in a great error a long time, and not only they but also goldsmiths, and they that separate metals, as also others that need the help of crucibles, who perswade themselves that the best earth that is fit to make the best crucibles is to be found no where but in HASSIA; and therefore with great charges have caused that Gibsensran crucibles be brought over; not considering that almost in every place

in Germany such earth is to be found, which indeed is a very great folly of men, proceeding from the not knowing of good earth which is to be found almost every where. I do not deny but that the earth of HASSIA is very good for crucibles, tyles, retorts, and other vessels, which are to be set in a very great Fire, for which cause also is commended Gibsenian, and Waldburgensian crucibles.

A few years since some have made their crucibles, and other vessels that will endure the fire well, of earth brought out of ENGLAND, and FRANCE into HOLLAND, which have retained metals very well in the fire, but not salts, because they are too porous and not so compact as those of HASSIA, wherefore those of HASSIA are still preferred before others, retaining better, metals, and salts. But although this earth be brought from thence to other places, yet such strong crucibles could not be made thereof, the cause whereof being not the constitution of the air, and place to which some have falsely imputed it, but an error in the making and burning of them. For in HASSIA there is a great abundance of wood, of which there is no sparing in the burning the crucibles even to the stony hardness, which could not be done by a small Fire of tursses.

The like error is committed about stone pots, and other vessels which are made at FREEBEMIUM and SIBURGUS, and other places near COLEN, which are carryed almost through all Europe, the goodness whereof is abscribed only to the earth, and not to the making. But now experience hath taught us that any good earth doth become stony in a violent fire, without respect of the place where it is taken. Wherefore it is very

probable, being a thing possible, that such vessels are made elsewhere: for every earth being burnt retaining a white colour, viz, with an indifferent Fire, makes pots, and crucibles porous, but with a stronger, and with a longer delay, compact like glass, especially if common salt be cast in a plentiful manner upon them, being burnt with a very strong fire, because it adds to them being very well burnt within an external glassy smoothness, by which means they will be the better able to retain spirits In the fire. Wherefore let no man doubt concerning the making the foresaid vessels of any other earth that is white in burning, with the help of a very strong fire: which by how much the greater whiteness it gets in burning, by so much the better and excellent pots it makes; and seeing there is a great difference of making crucibles to be set in the Fire, and of stone pots retaining liquid things, I shall shew the manner of making both, viz, of stone pots belonging to the first and second furnace, and of crucibles to the fourth, and thus it is.

He that will try the goodness of white and pure earth, viz, whether it grows stony in the fire, let him cast a piece of crude earth of the bigness of a hens egg into a very strong Fire, observing whether it doth quickly or slowley cleave and break in pieces; which if it doth not cleave and become powder, although it may have some cracks, is good earth, and fit for burning, if so be the mixture be well made, in which lays the art.

The earth that Is to be burnt, for pots, receivers, and bottles, needs no other preparation then that for bricks, which because for the most part it is too fat, you must mix with It clean sifted fusible sand,

tread it with your feet, and knead it with your hands before vessels be made thereof; which being made are to be dryed in the heat of the Sun, or in some other warm place; and being dryed are to be burnt in a very strong Fire for the space of twenty four or thirty hours, on which in the mean time you may cast salt if you please, which being thus burnt do like glass retain easily all liquid things. But let him that makes crucibles, tyles, bricks, and other vessels appointed for a very strong Fire, use more diligence in the making of them. And truly first he must beat very small with a wooden hammer, the earth being dryed well in the Sun, or elsewhere, and being beaten searse it through a great searse, and to one part of the sifted earth mix two, three, or four parts (the fatness of the earth being considered) of the earth burnt in a potters furnace, and powdered, which being mixed with a sufficient quantity of water he must tread with his feet, and afterwards knead with his hands, and the earth will be prepared for the making of vessels, and when he makes crucibles and tests, let him provide for wooden moulds both greater and smaller, made in a turn, by the help whereof they may be made, for the aforesaid vessels cannot be formed by the usual art of the potters; because the matter of them must be very lean, appointed for a most strong fire; wherefore commonly they are made by the help of moulds after the following manner.

Let a piece of the prepared earth be applyed with your hands to the mould, which you must hold in one hand, applying and fitting the earth thereto with the other, or hold it with your legs, that the earth may be applyed with both your hands. Also you must first rub the mould

very well with clean sifted sand, for else the earth will so stick to the wooden mould, that a crucible can scarce be taken off without danger, which being done, it is further fitted by striking It with a wooden instrument smoothed for the purpose, by which means the crucible lyes very exactly upon the mould, for by this means crucibles are made very strong; which being done also let the crucible be taken off, and set upon a board, and be dryed, first in the air, then by the heat of the fire, or sun, and then be burned in the first chamber of our fourth furnace, or In a potters furnace, And if you intend only to melt metals and not salts, you need not burn the crucibles if they be well, and exactly made.

Now this caution is to be observed in melting by the help of crucibles not burnt, that you must give fire above by little and little, for fear of breaking the cruclbles feeling a sudden heat.

Now that they may be made equil in strength, weight, and thickness, you must weigh one crucible rightly made by the help of the mould in one scale, and a piece of the prepared earth, which is to be put into the other scale, and if they be equil in weight, take that piece out, and put in another; and this do so often, till you be come to the number of the crucibles which you would have made: By this means they are made equil, and you need not cut off any overplus of the earth when it is fitted to the mould, because all are made equil by reason of the equil weight of the matter of each of them, and the work is sooner done then otherwise,

This is indeed Is the best way but tedious and laborious, wherefore

considering the matter a little more seriously, I found at last that the following way is far better than the former: whereby not only stronger crucibles are made, but also more in one hour, then In that former common way in three or four. Where first, the mould Is made of latten (on which I advise you to apply the earth) signified by the letter A. viz, that being the best, which is made by the help of fusion. Then the counter—mould answering this, signified by the letter B. yet so that that do not enter too deep into this, not touching the bottom by the distance at least of one fingers breadth; but in greater crucibles a greater thickness of the bottom Is required, as the practise will teach thee.

Let him therefore that is making cruclbles apply the earth to the mould, as hath been above said In the First manner, which being done, let him again take off the crucible that is formed or cast, and set it in the air to be dryed. Then having First made a sufficient number of crucibles, let him make the mould clean from the earth or sand, and annoynt it with grease, or oil Olive taken up with a sponge, as also the counter—mould into which let him put the crucible being half made and dryed, and into this mould, which he must strike above twice or twice or thrice with a heavy wooden mallet, that the earth may be rightly, and exactly applyed to the mould; which being done let him take off the mould, and turn the countermould together with the crucible, which let him knock a little against the form (where the crucibles are made) and let him take in his hand the crucible falling from thence: which he must afterwards dry and burn, as bath been abovesaid in the first manner.

And by this way are made the best, and the best proportioned crucibles, Fixed and smooth, not only for melting of metals, but also for minerals and salts; the like to which I never yet saw, as being without all danger, if so be rightly made of the best earth, And that they may be made equil in weight and strength, they must be weighed as before bath been said, And this labour is easie and pleasant, when they are made with ones own hand, and that greater or lesser at pleasure.

After the same manner also are made tests, viz, by the help of the like kind of moulds, which must not be long but plain like shells as appears by the annexed Figure. A. and B. Not only tests but also cuples are made by the help of these moulds, (See the fifth and sixth figures).

Now tests are made more easily this way then crucibles, because the earth only weighed, and being handled with the hands is put into the counter—mould, which you must with the upper-part press hard; that it may be made conformable to the mould, viz, plain, not long, that which may easily therefore be made; and for this cause those crucibles are easily again taken out, viz, if the mould be turned, or the counter-mould be a little knocked against the Bides of the form. And if the earth be beaten intoo fast that it goes out at the sides, you must cut it off with a knife, or else the crucible, or test is hardly taken out, sticking to the brims, which practise will teach thee. For all things cannot be so accurately demonstrated by a pen.

And take this for a caution, that thou doriot make thy tests and crucibles of earth that is too soft, but of that which is half dry, otherwise they are hardly taken out of the moulds; for that is more

easily and rightly applyed to the mould. And if thou proceed rightly according to the prescript, scarce one crucible of a hundred will be lost.

This also is to be observed, that the superfluous earth which is cutoff must not be mixed again with the mass for crucibles, because it is spoiled with the fat, or oil that is smeared over the moulds, and therefore cannot be so well mixed again, and being burnt cleaves, for which cause bad crucibles are made. Wherefore it is to be kept apart for mending of furnaces that are spoiled with an extraordinary beat of the Fire; or for covers of crucibles that are to be made by the help of the hands only, or of moulds, which we cannot want, if we would work all things exactly.

Now for tyles, and other vessels that serve for distillation, and melting, they are made by the help of wooden moulds after this manner. Let the mould be made exactly like to the tyles, and other vessels, then cut off leaves from the earth being very well prepared, with a copper wire upon two equil tables of wood, and then a piece of the earth is to be laid with a knife upon the mould, that It may there get some hardness; which afterward is to be taken away, dryed well, and burnt. And if any thing further is to be done, viz, by cutting off, or adding, it must be done by earth half dryed, or a little hardened. For by this means any one may get for himself earthen vessels that are necessary, without much cost or pains for certainty sake. For those that are sold, are negligently made, in which oftentimes in the drying, the cracks which are made, are filled up with some earthen liniment, before they

are burnt, which therefore are not durable in the fire, but are broken, and that oftentimes not without great loss of the metal, which is again to be gathered out of the ashes by the help of a tedious washing. It is better therefore to work those vessels with ones own hand for certainty sake. For not all and every crucible can always and every where be made equil, andbe of a like durableness in the Fire, though they are made most diligently: and therefore a consideration being had of their goodness, they may be used for divers uses, and the better may be used in the melting of the better metals, But let no man perswade himself that all these can indifferently hold in the Fire, although they be the best of all, how many soever you make; for I never yet saw any earth which could hold litharge in the Fire and salt of Tartar, because the best that ever I saw is not free from penetration of them, which is the greatest impediment of some profitable operations, which therefore are omitted.

And let this which bath been spoken, suffice concerning the making of crucibles: let every one therefore that bath a care of his business, use better diligence for the time to come in the making crucibles for more certainty sake, and he will not repent of his labour. Now how Tests and Cuples may be exactly applyed to the aforesaid Molds, is not my work at this time to shew, because many years since it hath been done by others; especially, by that most ingenious Man, LAZERUS ERCKER, whose writings concerning the manner of making of Tests and Cuples I cannot mend, to which Authors I refer the Reader, where he shall find sufficient Instruction and Information concerning this matter. But

there are also other Tests, of which I shall say nothing in this place, but elsewhere happily I may, by the help whereof, lead is bettered in tryal if it be sometimes melted again.

Of the vitrification of Earthen Vessels belonging to the first and second Furnace.

In the defect of glass Instruments belonging to our first Furnace, you may make such as are very useful, of the best Earth, which being well glazed, or double glazed, are sometimes better than old Glass; especially, those that are made of Earth that do not drink up the spirit, such as is found almost every where, which becomes stony being burnt:

Now the Art of burning hath not hitherto been so well known, of which something hath been said already, where the Earth being burnt with a very strong fire, is made so compact, as that it becomes hard and solid as a stone. The Potters Furnaces being too weak for this strong burning, there is required, a peculiar Furnace for this Work; in which, the strongest fire for this Work; in which, the strongest fire for the burning of them may be made: But because no body thinks to build such an one, only for some few Vessels not worth the spending of costs and labours: there is yet another way of vitrifying of any sort of Earth (red Clay only excepted) not to be slighted if well done; especially, if the matter vitrifying when it is cold after the burning is ended, doth not cleave and chop, and it is not hurt by corrosive spirits as the glass made of lead, retaining spirits, as well subtile as corrosive, as that

white vitrification of the ITALIANS and HOLLANDERS: you must therefore in defect of a fitting Furnace, wherein Vessels being burnt become stony, make them of the best Earth, and glaze them with the best Glass of Tin, but not of Lead; and by how much the more the calx of Tin goes into the vitrifying mixture, so much the better is it made; for Tin being reduced into a caix with Lead, hath no more affinity with corrosive spirits; wherefore it is more fit for vitrification, But he that will not be at so much costs, let him vitrify with Venice Glass powdered, which vitrification also is not to be slighted, requiring a very great heat for the burning, and therefore flowing with great difficulty in these common Potters Furnaces; wherefore you must mix some Borax with the Glass, that it may flow so much the more easily in the Potters Furnace; else you must pour upon the earthen Vessels being burnt, Water mizt with Glass, so that the Glass may stick to them every where exactly, which afterwards being well dryed, shall be gathered together into one heap artifically, lest they take up too great a space, like earthen Dishes that are to be burnt, and afterwards compass them round about every where with burnt Bricks, an hole being left open above for the casting in of coals, yet so, that the Bricks be distant from the Vessels the breadth of an hand, whereby the coals being cast above, may the more freely go round about down to the bottom; which space being filled with dry coals, you must put upon them other living coals, that the fire being kindled above, may by little and little burn downward and perform its work; which being done, the Vessels will be out of all danger, if so be they are all well dryed.

The fire being kindled and burning, you must cover the hole with stones, until the fire of its own accord be extinguisht; the coals being spent and the vessels become cold.

N. B. Now if there be a great heap of vessels, you must first, the coals being burnt, add fresh coals once more; for else the vessels being placed in the middle, cannot be sufficiently burnt, nor the glass sufficiently flow; wherefore caution is required in the governing of the fire in this manner, where, if all things are rightly done, the vessels are better and more truly burnt and vitrifyed than in any common Pbtters Furnace whatsoever; yet with greater danger to the vessels than in a Potters Furnace compassed about with walls. But let him that burns crucibles and other smaller vessels, burn them in our melting or distilling Furnace, be ing covered with coals, giving Fire first above, for so I my self was wont hitherto to burn all my crucibles, arid burn and glaze all other distilling vessels; and this in defect of fitting Furnaces is the best way of burning and vitrifying, where in three or four hours space, the vessels are exactly burnt and vitrifyed. Now the earth that is to be burnt quickly, must be the best, and durable in the Fire, for fear of breaking of some of the vessels. Let him therefore in this case for security sake, use our fourth Furnace, who hath built it with his chambers, in the first whereof he may burn and vitrify without any danger. But that foresaid way of burning and vitrifying, is not to be slighted, wherefore I would have thee be admonished to be cautious in giving of Fire, that you give no more or less than you should, lest afterwards you impute the cause of your error committed,

to me, whilst the vessels are broke, as if I had not wrote the Truth, but to thy self that errest, and must for the future be more diligent, and cautious in this work.

I know other vitrifications of divers colours hitherto unknown, and indeed most secret, not to be communicated to every one indifferently: but he that knows how to reduce metals into a true glass, retaining the colour of Its metal, is indeed the inventor of a very great secret; to whom, if he consider the matter more profoundly, and exercise himself therein, a Gate is open, with the blessing of God, to a greater light.

There are also other vitrifications, with which the earth being covered doth appear, as if it were adorned with Gems; but because it is not our purpose now to treat of such kinds, I shall make an end of vitrifications, one only excepted, which I shall communicate for the sake of the Sick, and Physicans; and it is this:

Make little earthen Cups very smooth and white of the best earth being burnt: then make the following glass to flow in a very strong crucible, in which dip one cup after another, being held with tongs, and first made red hot in some little Furnace, letting them lye covered therein for a while, that the earth may the better attract the glass; which being done, let them be taken out, and be set again into the foresaid collateral Furnace, where they were before made red hot, when one is taken out, dip another in the molten glass in its place, which also is again to be set as the first into the foresaid Furnace; and this is to be reiterated so often, until all the pots be covered over with glass: all which being done, the Furnace is to be shut close every where, that

the wind enter not into it, and so it is to be left until it become cold of it self, and the glass covering over the cups remain entire, which otherwise cannot be if the cups be set in a cold place; now the glass is made after this manner.

Take of crude Antimony two parts, of pure Nitre one part; grind them well being mixt together, kindle the mixture being put into a crucible with a red hot iron, and the Sulphur of Antimony will be burnt together with the Nitre, a mass of a brown colour being left behifld, which you must take out while it is hot with a spatle that It may cool, which afterwards being melted in another strong crucible for the space of half an hour, or an hour, makes that glass with which the aforesaid cups with their covers are covered over.

Of the use of the aforesaid Cups.

There is no one that can deny that Antimony is the most excellent of all vomitives, wherefore, so many and so various preparations have been invented by Physicans for the taking away of the malignity thereof; whereof I have shewed some, together with the use thereof in the First and Second Part of this Book, where always one is better than another; yet notwithstanding ‘Tis confest, that Antimony reduced into Glass, is sufficient to purge the Stomack and Bowels from all corrupt Humors, and that without all danger, (being rightly administered) as well by vomit as by stool, by which means many grievious imminent Diseases are not only prevented, but also presently cured.

But you Infer, that this is yet a crude and imperfect preparation, and therefore not so safe. To which I answer, that Antimony that purgeth, needeth no preparation, for if all the crudity thereof were wholly taken away by fixation, it would no more cause vomiting or stools, wherefore the aforesaid glass of Antimony, is not to be feared, because it is not dangerous, but may safely be given to Children that are one or two years old, but not in form of a powder, but in infusion or extarction of its chiefest virtue made with honey, sugar and wine, sweet or sower. After which manner being given, it attracts from all the bowels all vitious humours, and evacuates them as well upward as downward, without danger; of which thing elsewhere more at large. Let him that useth the aforesaid Cups, infuse one or two ounces of wine, and set them a whole night in some warm place, and the wine will attract from the glass so much as doth suffice it, which afterwards being drank in a morning, doth perform the same as an infusion made with the powder of Stibium; and this is a more delicate way than the other, because a Cup is sent to the Patient that he may infuse in it the space of a night, two or three spoonfuls of proper wine, placing it in some warm place, which he may drink up blood warm in the morning, with a due ordering of himself afterwards: Which, in my judgement is a more delicate way, being made with ones own wine, and ones own hand, than that tedious way of potions, both large, bitter, and nauseous. And this Cup may oftentimes be used, and if at length the wine should not attract sufficiently, the Cup with the wine is to be set in seething hot water for a little time, that the wine might the better attract, and work, when need shall require.

Now he that gives such kind of Cups to others, must Instruct them concerning the ordering, and administring the same. One Cup is sufficient for the Master of a Family, with his whole Family for all the days of their life. It is not to be used by all, and every one, and in all Diseases indifferently,, but only by those that are strong and young; and where the principal parts are not hurt. Cups may also another way be covered over with Glass without Antimony, as follows.

Sublime AURIPIGMENTUM, In a Glass or Earthen Gourd; and take the gallant golden coloured Flowers thereof, which being after a peculiar manner melted, yield a red and most beautiful Glass almost like an Oriental Ruby which being broken in. places, may be used in stead of an Ornament; but this is more soft, and brittle, than Glass of Antimony. This Glass, or those Flowers of AURIPIGMENTUM, which are not yet reduced into Glass, do notably glaze the aforesaid Cups with a red beautiful Colour.

Re therefore that will vitrify the foresaid Cups, must first heat them red hot in a Fire made with Coals; and being thus hot, dip them in the aforesaid melted Flowers, and being taken out thence, put them under an earthen, or Iron hot vessel, and there let them cool; which do perform the same things as those which are said of the Antimonial Cups.

These Cups are not dangerous, as to be feared, because as Antimony is corrected by calcination, so AURIPIGMENTUM is by sublimation: from which if all the malignity be taken away either by Fire, or by nitre, the vomitive virtue is taken away, as afterward shall be demonstrated more at large in these five parts, when they shall come forth again

with enlargements, viz, what purging things are, and how they put forth their virtues, a consideration being had of their malignity.

There are also other ways of vitrification, and indeed very fine, and most desireable by all, if they should be communicated; but because it is not now my purpose to treat here of mechanical things, but only of some particular vitrifications of vessels belonging to our furnaces, I am resolved to omit them at this time, and make an end of these things. I am resolved, God willing, to set forth these parts more corrected, and in a larger manner, where many excellent things now omitted for some reasons, shall be published, and communicated.

Wherefore I will now put an end to this fifth part, where although I might have added something that is singular concerning artificial furnaces, yet because time will not now permit, it shall be deferred to another time and place, where we shall treat further of the examining, trying and separation of metals: For the best way of melting of metals in a greater quantity hath not yet been known: And although they that deal in minerals perswade themselves of the perfection of their art, yet I can demonstrate an easier, and more compendious way of melting of metals in a shorter time, in a greater quantity, and with less costs and pains. Of which more at large elsewhere, wherefore (Courteous Reader) be contented with these things, and if I shall see that these few things be acceptable to thee, I will sometime hereafter for thy sake and to thy profit communicate WONDERFUL SECRETS which the world will not believe, and which hitherto are hid, either out of envy or ignorance.

FINIS.

AN
APPENDIX

Two years since I began to publish my new invented furnaces where also there was mention made of some secrets, which though I thought never to divulge; yet nevertheless I underwent many troubles for the communicating of them. Wherefore I beseech every body that they would no more create troubles to me or to themselves by their petitions or writings, because for certain causes I shall for the future communicate nothing but those things which follow. Expect therefore patiently the time of another Edition, when these five parts shall come forth more corrected and enlarged, and many most choice secrets shall be communicated, which were for certain causes omitted in the first Edition.

I shall now God willing communicate those things which follow, yet upon this condition (because many are such, that by means thereof thou maist with a good conscience, without hurt to thy neighbour, through Gods blessing, get great riches) that thou be mindful of the poor, and a good steward of riches got honestly, and use them to the glory of God and the eternal salvation of thy soul.

The preparation of corn, as of Barley, Wheat, Oats, & etc. of Apples, Pears, Cherries, & etc. where fermentation being made they do yield by way of distillation a pure spirit very like to the spirit of wine without great costs; of the remainders whereof if the matter were corn, may be made good beer, or vinegar; but if the matter were any kind of

fruit, as apples, pears, a very good drink like to wine, so that by this means thou maist find a double profit, by which thou maist not only have whereby to live honestly, but also to lay up for thy heirs.

An excellent and wholesome drink of fruit, and corn, that Is durable and like to Spanish, French, and Rhenish wine.

A distillation of the AQUA VITA of certain vulgar things not costly and like to the AQUA VITA of French and Rhenish wine.

A prepararatlon of sugar like to the Western, and of tartar like to the natural Rhenlsh, out of honey and not costly; where one pound of sugar doth not exceed the price of eight or ten stivers, and a pound of tartar, that doth not exceed the price of two stivers.

A peculiar purification of crude tartar without loss, and a reduction of it into great crystals not costly, so as the price of one pound doth not exceed six stivers,

The taking away of the ingrateful taste and odour of honey so as afterwards there may be made from thence a certain good AQUA VITA retaining no more the smell and taste of honey: also a very good Mead or Methagline like unto very good wine, with which the same things may be done as with the best wine.

A preparation of Mead out of rasions, great and small, very like in all things to Spanish wine; out of which also is made a very good vinegar without great costs,

A preparation of wine and good vinegar of wild grapes.

Durable and wholesome drinks of gooseberries, barberries, strawberries, and the like.

The mending of troubled acid musty wines, & etc.

The preparation of a very good vinegar out of certain vegetables which are to be found every where, which may be compared to that which comes out of France, and in a great abundance, whereof two rundlets of mine Gallons do not exceed the price of one Royal. (A Royal or Imperial is 41. 6 d.)

The promoting of the ripening of wines of the cold countries of Europe (a very few that are very cold being exempted) that they may yield very good sweet and durable wines, whereas otherwise they could come to no maturity, being very like to those which hotter countries yield.

A certain secret way of carrying wines from mountainous places, where carts, ships, and other commodities are wanting, where the carrying of ten pipes, doth not exceed the price of one pipe otherwise carryed, so that by this means, outlandish wines may be brought to any place with great profit.

A very good and easie preparation of verdegrease out of copper, whereof one pound doth not exceed the price of six stivers.

A new and compendious distillation of vinegar, of which a rundlet of eighteen gallons doth not exceed the price of half a royal, with which many things may be done, especially the crystallizing of verde-grease, of which one pound prepared after this manner, doth not also exceed the price of half a Royal.

A compendious and very easie way of distilling a very strong spirit of urine, and that without any cost and pains, so that twenty or thirty

pints shall not exceed the price of one royal, being very excellent in medicine, Alchnteny and Mechanique affairs, by the help whereof a most beautiful blue vitriol may be made out of copper, being very profitable in Alchemy and medicine, making silver so fusible, that by the help thereof, glass vessels, as basons, dishes, and candlesticks, & etc. may be so guilded as to be taken for silver.

A way of distilling the spirit of salt in a great quantity, and that with small costs, so that one pound thereof will scarce exceed the price of six stivers being very excellent In Alchemy, Medicine, and other Arts; especially for the doing of these following things, viz. the separation of gold from silver without hurt to the Cups or other things, also the solution and separation of gold mixt with copper and silver by the force of precipitation, where the MENSTRUUM that is preserved, may again be used for the same uses, which separation is the easiest of all other humid separations, whereby gold is reduced to the highest degree.

The separation of volatile sparkling gold out of sand, & etc. very profitable, without which otherwise it could never be separated, neither by the help of Washing, nor by Mercury, nor by the force of Melting.

An artificial secret, and hitherto unheard of, trying of stubborn Metals, finding out their Contents, which otherwise could not be found out: for oftentimes there are found golden mines, which are stubborn, in which nothing is found out by the common way, and therefore they are left unlaboured in, and sometimes elsewhere, where there are not found Mines of Metals, there are found other things, as white and red talc,

404. that yield nothing, being tryed the common way, or very little, all which yet abound with gold and silver, which may be separated this way.

A new and unheard of compendious way of melting Mines in great plenty, where, in the space of one day, by the heat of a Certain separating Furnace, more may be melted than by the common way in the space of eight days, where not only costs are saved, but also is hope of greater gain.

Another way for the better proving of things melted, and a new way of separating silver from lead.

A very speedy way of melting Minerals, whereby they are melted in great plenty, by the help of Pit—coals in defect of other coals.

The fixation of Minerals, Sulphureous, Arsenical, Antimonial; and others that are volatile, which cannot be retained and melted by the force of fire, by the help of a certain peculiar furnace with a grate, so that afterwards they may by infusion yield gold and silver.

The getting of gold and silver, that sparkles, and is rarified, out of sand, pure clay, flints, & etc. by the help of melting.

The separation of gold lying hid in baser minerals and metals most profitable, which cannot be done the common way.

A very quick Artifical and easy separation of melted gold and silver by the help of fusion, so that in the space of one day, by the help of one furnace, some hundreds of Marks may be separated with far less costs and labour, than by the common way by cement and AQUA FORTIS.

The reduction of elaborated gold, of chains and other ornaments into the highest degree; also the separation of gold from guilded silver, by the help of fusion, by which means a hundred marks are more easily separated than twenty of the common way.

A certain way whereby more silver is separated from lead then by the Copper.

A separation of good gold from any old iron, which although it be not a labour of great gain, yet It is sufficient for those who are contented with a few things.

A separation of gold and silver, from tin or copper, according to more or less. The maturation of mines, so that they may afterwards be able to yield more gold and silver, then by the common way, also the separation of gold and silver out of Antimony, Arsenick, and AURIPIGMENTUM,

The separation of the external sulphur of VENUS, that the Son CUPID may be born.

The separation of silver from the cuples, into which it enters in the tryal without melting or any other labour or cost.

The preparation of divers earthen things to be done in any part of the world, like to the Porcellan, that hold fire and retain spirits.

A certain Allome exalting and fixing any colour, especially requisit for scarlet and other precious colours, with a certain perpetual cauldron, that doth not alter colours, and is not costly.

A making of colours for painters, as of purple gum, ultra-marine, not costly, and especially of that rich white, never before seen, like to Pearl and Margarjtes; also a peculiar colouring of gold and silver.

To conclude, I refer the Reader unto the Residue of my Books, that treat of those Secrets more plainly; which I am resolved shortly to put forth.

Those Secrets are all openly taught in the following Treatises, as in the Explication of Miraculum Mundi, Apology against Farner, Prosperity of Germany, & etc.

FINIS.